BABES-BOLYAI UNIVERSITY

Doctoral School of Economics and Business Management

Faculty of Economics and Business Management

FINANCE DOMAIN

Determining the risk of fraud and bankruptcy through a composite model

SUMMARY OF THE DOCTORAL THESIS

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Abstract

This thesis, entitled Determining the risk of fraud and bankruptcy through a composite model, reflects our interest in the field of finance. This PhD thesis aims to make a significant contribution to the existing literature in this field by addressing both the theoretical and practical aspects of financial reporting fraud, earnings manipulation techniques and their consequences, bankruptcy.

By presenting a solid theoretical foundation and developing relevant case studies, this thesis focuses on deriving a composite model that allows the concurrent testing of fraud attempts and bankruptcy risk. This main objective is founded on a thorough understanding of existing theories and practices in the field of financial reporting and risk management.

Our theoretical approach and the literature presented in the thesis serve as a solid support to achieve our main objective. Through an empirical study conducted on a sample of 66 companies, applying the Beneish model, companies were classified into two categories: fraud-prone and non-fraud-prone.

In the second case study, the correlations between the Altmann, Conan Holder, Taffler, Anghel, Anghel, Robu Mironiuc bankruptcy scores and the Beneish fraud score were tested. Only three bankruptcy scores (Altmann, Robu-Mireniuc and Conan Holder) and the fraud score remained in the analysis. After testing, the most significant variables were selected and the Safta-Achim model was developed.

This research is intended not only for the academic community, but also for practitioners in the field of finance and accounting. Researchers and all those interested in the transparency of financial statements will find in this thesis valuable information and new insights. This work also aims to provide practical tools and methodologies for the detection and prevention of fraud and bankruptcy risk in companies.

In conclusion, Determining the risk of fraud and bankruptcy through a composite model represents the understanding of the management of fraud and bankruptcy risk phenomena in the financial domain. This thesis has the potential to improve financial management, contributing to increased transparency and integrity in financial reporting.

Keywords: performance management; financial fraud; composite model; bankruptcy; Safta-Achim score; Beneish score.

Introduction

In recent decades, the concern for fraud detection and bankruptcy risk assessment in the financial sector has increased significantly. These issues have become increasingly relevant in the context of a complex and constantly changing global economy. Thus, this PhD thesis explores this topic and makes a valuable contribution to the understanding and management of these risks.

Fraud and bankruptcy risk are serious issues with significant consequences in the business world. Every year, many companies are affected by fraudulent behavior or face the threat of bankruptcy, which can have devastating impacts on shareholders, creditors and the economy as a whole. Against this backdrop, rigorous and detailed research into fraud detection and bankruptcy risk assessment is essential to develop effective strategies to manage these risks.

The link between financial fraud and bankruptcy risk is positive and statistically significant. Essentially, financial fraud can increase a company's risk of bankruptcy for a number of reasons, including direct financial losses and the management and governance problems it generates. Financial fraud can lead to direct financial losses through misappropriation of funds, falsification of accounting documents or other illicit activities that affect the company's financial resources. These losses can reduce liquidity and working capital needed for day-to-day operations. Financial fraud is often a symptom of governance and management problems. Lack of adequate internal controls and an organizational environment that tolerates unethical behavior can perpetuate additional risks and lead to poor business decisions.

In short, financial fraud can have devastating consequences for a company, accelerating its path to bankruptcy. Prevention and early detection of fraud are essential to maintaining the financial health and operational stability of an organization.

By identifying and preventing fraud and the risk of bankruptcy, such research can help maintain confidence in the financial market and protect the interests of investors and creditors. In addition, by developing effective strategies and tools to manage these risks, we can support the stability and sustainability of the business environment, having a positive impact on economic and social development.

Each user of accounting information has its own interests and objectives, and accounting rules and standards provide some flexibility to meet these specific needs. However, sometimes this flexibility can be exploited in a way that serves private interests at the expense of the public interest. In practice, accounting regulations can be manipulated or interpreted in ways that benefit particular stakeholders or present a distorted picture of an entity's financial situation. Thus, instead of serving their original purpose of ensuring the transparency and relevance of financial information for all users, accounting regulations may be used to promote individual or group interests. This phenomenon highlights the importance of appropriate accounting oversight and regulation to ensure the integrity and credibility of financial information, Groșanu (2013).

Analyzing the information contained in financial statements is a key issue in today's economic environment, both in the private and public sectors. Financial statements underpin efforts to combat fraud and develop appropriate strategies for fraud prevention. The detection models and techniques used in the literature are mainly based on the information provided by the financial statements filed by companies over a given period of time.

However, we observe a lack of studies that focus on the calibration of existing models for companies listed on the Bucharest Stock Exchange over a period longer than two years, as well as the absence of research that simultaneously addresses both financial statement manipulation and bankruptcy risk. Therefore, the main purpose of this research is to fill these significant gaps in the literature.

The doctoral thesis entitled *Determining the risk of fraud and bankruptcy through a composite model* lays a solid foundation in the field of economics and finance due to its implications for managers, policy makers, researchers and also for the general public due to the fact that it addresses a particularly topical and relevant issue in the contemporary economic environment.

The motivation behind this choice is reflected in the growing importance of these phenomena in the dynamic economic environment and the need to research effective tools and methodologies for their detection and prevention. Financial reporting fraud and manipulation of results constitute significant challenges for organizations, investors and other stakeholders, with the potential to seriously affect the integrity and transparency of financial information. In this context, investigating these phenomena becomes imperative to ensure financial stability and sustainability.

Thus, the aim of this thesis is to examine the extent to which companies listed on the Bucharest Stock Exchange use financial statement manipulation techniques and to develop a model to identify them, while assessing the risk of bankruptcy. This approach will be realized by using tools and methodologies such as the Beneish model and Robu Mironiuc, Altman, Taffler, Conan Holder, Anghel bankruptcy scores. This approach is justified by the numerous examples in the literature that demonstrate the impact of these practices on the long-term financial situation of companies.

Following the detailed analysis of the literature, we identified that there is a correlation between fraud, bankruptcy and earnings management, which directed our attention to the need for a more detailed analysis of scientific articles, thus we identified some gaps, such as: the lack of studies between the Conan-Holder bankruptcy score and the Beneish, Taffler and Beneish, Robu-Mironiuc and Beneish fraud score, even though they are analyzed individually in numerous articles. There are, however, few studies that investigate bankruptcy and fraud score simultaneously. All the aforementioned have laid the groundwork for the empirical studies conducted in this paper, thus outlining the objective of this thesis.

The overall research objective of the thesis is to obtain a model that allows the simultaneous testing of fraud attempts and bankruptcy risk. The study presents an analysis of the phenomenon of financial reporting fraud and manipulation techniques, while providing tools and methodologies for the detection and prevention of these practices. This approach derives from the premise that there is a subtle interconnection between these two phenomena and that not all companies that resort to fraudulent practices will go bankrupt, and vice versa. Through this dissertation, an in-depth understanding is provided of how entities can distort or influence financial information in order to gain advantages or fulfill specific goals.

To achieve this overarching research objective of the thesis, we conducted two distinct empirical studies.

The first study consisted in the application of the Beneish model on a sample of 66 companies, with the aim of identifying the most significant indicators in this model and assessing their influence on the model as a whole. This allowed us to identify the main aspects that may indicate the existence of manipulation in companies' financial statements.

The second study aimed to investigate the correlation between bankruptcy scores and the Beneish model. We tested this correlation and identified the most significant elements in each model. The final goal was to develop a Safta-Achim model, able to detect both fraud and bankruptcy risk at the same time, based on the most relevant elements and indicators identified in our studies.

Specific research objectives of the PhD thesis are:

- To identify methods, both quantitative and qualitative, to manipulate financial fraud and bankruptcy risk. This will allow us to better understand the diversity of techniques used in manipulative practices and to identify red flags that might indicate the existence of these phenomena.
- Assessing the effectiveness of the Beneish model in detecting financial fraud in the financial statements of companies listed on the Bucharest Stock Exchange (BVB). This model was applied on a restricted sample of companies to examine its ability to identify potential fraudulent practices.
- Exploring the correlations between the Beneish score and various bankruptcy risk scores, such as the Altman model, the Conan Holder model, the Taffler model, the Robu Mironiu model and the Anghel model, in companies listed on the Bucharest Stock Exchange (BVB). This approach will help us to understand the connections between the risk of financial statement manipulation and the risk of bankruptcy and to identify the possible interdependencies between these aspects in the specific context of the Romanian financial market.
- Using an appropriate statistical methodology, we will build an empirical model based on the most significant indicators identified in each tested model and determine their coefficients. We will validate the empirical model using various validation techniques to ensure that it is robust and can be confidently applied to another sample. Model validation is crucial to ensure the reliability of the results obtained. By following these steps, we will develop an empirical model that is able to effectively identify and assess the risk of financial statement manipulation and bankruptcy risk in companies listed on the Bucharest Stock Exchange.

The proposed research addresses both:

- Academia - as it is an interesting research topic for academics in the fields of finance, accounting and economics and the information provided could be integrated into academic programs;
- Practitioners - because a fraud and bankruptcy score is a valuable tool in analyzing and evaluating companies' financial statements;

- Investors and shareholders - provides crucial information for assessing investment risk and assists them in making decisions about owning shares in a company, given the potential risk of fraud and bankruptcy.
- Creditors and various financial institutions. For these users, a fraud and bankruptcy model is essential in assessing credit risk, enabling them to identify companies or individuals at high risk of loan or debt default.
- Internal management - could serve as a tool to monitor the financial health of the company and help identify potential problems or risks before they become critical. This would allow managers to take preventive or corrective action to protect the company against the risks of fraud or bankruptcy.
- Employees - gives them insight into the company's financial stability and the risks associated with their job. In a company with a low fraud and bankruptcy score, employees may be more confident in their job security and career growth prospects.
- Suppliers and trading partners - could provide suppliers and trading partners with information about the default risk associated with a company. They could take action to protect their interests or to negotiate more favorable terms in business relationships.
- Regulators and government authorities - it could serve as an oversight and regulatory tool, helping them to identify and investigate potential fraudulent practices or risks of failure in the economy.
- To the general public and local communities - increase their transparency and trust in the business environment by providing information on the financial risks associated with various companies. This information could help the general public and local communities to make more informed decisions in their dealings with companies or personal investments.

The originality of the doctoral thesis.

This doctoral thesis proposes an original and comprehensive approach in the development and testing of a model of the risk of fraud and food in companies. Here are some aspects that highlight the originality and relevance of this thesis:

1. Integration of multiple fraud risk assessment models: The proposed approach integrates and compares several existing fraud and bankruptcy risk assessment models, such as Conan-Holder model, Beneish model, TAFLER model, Anghel model, Robu model . Mironiuc and the Altman model. Integrating these models allows the most relevant and meaningful elements from each to be identified and used, thus contributing to the development of a more robust and accurate model.

2. Testing and validating the models: The thesis proposes an exhaustive testing of existing fraud and bankruptcy risk assessment models in a specific context, using relevant financial and non-financial data. This testing and validation will provide a deeper understanding of the effectiveness and accuracy of each model in identifying companies with potential for fraud.

3. Creation of a model: Based on the results of the tests and analyzes carried out, the thesis proposes the creation of a fraud risk assessment model, called "FrauFli". This model will integrate the most significant and relevant elements from existing models, such as elements from the Beneish, Conan-Holder, Altman and Robu Mironiuc models, to provide a more efficient and accurate identification of fraud and food risk in companies.

4. Practical applicability and relevance: The thesis focuses not only on the theoretical aspects, but also on the practical applicability of the obtained results.

5. Contribution to the development of knowledge and practices in the field: By integrating and developing several existing models compared and by developing a new composite model, the thesis makes a significant contribution to the development of knowledge and practices in the field of fraud and bankruptcy risk assessment and management in companies thus providing a solid framework for decision-making and the implementation of preventive and corrective measures.

This new composite model is much more effective than the individual fraud and food identification models that have been used in the past. The model presented in the present paper has a detection accuracy of 98.28%, as opposed to individual ones such as the Altman score, 53%, the Conan-Holder score, 62.14%, and the Robu-Mironiuc score, 60%.

The bibliography used in writing the doctoral thesis includes articles published both internationally and nationally, most of them belonging to the economic field. The bibliometric analysis was an effective tool for identifying research directions and trends in the field of results management and fraudulent financial reporting, as well as bankruptcy. Integrating both international and national works, this method allowed a comprehensive look at the evolution of academic and professional interest in the topics addressed in the doctoral thesis.

The selection of works with the help of bibliometric analysis brought a significant advantage, providing the certainty that the thesis is based on the most relevant and influential sources available. The identification of authors and papers strengthened the reference base, providing a clear perspective on the evolution and current state of research in the field.

The bibliometric analysis also highlighted the connections and collaborations between different authors, illustrating how ideas and theories were interconnected and developed over time. This understanding of the context and evolution of relevant theories and methodologies in the field is essential for solidly substantiating the thesis and contributing to the field of study.

The research methodology integrates both empirical econometric methods and statistical models to achieve the overall objective of obtaining a score that allows the simultaneous testing of fraud attempts and bankruptcy risk. The empirical methods used are both qualitative and quantitative in nature, providing a comprehensive approach to the subject under study.

The statistical data samples were different in the two case studies, the first consisting of 66 companies and the second of 100 companies. This approach allows placing the two case studies in the context of the current literature and provides a robust comparison between the results obtained.

The data used for the empirical analyzes were manually retrieved from the BSE website and, in some cases, from the companies' websites. The resulting empirical analyzes are robust due to the various research methods and tools applied. The use of Stata statistical software enabled the econometric analyzes and the construction of graphical representations, while the process of collecting and processing the databases into panel datasets was carried out in Microsoft Excel spreadsheets. Microsoft Word was used to write the texts specific to the scientific papers.

In Chapter 1, entitled *Theoretical Approaches to Results Management*, we will explore the concept of results management and how it has evolved over time. We will analyze the different theoretical and practical perspectives associated with the management of financial results in organizations and their impact on managerial decisions and information transparency.

One of the major issues covered will be the distinction between manipulation of financial statements and fraudulent accounting practices. We also aim to analyze the motivation behind financial reporting manipulation practices. We will explore the internal and external factors that may lead an entity to resort to such practices, as well as their consequences for investor confidence and financial market stability.

Next, we will present and analyze the various techniques and strategies used to manipulate financial reports. We will explore the ways in which entities can distort or influence financial results in order to gain advantages or meet specific objectives.

The end of Chapter 1 will be marked by a series of partial conclusions, in which we will summarize the main issues addressed and highlight future research directions for deepening the understanding of results management and associated practices.

Chapter 2, entitled *Financial Fraud and Fraudulent Financial Reporting Detection Techniques*, is a detailed analysis of this complex phenomenon. Subchapters include: Conceptual approaches where, we will explore the concept of financial fraud and analyze the various conceptual approaches used in the study of this phenomenon. We will investigate the ways in which financial fraud is defined and conceptualized in the literature, as well as the implications of this conceptualization in the detection and prevention of financial fraud.

Theories of Fraud we explore the various theories of fraud that have been developed to understand the motivations and behaviors that underlie fraudulent behaviour. These theories will be analyzed in the context of financial reporting and the manipulation of accounting information.

The Famous Fraudulent Financial Reporting Case Studies subchapter will present and analyze some of the most famous fraudulent financial reporting case studies. We will examine how these cases were investigated and documented, and the lessons learned from them for detecting and preventing financial fraud in the future. Fraudulent financial reporting detection models where we present and analyze the various models and methods used to detect fraudulent financial reporting.

Chapter 3, entitled *Empirical study regarding the detection of financial data manipulation: Empirical evidence from Romanian listed companies*, represents a detailed investigation of financial data manipulation practices in the context of Romanian listed companies. The subchapters include: Formulating the research hypotheses in the empirical study where we will establish the research hypotheses that will be tested in the empirical study. These hypotheses will be formulated based on existing literature and specific research objectives. Regarding the empirical study methodology: and data and variables we will describe in detail the methodology used in conducting the empirical study, including the data sources used and the research variables identified. This sub-chapter will provide a clear understanding of how the research was designed and conducted. The descriptive analysis of the data will present the results of the descriptive analysis of the data collected in the empirical study. This will include a detailed presentation of the key characteristics of the data and an analysis of their distribution within the study sample. Results and discussions, will present and discuss the results obtained in the empirical study in relation to the previously formulated research hypotheses. This sub-chapter will highlight the main findings of the research and provide an interpretation of them in the context of the existing literature. The end of chapter 3 will be dedicated to the presentation of the main conclusions of the empirical study, including their implications for the understanding of financial data manipulation practices in listed Romanian companies.

Chapter 4 of the paper, entitled Correlations between financial statement manipulation risk and bankruptcy risk: Empirical evidence, explores the links between financial statement manipulation practices and companies' bankruptcy risk. Subchapters include:

reviewing the existing literature on the links between financial statement manipulation and bankruptcy risk. Following the analysis of the main theories, models and previous research that explore this relationship and we will identify the relevant research directions in this area, we establish the research hypotheses that will be tested in the empirical study to examine the relationship between the manipulation of financial statements and the risk of bankruptcy of companies, followed by the creation of a simultaneous fraud and bankruptcy risk detection model, the Safta- Achim model.

Conclusions, propositions and future research directions

Exploring the concept and evolution of results management, highlighting the differences and similarities between the manipulation of financial statements and fraudulent practices in accounting, analyzing the motivations behind these practices and identifying the techniques used to manipulate financial reports were the main objectives of this study. We also conducted a bibliometric analysis of the existing literature to assess the current state of research in the field of performance management and financial fraud.

Results management is an essential component in finance and accounting, with a significant evolution over time. It involves practices and strategies used by companies to intentionally influence and control their financial results in order to achieve certain objectives and create a favorable image of their performance. The evolution of this concept can be seen in response to changes in the business environment and can be defined in various ways, including malicious interference with financial reporting and the use of judgment in structuring transactions to alter financial statements.

In the literature, performance management is often associated with creative accounting, and the delineation between it and fraud is crucial. Studies in the field highlight that financial fraud involves the intentional use of illegal tactics to obtain financial benefits, while creative accounting follows the letter of the law but can distort a company's financial picture in ways that are attractive and misleading to investors. Creative accounting tactics, such as "smoothing" results, are used to influence the level of results and adjust the debt ratio. These tactics are aimed at reducing fluctuations in accounting reporting and ensuring an apparent stability of long-term results.

The general research objective of the thesis was to obtain a score that would allow the simultaneous testing of fraud attempts and the risk of bankruptcy. The study presented an analysis of the phenomenon of financial reporting fraud and the techniques of manipulating the results, while providing tools and methodologies to detect and prevent these practices. Through this PhD thesis, a deep understanding of how entities can distort or influence financial information in order to gain advantages or meet specific objectives has been provided.

In the first study, carried out in the first chapter, the objective was to collect and analyze data from various sources, WOS, Scopus, in order to carry out a comprehensive bibliometric analysis. Keywords used to construct the database for bibliometric analysis included: outcomes management, fraud, financial statements, and bankruptcy. The highlighting process was carried out in two distinct stages: initially, the data were extracted from the specified sources, such as WOS, Scopus, later being entered and processed within the Voswier program.

The bibliometric analysis revealed a significant increase in the number of articles addressing the topic of results management and financial fraud.

In conclusion, it is evident that there are numerous theories and hypotheses that attempt to explain the motivations behind fraudulent behavior in the corporate context. However, neither hypothesis has received strong empirical support that invalidates reasonable alternative explanations. Some simplistic theories generate more questions than convincing answers, while others, based on rigorous theoretical analysis, are poorly supported by empirical tests. This suggests that further studies are needed to understand the phenomenon of corporate fraud in depth.

Financial fraud, in essence, involves the intentional use of illegal tactics to obtain financial benefits and has far-reaching implications, including the financing of criminal activities. Data analysis techniques have proven effective in identifying subtle clues in large masses of information.

Conceptual approaches to financial fraud are essential for understanding and identifying this phenomenon and for developing effective strategies to prevent and combat it.

Over time, numerous theories have been developed to explore and explain the reasons and mechanisms behind fraudulent behavior. These theories make a valuable contribution to the understanding and prevention of financial fraud by highlighting the importance of organizational, social, behavioral and structural factors in determining fraudulent behavior.

Famous case studies on fraudulent financial reporting are important tools for understanding and illustrating fraudulent practices in the financial industry. They provide concrete examples of how companies resort to manipulating financial data to mislead investors or regulators.

Financial fraud in Romania is a complex and constantly evolving problem, with an impact on the economy, financial institutions and society as a whole. Identifying and combating it involves the use of a set of methods and techniques, such as financial data analysis, internal and external auditing and collaboration with regulatory authorities.

To achieve this general research objective of the thesis, we conducted two distinct empirical studies.

The first empirical study focused on the analysis of the Beneish model and the documentation of the Beneish, Vladu, Robu, Lev-Thiagarajan, Piotroski F-Score and Dechow-Dichev models, which are important tools in the efforts to identify and prevent financial fraud in companies. They can provide valuable insight into financial information and help identify fraudulent practices, but must be interpreted carefully and in the specific context of each organization.

Case study number 2 had as its main purpose the assessment of the degree of fraud and possible fraudulent activities in the financial statements of companies listed on the Bucharest Stock Exchange, in the period 2016-2021. By using probit regression, it was identified that some companies were involved in the manipulation of financial statements, thus providing clues to possible fraudulent activities. The findings of the study are consistent with other research such as that conducted by Nyakarimi (2022) who identified the implications of some Tanzanian banks in earnings management and fraud. About 16.7% of the analyzed banks were involved in possible earnings management activities according to the Beneish model (Paolone and Magazzino, 2014).

However, the results of the study differed from those obtained in other research, such as that conducted by Mehta and Bhavani (2017), which did not identify evidence of earnings manipulation in the companies analyzed. These discrepancies underscore the complexity and variability of financial behavior and highlight the need for continued research in this area.

The authors believe that preparers of financial statements should have autonomy in accounting treatment decisions, without being influenced by management, to prevent manipulation of financial statements.

Case study number 3 aimed to create a Safta-Achim score function for concurrent fraud and bankruptcy testing, thereby contributing to the financial fraud and bankruptcy literature by providing empirical evidence. The study also advanced the mechanisms used to detect fraud and bankruptcy. The preliminary findings of the study suggest that all tested hypotheses were validated following the analysis.

The bibliography used in writing the doctoral thesis includes articles published both internationally and nationally, most of them belonging to the economic field. The bibliometric analysis was an effective tool for identifying research directions and trends in the field of results management and fraudulent financial reporting, as well as bankruptcy. Integrating both international and national works, this method allowed a comprehensive look at the evolution of academic and professional interest in the topics addressed in the doctoral thesis.

The research methodology integrates both empirical econometric methods and statistical models to achieve the overall objective of obtaining a score that allows the simultaneous testing of fraud attempts and bankruptcy risk. The empirical methods used are both qualitative and quantitative in nature, providing a comprehensive approach to the subject under study.

The statistical data samples were different in the two case studies, the first consisting of 66 companies and the second of 100 companies. This approach allows placing the two case studies in the context of the current literature and provides a robust comparison between the results obtained.

Therefore, the present paper confirmed that there is a significant relationship between the Beneish score and the Altman, Conan-Holder and Robu-Mironiuc bankruptcy scores, supporting the hypothesis that these scores are correlated with fraud and bankruptcy detection and can be effectively used together.

The absolute values of the regression coefficients that exceeded the 5% threshold and were statistically significant at the 95% level were identified as relevant indicators of the impact of the independent variables on fraud and bankruptcy detection.

The sequential elimination of bankruptcy score items with statistical significances lower than the 0.05 threshold led to an optimal combination of independent variables to maximize the quality of fraud and bankruptcy detection.

The dual score consisting of the items of the Beneish score and selected bankruptcy scores has been shown to be a more accurate indicator of fraud and bankruptcy than the individual scores. The dual score significantly predicted fraud and bankruptcy as tested using the rocreg function and graphical analysis. The detection quality of the dual score was above 90%, outperforming the other analyzed bankruptcy scores, according to the results of the tables and cumulative tables obtained from the analysis with the roctab function.

However, the study also has limitations, such as the use of a small sample and the narrow period of analysis. Thus, the results obtained may not be directly applicable to the entire financial sector or market, and the narrow period of analysis may influence the understanding of the long-term dynamics of frauds and bankruptcies within companies. A more extensive period of analysis could provide a broader perspective on the trends and factors influencing these phenomena. The study focused exclusively on listed companies, thus excluding unlisted companies. This exclusion could limit the applicability of the study results to the whole spectrum of businesses, as the behavior and characteristics of non-listed companies could be different. The results of the study may be influenced by the specific context in which the data were collected and the analyzes performed. Factors such as the economic environment, specific legislation and regulations may affect the results and their interpretation. Awareness of these limitations is important for the correct interpretation of the results and for guiding future research in the field of financial fraud and bankruptcy. In the future, we propose to expand the sample and apply the model to some companies, including those that are not listed on the Bucharest Stock Exchange.

In conclusion, this study makes an important contribution to understanding and highlighting the practices associated with performance management and financial fraud. In the future, it is necessary to expand the research to bring more clarity to these phenomena and to develop more effective strategies to detect and prevent financial fraud.

Results management is a flexible practice that can be used in various ways to influence a company's financial performance. It is important to understand the differences between real and artificial income smoothing, and transparency and adherence to accounting and ethical standards are essential to maintaining integrity and confidence in financial reporting.

Fraud detection models are a valuable tool for identifying anomalies in financial statements, but require a careful approach and integration into a broader framework of financial fraud control and prevention.

The study makes a valuable contribution to the specialized literature on financial fraud, providing empirical evidence that the manipulation of financial statements is a practice found even among companies listed on the Bucharest Stock Exchange. Also, the study extends the application of Beneish's theory in detecting performance management in companies listed on this stock exchange.

Future research directions should focus on the development and validation of more accurate and robust models and methods for the identification and assessment of financial statement manipulation risk and for the prediction of bankruptcy risk. It is also important to pay attention to measures to prevent and detect financial manipulation, as well as to develop effective policies and regulations in this regard. Through these efforts, one can contribute to improving the transparency and integrity of financial reporting and reducing the risk of bankruptcy of companies.