

THEMATIC RESEARCH ON ACCOUNTING ERROR AND ACCOUNTING FRAUD

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bodeaiulia@yahoo.com**Abstract**

This research aims to quantify the current state of knowledge in what concerns the thematic of accounting error and accounting fraud by use of bibliometric analysis. In addition, the research intends to clarify the distinctive characteristics of each of the concepts of accounting fraud and of accounting error. The research methodology involves conducting a systematic review of the current scientific publications on these themes, as well as the analysis of the scientific material identified on accounting error and fraud, by use of bibliometric tools. The corpus of scientific publications under review comprises of 95 scientific publications extracted from Web of Science. The main findings are that research on accounting error and fraud are mainly conducted at microeconomic level, based on samples of data and information from the accounting system of companies, auditors having a significant role in detecting accounting fraud and errors. Moreover, researchers' focus is on the impact that accounting errors and fraud have on a company's stakeholders, as well as on the business climate.

Keywords: *accounting error; accounting fraud; bibliometric analysis; fraud risk.*

JEL Classification: *M41*

I. INTRODUCTION

This research quantifies the state of knowledge in the field of accounting errors and accounting fraud and to do that, we performed a systematical literature review, as well as a conceptual delimitation of the two terms. In addition, through the use of bibliometric analysis carried out using the database of scientific articles extracted from the Web of Science (WoS) platform, it was also possible to highlight research trends, the main thematic groups analyzed and terminology specific to the field.

Firstly, an analysis on the scientific production regarding the topics of accounting errors and fraud is conducted, followed by a temporal and spatial dispersion of existing scientific research on these themes. Secondly, a mapping of the main thematic clusters of researches on accounting error and accounting fraud is presented, based on the most co-occurring terms, to identify research interests and to determine subject areas that need more focus in the future. Furthermore, research trends on accounting error and accounting fraud from a temporal perspective are revealed.

II. LITERATURE REVIEW

After systematically reviewing the scientific knowledge regarding the topics of accounting error and accounting fraud, it was concluded that most of the research conducted focuses on the role and importance of internal control systems and on the methods, techniques and tools auditors use in detecting the risk exposure to accounting error and fraud.

In this regard, Bunget (2009) concludes in his research that internal control systems reduce but do not eliminate the risk of error and fraud. Hamilton and Smith (2021) conducted a research having as a main objective the investigation of fraud by omission or commission and found that auditors are likely to judge that fraud by omission as not intentional and fraud via commission more likely to be intentional.

In a research conducted on audit practices for identifying material misstatement arising from error and

fraud, Colbert (2000) concluded that the use by the auditor of the US guidance or the international ones produce mostly the same results.

After reviewing the scientific publications on the topic of accounting fraud and risk, there was found that many researchers focus on identifying fraud and errors by use of statistical tools and techniques. In this regard, in the period of 1995 – 2012, statistical methods for detecting accounting error and fraud are mainly logistic regression models (Persons, 1995; Beneish, 1999; Dechow et al., 2011, Abbasi et al., 2012).

Artificial neural networks are used in the most recent years (Murorunkwere et al., 2022; Ruzgas et al., 2023), as well as machine learning techniques (Brown et al., 2020), unsupervised anomaly detection (AD) techniques (Vanhoeyveld et al., 2020) and hybrid unsupervised outlier detection method (Savić et al., 2022).

Adali and Kizil (2017) conducted a research based on a questionnaire distributed to accounting professionals and analyzed the results with statistical tools, their findings showing that errors mostly occur due to incorrect recorded data received from clients and fraud is generally perpetrated in order to get credit from banks. According to Ionescu (2017), accounting errors are mostly due to misinterpretation of the accounting regulations or principles, fraud being more complex and being in close connection with corruption.

As for the concept of accounting fraud, as per Ustinova (2023) it means deliberate material distortions in numbers or disclosures of financial statements for misleading certain stakeholders. On the other hand, based on the bibliometric analysis conducted by Timofte (Coca) et al. (2020) it was found that accounting and tax fraud is closely related to the practices used by creative accounting which highlights that the line between accounting fraud and the creativity of accounting professionals is very thin.

Therefore, the general consensus is that accounting error is a mistake in an accounting entry that was not intentional, whereas accounting fraud is the intentional alteration of an accounting entry, which is illegal and manipulates the company's financial position and/or performance.

III. RESEARCH METHODOLOGY

In the first stage, the research methodology involved the collection of the scientific material in order to be analyzed and interpreted, by accessing the scientific platform WoS. The search criteria was by the topics of „accounting error” and „accounting fraud” for the following research areas: Business Finance, Economics, Management, and Business. The platform was accessed in October 2023 (<https://www.webofscience.com/wos/woscc/summary/f5afa516-c8a7-4d49-bf6b-11c74ebed019-af58dd28/relevance/1>) and 95 results were retrieved.

In the next stage, the corpus of scientific documents retrieved in the previous step was processed in the VosViewer software, with the main purpose of identifying the most frequently used terms in the conducted research and to deduce the main thematic clusters, as reflected by the research interests. Bibliometric analyses are encountered in many research areas addressed in terms of number of publications by country, organization, authors or keywords occurrence or co-occurrence of a research topic (Montero-Díaz et al., 2018; Braun et al., 2019; Brinzaru & Grosu, 2021). As a final step, the obtained results were analyzed and discussed.

IV. RESEARCH RESULTS

The temporal analysis of the volume of scientific publications on accounting error and accounting fraud revealed that the interest on these subject areas records an upward trend during the period 2011 – 2022, most research being published in 2021, followed by 2020, 2022 and 2016. Fig. 1 below charts the trend of scientific production on research topics regarding accounting fraud and accounting error.

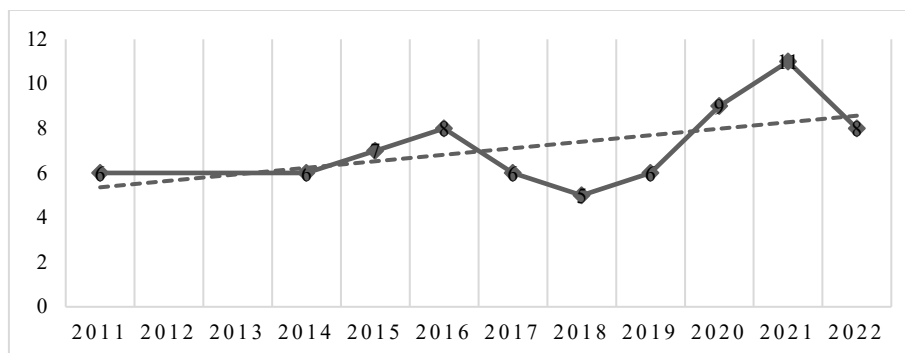


Figure 1. Evolution of the scientific production on the topics of accounting error and accounting fraud on the Web of Science platform

Source: own processing

The analysis of the scientific material retrieved from the Web of Science platform on accounting error and fraud shows that by country of publications, the highest publication volume is recorded by the United States with 41 publications, followed by Germany and Romania, each with 6 publications. Fig. 2 below presents the scientific volume of publication on accounting error and accounting fraud by countries, showing the geographical and geopolitical interest in the analyzed thematic.

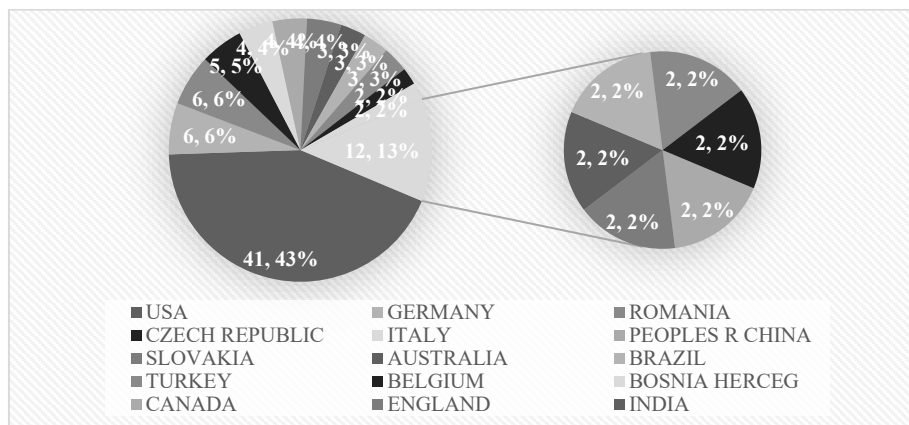


Figure 2. Scientific production on the topics of accounting error and accounting fraud on the Web of Science platform – country of publication
Source: own processing

After the initial processing, the scientific materials that were extracted from the Web of Science platform on the topic of accounting error and accounting fraud, were also processed in the VosViewer software (Van Eck and Waltman, 2010; Van Eck and Waltman, 2011) in order to create a network map based on text data, where 2701 co-occurring terms were identified. Out of these, 83 terms met the minimum criteria for at least 9 appearances, 46 terms being the most relevant based on the score computed by the software.

The thematic clusters identified five main domains of interest as shown in Fig. 3 below:

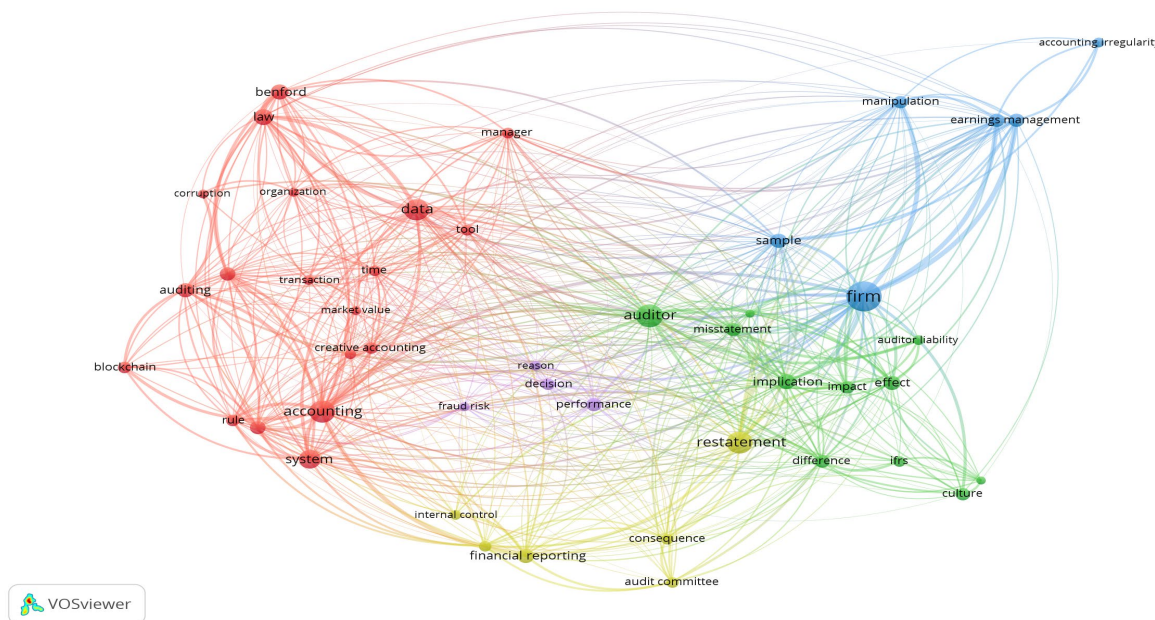


Figure 3. Thematic clusters of researches on accounting error and accounting fraud as per the Web of Science platform
Source: own processing

On one hand, the most frequently used terms in the analyzed researches are: firm, auditor, accounting, restatement and data. On the other hand, the terms with most links are: auditor, accounting, data, sample and implication, as shown in Fig. 4 below. This signifies research on these topics are mainly conducted at

microeconomic level, based on samples of data and information from the accounting system of companies, the auditors having a significant role in detecting accounting fraud and errors.

Moreover, researchers' focus is on the impact of accounting errors and fraud involves on company's stakeholders, as well as on the business climate.

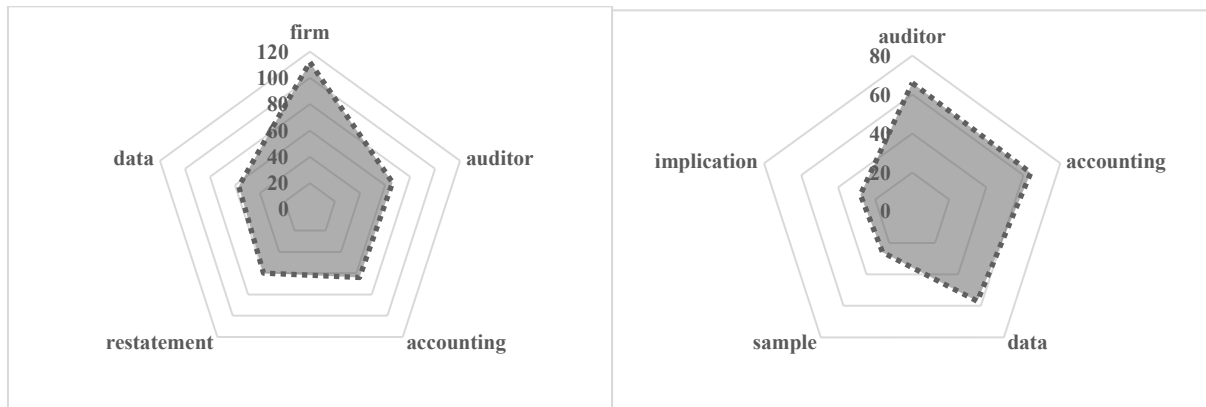


Figure 4. Most frequently used terms and terms with most links in research topics on accounting error and accounting fraud according to the scientific material extracted from the Web of Science platform
Source: own processing

The first thematic cluster consists of 19 terms, out of which the most frequently used are: accounting, data, system, law and Benford, research trends showing interest on the firm's accounting system and the use of statistical analysis, such as Benford's Law in analyzing data in order to detect anomalies, thus exposure to error and fraud risk. The second thematic cluster consists of 11 terms, the most occurring ones being: auditor, implication, effect, misstatement and impact. Thus, this cluster reveals a significant research trend towards the auditor's role and implication in discovering accounting errors and fraud, as well as on analyzing the impact and effect these have on the quality of the accounting information. The third thematic cluster comprises 6 terms: firm, sample, earnings management, earning manipulation and accounting irregularity. Therefore, the research trend regards earnings management techniques, accounting irregularities and accounting truth's manipulation at microeconomic level.

The fourth thematic cluster also comprises 6 terms: restatement, financial reporting, consequence, irregularity, audit committee, and internal control. The most occurring terms suggest an increased research interest on the audit's role in detecting accounting irregularities and in certifying the quality of the data from the financial reporting. The last thematic cluster consists of 5 terms: performance, decision, reason, and fraud risk. Therefore, research is focused on the motivation for engaging in fraudulent practices and on the role of the performance analysis in the decision of manipulating accounts.

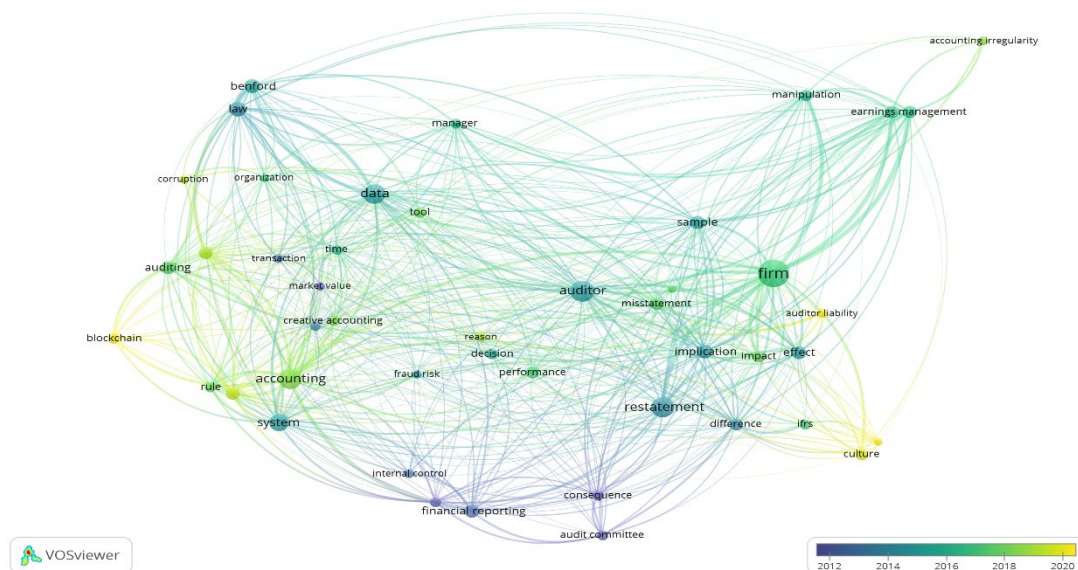


Figure 5. Research trends on accounting error and accounting fraud from a temporal perspective, according to the scientific material extracted from the Web of Science platform
Source: own processing

From a temporal perspective, it can be noticed (as shown in Fig. 5 above) that the researchers' interest has shifted over the years, as follows:

- Research on irregularities regarding financial reporting – around the period 2011 – 2013;
- Research on the auditor's role and implication in discovering accounting errors and fraud – in the period 2014 – 2015;
- Research on the company's accounting information system as the data source for error and fraud – in the period 2016 – 2017;
- Research on creative accounting – around the period 2019;
- Research on auditors liability and accountability – around 2020 – 2022.

V. CONCLUSIONS

The object of this research is to quantify the current state of knowledge in what concerns the thematic regarding accounting error and accounting fraud by use of bibliometric analysis.

The scientific material under review comprising 95 publications was extracted from the Web of Science platform and was analyzed in the VosViewer software. The temporal dispersion of the analyzed scientific publications showed that most research was published in 2021, followed by 2020, 2022 and 2016. From a geographical and geopolitical perspective, the highest publication volume is obtained the United States, followed by Germany and Romania.

The thematic mapping of research conducted on accounting error and fraud revealed five main themes of interest around keywords as firm, auditor, accounting, restatement and performance. Therefore, research on these topics are mainly conducted at microeconomic level, based on samples of data and information from the accounting system of companies, auditors having a significant role in detecting accounting fraud and errors. Moreover, researchers' focus is on the impact of accounting errors and fraud on company's stakeholders, as well as on the business climate.

From a temporal perspective, it was concluded that the researchers' interest has shifted over the years, from focus on irregularities regarding financial reporting (in the period 2011 – 2013) to the auditor's role and implication in discovering accounting errors and fraud (in the period 2014 – 2015), then on the company's accounting information system as the data source for error and fraud (the period 2016 – 2017), on creative accounting (the period 2019) and finally on auditors' liability and accountability (around 2020 – 2022).

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