

University “Alexandru Ioan Cuza” of Iasi
Faculty of Economics and Business Administration
Doctoral School of Economics and Business Administration
Field: Accounting

**THE PREVENTION AND INVESTIGATION OF
FRAUDULENT ACCOUNTING PRACTICES**

- Summary of doctoral thesis -

Scientific coordinator,

Prof. univ. dr. Ioan ANDONE

Ph.D. Student,

Puiu A. Monica

INTRODUCTION AND RESEARCH MOTIVATION

We live in a world of information, continuously changing. We overpay for economic decisions that are not based on real, relevant and credible information. We note Napoleon Bonaparte's opinion which considered that „ *the exact information, held at the appropriate time, assures 99% of any battle victory*”¹. Information is an abstraction, a product of smart knowledge process, but at the same time, a pervasive reality. It dominates the universe, obviously, to the extent of the knowledge attained.

In this context, accounting uses a series of principles (postulates) which governs the entire activity conducted and have to be respected in order to preserve the objectivity of information of this nature. The needs of information required by users demand to achieve with priority the objective of accounting, namely, to obtain a true and fair view of the financial position and performance registered by the economic entities².

The financial scandals that have dominated the economic scene in recent decades, the numerous studies and researches on creative accounting and fraud, invite to reflections the regulatory bodies, the economic entities, the auditors, the accounting professionals, the users of financial accounting statements and more. In an uncertain world, where knowing the right information for making the right decisions is vital, how can we be sure of their accuracy and precision? Experience shows that, often, the danger is invisible, fraud techniques being multiple, and sometimes even impossible to detect. In this context, the mission of auditors and fraud investigators, in particular, is not easy. Analyzing the results of research in the literature, it can be noticed a variety of methods used in developing models to detect fraud. The absence of traditional fraud detection techniques requires the use of new tools, complex, allowing the analysis of a greater volume of financial accounting information. These are the data mining techniques, which in recent years have been widely used in building financial models for fraud detection and more.

The actuality and the widespread of these problems which accounting from the XXI century is facing have been the motivation for choosing this research theme, hereinafter referred to as “*The prevention and investigation of fraudulent accounting practices*”.

¹ Cited in Horomnea, E., (2011), *Dimensiuni științifice, sociale și spirituale în contabilitate – Geneză, Doctrină, Normalizare, Decizii*, Ediția a II-a, revizuită și actualizată, Editura Tipo Moldova, Iași, p. 234. [Horomnea, E., (2011), *Scientific, social and spiritual dimensions in accounting – Genesis, Doctrine, Normalization, Decisions*, Second Edition, revised and updated, Tipo Moldova Publishing House, Iasi, p. 234]

^{2***} *Legea contabilității nr. 82/1991*, modificată prin *Legea nr. 121/2015 privind aprobarea Ordonanței de urgență a Guvernului nr. 79/2014 pentru modificarea și completarea Legii Contabilității*, publicată în Monitorul Oficial al României, Partea I, nr. 382 din 2 iunie 2015, art. 2, alin. 1. [Accounting Law no. 82/1991, modified by Law no. 121/2015 regarding the approval of Government Emergency Ordinance no. 79/2014 to modify and complete the Accounting Law, published in the Official Gazette of Romania, Part I, no. 382 from 2 June 2015, art. 2, alin. 1.]

Thus, in this approach, we aim to follow our own consciousness regarding this topical issue of economic life, because we consider that it cannot be left outdated, especially since the economy tends towards globalization and harmonization, putting a facet more responsible to the society.

The utility and the mission of this scientific endeavor is to combat malpractice accounting and to show that, through technological innovation, we could significantly reduce the risk of fraud and we could prevent a remarkable number of such negative activities, which man makes in its daily work, not thinking to the development and progress of future generations, just at his own sake for the moment. Moreover, the spread of this phenomenon leads to the stagnation of development in many countries, not only economically, but also from other perspectives such as medicine, architecture, agriculture, etc., which inevitably falls in correlation with the economy and participate in the progress and development of a nation.

Tommie W. Singleton's quote "*When times are good, people steal. When times are bad, people steal more*"³ explains, in simple terms, that the risk of fraud is ongoing and the fight against fraud will always need better methods for detection, prevention and examination.

THE AIM AND OBJECTIVES OF THE THESIS

When developing the scientific approach of the thesis we raised a number of questions that we sought to answer during the research:

- What types of fraudulent accounting practices exist and how they can be classified?
- What are the differences between creative accounting and accounting fraud?
- What factors determine the emergence of fraudulent accounting practices and which ones are prevalent in organizations?
- What are the differences between creative accounting practices and fraudulent accounting practices?
- What are the reasons for the emergence and application of fraudulent accounting practices?
- How to prevent, detect and combat fraudulent accounting practices within an organization?

Thus, *the basic aim* of the thesis entitled "*The prevention and investigation of fraudulent accounting practices*" was to seek for an answer to these first questions and to create added value in this area which began to be discussed and analyzed in the first phase by researchers

³Singleton, T.W., Singleton, A.J., (2010), *Fraud Auditing and Forensic Accounting*, 4th edition, John Wiley&Sons, New Jersey, p. xi.

from developed countries like USA and UK. To substantiate the main goal, we split it into several *operational objectives* pursued and achieved throughout the chapters' thesis as follows:

The first operational objective is the analysis and synthesis of current state of research in the prevention and investigation of fraud.

The second operational objective, pursued in the first chapter, is to identify the main motivations, actors and forms through fraud can be achieved.

The analysis, classification and presentation of the main data mining techniques and fraud investigation software solutions represents *the third operational objective*, considered in the contents of the second chapter.

The fourth operational objective, the presentation of the relationships between prevention and investigation, the specific methods and the legal framework developed to combat fraud, was followed during the third chapter.

Proposing an IT product as an effective prevention and investigation tool for accounting fraudulent practices within SMEs in Romania is the *fifth operational objective*, while the *last objective* consists in the development of an antifraud code of conduct that could be adapted by any organization which wishes to reduce the spread of this negative phenomenon.

RESEARCH METHODOLOGY

The accomplishment of any scientific research implies the use of specific investigatory methods and tools to facilitate the activities carried out by the researcher. *In terms of research trends*, the thesis "*The prevention and investigation of fraudulent accounting practices*" falls in the *constructivist, positive stream*. In light of typology research the study uses the following categories: *theoretical, fundamental* (Chapters 1, 2, 3, 5), *quantitative* (Chapters 1, 2, 3, 4) and *exploratory* (Chapters 4, 5).

The theoretical, qualitative or fundamental research implied the analysis of the main papers of literature published in the field of creative accounting and fraud. The results formed the basis of our own proposals made in preventing and investigating fraudulent accounting practices. The specific qualitative research methods used in the scientific endeavor are the comparative analysis, including non participating observation, complemented by critical acclaim.

The quantitative or applied research was used to reflect the current state of the concerns in the prevention and investigation of fraud. Among the main specific methods used for this type of research in the paper, are collecting and analyzing various reports (published in recent years by specialized organizations) and questionnaire (applied in a representative sample of SMEs in Iasi County).

The exploratory research, carried out in chapters 4 and 5, is based on the documentation activity conducted in the three preceding chapters and on an initial study that aims to identify issues that should be implemented within economic entities from Romania to prevent and investigate fraudulent practices in accounting.

SYNTHETIC PRESENTATION OF THE Ph.D. THESIS CHAPTERS

Through the first chapter, “*Conceptual boundaries on fraud and creative accounting*”, we analyzed the definitions and characteristics of the two concepts, identifying the main similarities and differences. Further, we synthesized the motivations underlying their commission, including players involved, namely the embodiments of fraud based on general characteristics and types of schemes identified by researchers over time. The second part of the chapter summarizes the results of studies carried out by various international organizations on fraud, like ACFE, Kroll and audit companies that are part of the “Big Four”. The chapter ends with a series of partial conclusions.

The second chapter, “*Financial accounting fraud investigation using data mining techniques*”, presents the conceptual framework of models based on data mining techniques developed over time by researchers and specialists in the field. The chapter begins with the synthesis of the most relevant papers from literature and continues with the presentation of the appearance and evolution of the concept of data mining. In order to illustrate the main data mining techniques used in the development of programs or models for preventing and investigating fraud, we defined and classified applications of data mining, and we presented a number of solutions currently used by organizations to prevent fraud. At the end of the chapter, we presented our own findings in the section of conclusions.

Accounting fraud detection using traditional internal audit procedures is a difficult and sometimes impossible task. First, auditors do not have, usually, the necessary knowledge for detecting accounting fraud features. Secondly, given the frequency of accounting data tampering, most of the auditors do not have the experience and expertise needed to detect and prevent fraud. Finally, there are people within companies (the manager of financial accounting department, accountants, economists, etc.) who try intentionally to mislead internal or external auditors⁴. Knowing the limits of the audit, managers have concluded that the normal audit procedures are insufficient to detect fraud. Using detection and control financial fraud methods based on data mining automates the entire process and helps to reduce manual labor and verification of various

⁴Silverstone, H., Sheetz, M., (2004), *Forensic Accounting and Fraud Investigation for Non-Experts*, John Wiley & Sons, Hoboken, p. 28.

documents and information. This area has become one of the key points for applying *data mining techniques* in companies and government organizations⁵.

The third chapter of the paper, “*The prevention of fraudulent accounting practices*”, develops the most significant methods for preventing fraud in organizations. The chapter begins by summarizing the most important concerns identified in the literature. Further, we insisted on the existence of a connection between the idea of prevention and investigation, namely the need to prevent such practices, especially in terms of financial factor. Also, in the chapter, we presented elements of fraud prevention methods, namely the legal framework and the specific anti-fraud mechanisms at international, regional and national levels.

During the fourth chapter, entitled “*The development of an IT product for preventing and investigating fraudulent accounting practices*”, we suggested, on a conceptual level, an IT software for preventing and investigating fraud within SMEs in Romania. Initially, we approached the premises and motivation which formed the basis of this idea, the potential participants involved, while, in the next stage, we identified the program requirements, we defined its purpose and specific objectives, and then we modeled the logical data flow.

The solution was modeled applying diagrams for use cases developed in ArgoUML, a software-based on UML modeling language for analysis and design of object-oriented programs (OO) which has been adopted by most software companies and academics in the field of software engineering and / or knowledge engineers.

The proposed solution is in the prototype phase, requiring rigorous testing and specific changes in order to be able to make junctions with the accounting programs.

Throughout the chapter we also approached development issues from the perspective of software and hardware, namely the possibilities for effective implementation through an impact analysis.

To test the effectiveness of the program we need to access information from as many as possible companies, therefore we need legal entities willing to provide their own databases. This is one of the biggest limitations that hasn't allowed us a far more advanced testing – the refusal to cooperate of the economic environment.

The reluctance of firms contacted is justified by the fact that, providing access to their programs, they expose confidential information about activity, becoming vulnerable.

We appreciate that as FraudAnalyst will improve, increasing the complexity of activities made possible by an investigator of fraud, it will become more attractive to the interested public. Also, FraudAnalyst can be a useful tool not only for fraud investigators, auditors, analysts, but

⁵Phua, C., Lee, V., Smith, K., Gayler, R., (2005), A comprehensive survey of data mining-based fraud detection research, *Artificial Intelligence Review*, pp. 1–14.

especially for accountants, who will be able to check whether mistakes have been made or someone with access rights in the system altered accounting records or committed errors in the accounts. These opportunities demonstrate the viability of using FraudAnalyst solution for the professions concerned to investigate and prevent fraud in the economic entities in Romania.

The fifth chapter, “*Contributions to financial and accounting fraud issues of research from the Romanian perspective*” presents the Romanian vision of fighting against fraud by analyzing the opinions manifested in legal doctrine and the legislative efforts made in the field. In this regard, we placed a particular importance to conduct personal assessments on the reconciliation between the State and the accountancy profession, and the role of different professions (accountants, auditors) and special bodies created to prevent and detect fraud.

The related research in financial and accounting fraud, although developed in the local literature, is still in its early stages in terms of legal measures taken at a national level. If an insight into Romanian authors' works reveals significant results in the antifraud sphere, in what concerns the Romanian state point of view, we can say that we are still at the beginning. We believe that the adoption of laws and the establishment of institutions that aim primarily to reclaim the prejudice by the state and then by the investor is not conducive to the development of an antifraud environment. In this regard, we note that the laws issued in the proceeds of corruption, money laundering and fraud aimed primarily the prosecution and conviction of those legal entities that made corruption or tax evasion acts from which the Romanian state lost important sums of money from the general annual budget. Therefore, the state is considered still the main creditor, favored in light of all laws passed in the antifraud field. Instead, the lack of specific legislation against fraud, especially for the SME sector, makes this phenomenon to spread further, with no repercussions on the guilty persons.

CONCLUSIONS

Following the investigation carried, it can be noticed that financial fraud raised, over time, a number of questions, perplexities and thoughts concerning the nature, origins, determinants, implications generated etc.. Thus, it is required the knowledge of the phenomenon under analysis and the ways in which it can be detected, even eradicated.

According to the international practices of fighting fraud, supported by the professional body ACFE and International Standards on Auditing, the main fraud schemes are targeting fraudulent financial reporting and asset misappropriation. For such schemes, ACFE establishes a set of classifications and sub-schemes accompanied by a number of specific indicators that warn their occurrence. Although with a low-value damage, but significant in terms of their number, frauds with asset misappropriation affect the company property. Put together with a poor control

system or with the complicity of employees in certain circumstances, the theft of assets affects the quality of information in financial reports, influencing the view of interested users.

Regarding the fraudulent financial reporting, the number of cases registered, although it is lower than the theft of assets, it records the highest value in most of the countries. Coordinated by managers and resorting to a number of controversial accounting practices, fraudulent financial reporting became a major problem that affects the balance and the development of financial markets.

PERSONAL CONTRIBUTIONS TO THE STATE OF KNOWLEDGE

In this subchapter, we highlight the added value that we managed to bring in the area of research. Among the main contributions made, we notice:

- At the level of knowledge in the field, our own contribution is reflected in the qualitative studies conducted in the first four chapters. Through them we highlighted the ascendant evolution of research on the phenomenology of fraud; we analyzed the associated sub-domains, pointing out the group of scholars with outstanding contributions to the development of this field of research;

- At the level of conceptual approaches, using cross-cutting comparative methods, we analyzed a number of concepts specific for fraud, both in terms of detection and prevention;

- In Chapter 2, we have contributed to the literature of investigative nature which deals mainly with data mining techniques. By analyzing studies and articles in the financial and accounting fraud investigation field using data mining, we have deepened the conceptual approaches, insufficient for the moment in the local literature. Additional clarifications have been made also by presenting the characteristics of software solutions developed based on data mining, used mainly to prevent fraudulent phenomenon in organizations;

- The personal contributions from Chapter 3 are materialized on developing the conceptual framework in the literature focused on prevention of financial and accounting fraud, through specific methods suggested to prevent economic fraud in organizations. The importance of adopting such methods is underlined by an analysis of the legal framework and mechanisms to combat fraud internationally, conducted to determine the effectiveness of anti-fraud measures;

- In Chapter 4, personal contributions are reflected by proposing an IT solution “FraudAnalyst” in order to prevent and detect fraudulent accounting practices conducted through accounting programs within SMEs in Romania. The program is accompanied by a preliminary study to identify the opportunities of implementation in local companies.

RESEARCH LIMITATIONS

Like any scientific endeavor, in addition to significant contributions to the research in this field, there are some limitations that we would like to highlight, related primarily to the following:

– The systematization limits of the main ideas of the financial fraud sphere are determined by the complexity of these questions and by the impossibility of identifying all factors which led to the appearance and the development of these negative acts;

– In the case of the studies conducted by several international bodies from the field we had to limit to those which present the most relevant aspects, not considering other publications which, although important, would have not bring added value to the research;

– In what concerns the synthesis of the papers in the field of investing and preventing fraud using data mining techniques we limited to synthesize the ideas from the most cited articles from the literature, the same situation being valid when presenting the IT antifraud solution developed by several companies;

– When developing the IT product for preventing and detecting accounting and financial fraud we encountered several limitations. (1) the first is given by the purpose of the product, as it is being destined to detect fraud made through accounting programs; (2) the solutions is conceived to detect specific types of fraud committed in the accounting fraud, not covering the entire sphere of schemes of fraud which can be made within companies; (3) the proposed product is limited by the IT technologies used for its development – an expert system based on fuzzy logic; (4) when referring to the preliminary study conducted to determine the possibilities of buying the product we mention the reduced number of companies which accepted to participate and the possibility that some answer to no reflect truly the opinion of those interviewed.

PROSPECTS ON FURTHER RESEARCH

The main issues considered in terms of future research in the fight against fraud are related to the elimination of those drawbacks or limitations outlined above by:

- The developing of the current IT product in order to include a large range of financial fraud schemes which can be committed within companies from Romania;
- The use of some convenient data mining techniques which can allow a better extraction of knowledge from different sources of information, in real time and without being necessary preliminary data processing;
- Repeating the analysis of impact on a larger sample of companies in order to overview the way in such an IT product would be received by the Romanian economic environment;

- Prototyping actions and effective use of the IT solution in several companies in order to test its efficiency by several persons;
- Encouraging researcher of the interested professions (accountants, auditors, IT specialists etc.) to create interdisciplinary teams to collaborate in developing better antifraud solutions;
- The incentive of studying specific IT techniques used in conceiving new antifraud solutions in economic universities.

REFERENCES

References used in the Ph.D. thesis include: 99 books, 140 scientific articles, 18 reports, studies, press releases and other publications in the field, 20 laws, 3 guides, collections and synthesis and 15 Internet sources.