

# audit

## FINANCIAR

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# Current Developments and Perspectives Regarding Financial Reporting in Romania.

## Qualitative Requirements for Financial Auditors

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## Abstract

*Through this paper, the authors have proposed to highlight the current topics that are of real interest for the economic environment, in general, and for the accounting profession, in particular, mainly aiming at the following: the dynamics of the evolution of regulations regarding financial reporting at the national level, in correlation with the overall requirements at European and international level; the novelty of approaches regarding financial reporting/corporate reporting and their complexity in the context of current European policies and strategies regarding sustainable development, achieving the green transition and building an economy in the service of citizens; the content analysis of the conceptual and substantive developments of recent European regulations, embodied in Directive (EU) 2022/2464 on sustainability reporting by certain categories of entities, in order to understand and properly transpose its requirements into domestic legislation and then in current practice, by: national entities, the accounting profession in general, and financial auditors, in particular. Last but not least, the authors aimed to identify the impact of these regulations in the changes that should be taken into account in university education, in the research programs that will be launched in the following periods, as well as in the continuous training programs of some representative professional categories, including of the accounting profession.*

**Key words:** financial reporting; sustainability reporting standards; limited assurance engagements; reasonable assurance missions;

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## Introduction

As it is known, all the developments of the last decades regarding the field of accounting and the accounting profession, at a global level, have primarily aimed at increasing the users' trust of accounting information in financial reporting.

In modern economies, which face a fierce competitive environment, financial reporting represents the basic decision-making support for all categories of decisions that are taken at the microeconomic level and that may look at aspects related to reliability and financial performance; business expansion capacity; adjusting the strategies of each entity in correlation with the assumed development objectives; the implementation of an internal control based on truthful information that contributes to reducing the general and specific risks of the entities in question, etc.

The particularity of the requirements regarding financial reporting presupposes, first of all, the correct understanding of the importance of the quality of the information provided through financial reports and also of the legal responsibilities regarding their preparation, approval, and publication. The interest of users of accounting information regarding the quality of information provided by financial reporting must be equally important. The General Conceptual Framework of the IASB specifies that users of financial information are effectively responsible for studying the reported financial information with reasonable conscientiousness, and not only, with the availability to study them, and in the case of particularly complex economic phenomena, they can request the help of advisers to understand them properly<sup>16</sup>.

The existence of a specific inter-conditioning between the objectives of the two categories of factors, namely the providers of accounting information and its users, should ensure the guarantee that any shortcomings in the process of preparing financial reports are detected and corrected following qualified examinations and other forms of quality assurance financial information, in such a way that, when it becomes public and actually reaches the users, it responds exactly to their requirements.

The European institutions with powers in the field of accounting reporting, in implementation of the Treaty on the Functioning of the EU (TFEU), have adopted, over

time, numerous legal acts regarding the field of accounting and accounting reporting precisely with the aim of exercising EU powers in this field of activity. At the same time, the competent national authorities in our country, based on the provisions of the above-mentioned Treaty, ensured the process of transposition into the internal legislation of all the requirements of the European Directives, regarding accounting, accounting reporting, and the regulated professions of the field.

For its part, the International Accounting Standards Board (IASB) has developed the requirements regarding the companies' financial reporting, by revising the provisions of some International Accounting Standards and introducing numerous new International Financial Reporting Standards (IFRS). The declared purpose of these developments aimed mainly at the assistance directed to those responsible for the preparation of financial reports but, to the same extent, also assisting the users of financial reports in the interpretation of the information contained therein.

The International Federation of Accountants (IFAC), through the International Auditing and Assurance Standards Board (IAASB) – the International Auditing Standards Body - has developed a comprehensive set of standards for quality control, auditing, review, other assurance services and related services (IAASB Manual), so that through qualified examinations of the information provided, the elimination/significant reduction of all general and specific risks is ensured.

The Chamber of Financial Auditors from Romania, in its capacity as a professional body that organizes, coordinates and authorizes the performance of financial audit activity in our country, under the supervision of ASPAAS, promotes and supports the connection of this profession to the international standards and norms in force, so that the services provided by its members, in the public interest, of the business community and of the economy as a whole, to respond to the demands and requirements of the day.

It can be stated that, in recent decades, the benchmarks of financial reporting requirements - for general purposes and for other purposes - in our country, have been subordinated to permanent compliance requirements with increasingly complex European and international regulations. This increase in the degree of complexity of the new demands requires - for all interested parties - the strengthening of interest in the correct understanding of the essential elements brought by the new regulations

<sup>16</sup> Point BC3.43 of the Basis for conclusions to the General Conceptual Framework

and, last but not least, for the integrated approach to the whole issue regarding financial reporting/corporate reporting on sustainability, so that for each of the responsible levels the representative elements to be resolved are identified.

## 1. Legislative and theoretical framework regarding the field of the research

### 1.1. Regarding the reference legislative framework

For the realization of this section of the paper, we aimed to focus with priority on the package of regulations and, at the same time, on the political decisions at the national and European level that have majorly influenced the extent of the reforms in the field of accounting and its regulated professions.

As is known, the dynamics and background of the reforms in the field of accounting were able to have a declared European orientation after the signing, on February 1<sup>st</sup>, 1993, of the Association Agreement of Romania with the European Union. The initialing of this act oriented the steps related to the regulatory process regarding the field of accounting and the related regulated professions, with priority on its understanding, in order to gradually take over the representative European Directives of the field in the internal legislation: Fourth Directive no. 78/666/EEC; Seventh Directive no. 83/349/CEE and the eighth Directive no. 84/253/53/EEC.

Before the start of the process of transposition into the internal legislation of the requirements of the European Directives mentioned above, the first period of reforms in the field of accounting was completed, in accordance with the internal legislation that materialized the transition of the Romanian economy to function on the principles of the competitive, market economy. Thus, Companies Law No. 31/1990 and Accounting Law No. 82/1991, together with their implementing regulations, marked the beginning of the adoption of decisive concepts and principles for the entire subsequent course, followed by reforms in the field of accounting and the accounting profession.

The extent of the reforms in the field of accounting also generated interest in the signing by the Romanian Ministry of Finance, in January 1990, of the first collaboration agreement with the Ministry of Finance and the French

accounting profession. This collaboration came as naturally as possible, if we consider the fact that, about two decades ago, namely in 1970, the Romanian Ministry of Finance - through the Directorate of Accounting Normation, Methodology, and Guidance - carried out the first important accounting reform from our country, following an exceptional collaboration with the Ministry of Finance, the National Accounting Council and the Central Bank of France - at the decision of the then renowned finance minister - Aurel Vijoli.

Within the respective reform, we consider it necessary to bring the following to attention: the replacement of the old charts of accounts originating, by translation, from the former Soviet Union - applied after the transition to the centralized economy - with charts of accounts and instructions for their implementation for each branch of activity; the elaboration and implementation of the rules regarding the periodic inventory of the patrimony and, last but not least, the substantive regulation of the accounting of the companies and the establishment of the specific forms for accounting reporting.

In the mentioned context, the professional collaboration carried out with the French profession after 1990 started with the identification of the items that were not found in our accounting, after the fifty years of centralized economy.

The negotiation process of our country's accession to the European Union, which began in February 2000, established that the field of accounting and financial audit is at a high level of compliance with European directives and, as a result of the developments observed in the evaluation process, on November 28, 2001, negotiations for this chapter were closed.

The signing of the Accession Treaty of our country to the European Union, starting from January 1, 2007, was a new opportunity to evaluate and ascertain the high degree of compliance of national regulations with European ones, which throughout this period of time have undergone numerous changes and developments that have been properly transposed into domestic law.

The increase in interest in the quality of the information provided by financial reporting, for their transparency and comparability, regarding certain categories of entities, marked the launch at the end of 1999 of the "Continuation Plan for the Development of the Romanian Accounting System". Based on it, the foundations were laid for the process of gradual implementation, for certain categories

of entities, of the International Accounting Standards and the creation of the financial audit profession.

We consider it necessary to bring to attention, within our research, the fact that all major reforms regarding the field of accounting and the regulated professions of this field were preceded by well-understood Strategies, and specific Action Plans with clearly established responsibilities and deadlines. These were closely monitored, mostly at the government level. In this context, the complexity of the provisions of Directive 2022/2464/EU, which concern a large number of governmental and non-governmental institutions, professions, companies, and their administrative and supervisory bodies, we believe that it imposes a set of specific actions that are well understood, clearly organized and well implemented.

The experience so far shows the fact that the process of organization, correct and complete media coverage of the objectives pursued through the implementation of complex directives, such as Directive 2022/2464/EU, as well as the existence of cores with monitoring duties - primarily creates the premises the correct understanding of the background of these new elements, especially by the business environment and by the administrative and supervisory bodies of the entities that are required to have increased powers and responsibilities. The natural effect of understanding is found in the creation of the climate of acceptance of new items, the search for solutions, and, finally, the generation of concrete actions to achieve the objectives designed and assumed in full knowledge of their effects.

## 1.2. Regarding the literature review

In the literature review, we focused with priority on the representative research works of the accounting profession, published between 2015-2023 in "Financial Audit" (ro: *Audit Financiar*) journal. The aim was to assess the extent to which the local accounting profession was involved in the process of researching the implications that legislative changes at the European and national levels regarding sustainability/sustainable development brought to the non-financial reporting practices of some categories of entities. At the same time, we followed the way in which the challenges and opportunities for the financial audit activity were highlighted and, last but not least, the impact of these changes on some key areas of the national economy.

In this framework, we want to highlight the permanent concerns of the "Financial Audit" (ro: *Audit Financiar*)

journal to promote through its pages well-documented research on the set of challenges and opportunities, for the accounting profession and for the economic environment, generated by the process of integrating the objectives of sustainable/sustainable development, in all areas of economic and social life.

Our assessments take into account, on the one hand, the particularities of non-financial reporting, which until now was based on a minimal level of regulation, as well as the fact that some of the companies did not have business models in their organizational culture that valued the environmental, social and governance factors, so that the documentation, research and appropriate information requirements of the stakeholders are as real as possible.

Our experience in the field of accounting regulation has strengthened our belief that well-documented research and their substantiated conclusions, published to those interested, have a major role in supporting the process of implementing complex reforms in the field. It is a recognized advantage of research, in the sense of not limiting its horizon of action, which allows it to penetrate into the details of economic and social phenomena, details that, as a rule, are not allowed to the regulatory act of a field. This is also the reason why Directive 2022/2464 (EU) involves a major contribution to its implementation of all sectors of activity of the economy, especially the field of education and research development.

We consider it necessary to bring to attention some conclusions of the research published in the pages of "Financial Audit" (ro: *Audit Financiar*) journal and at the same time to support with all conviction the need to support the continuation and consolidation of research in the field of accounting and its regulated professions.

Romania is in a continuous process of developing non-financial reporting practices. With the help of the "Guide on the reporting of non-financial information", developed by the European Commission for the understanding of the principles, Romania can be a potential reporter that participates with other EU countries in raising awareness of the importance and maintaining communication of non-financial information for stakeholders (Marinescu, 2020).

Reporting is a subject of interest firstly because an innovative business model can contribute to the sustainable and sustainable development of the company, and secondly because it can constitute a competitive advantage in a business world where there a fierce competition (Bunget et al, 2023).

The fact that the research carried out highlighted a process of strengthening the implementation by some entities, mainly those whose securities are traded on the BSE, of global standards regarding sustainable development reporting, codes of good practice, and established management systems (environmental, health and safety at workplace, anti-corruption, etc.) reflect the awareness of the importance of communicating non-financial information relevant to stakeholders.

The reporting of non-financial information related to sustainable development by companies listed on the BVB in the period of 2015-2019 led to increased relevance in terms of the influence exerted on the capital value (Nechita, 2021).

The assurance engagement of non-financial information is different from the audit of financial information. Thus, auditors issue the report or the assurance statement based on other standards, which can create difficulties in their application. Difficulties can be created by the way in which the reports were drawn up, but also by the practices that the auditors have to realize in carrying out the mission (Hațegan, 2022).

The introduction of Sustainable Development Goals (SDGs) in universities, regardless of specialization (business, engineering, sociology, psychology, medicine etc.) is an important step in university education and can help students better understand the challenges faced by organizations and society (Dumitrașcu, 2023).

The conclusions of the research carried out in recent years reflect as explicitly as possible the fact that the economic and social development recorded in recent decades at the global level brings together with financial information more and more requirements regarding non-financial information and implicitly ensure an integrated vision regarding financial reporting /corporate sustainability reporting.

## 2. The research methodology

The research undertaken in order to prepare this paper pursued two major objectives, namely:

- on the one hand, highlighting the dynamics of the evolution of requirements in the field of accounting and financial reporting, in correlation with the political objectives of the periods passed by our country in the last decades, according to the assumed national strategies;

- secondly, the objective observation of some aspects - up to date - regarding the quality of the information provided through the financial reporting to users, in order to identify potential items generating difficulties, respectively their causes, and, last but not least, the evaluation of general preparation for the transition to corporate sustainability reporting.

The research base was primarily represented by public financial reports, including managers' reports and audit reports on a representative number of entities, most of which fall within the size criteria that require the preparation of the "Non-Financial Statement". At the same time, we launched a questionnaire comprising 15 questions to the financial directors of an important number of representative companies. Through it, we sought to know the perception of accounting professionals from entities regarding the legal framework that regulates financial reporting, as well as the identification of possible difficulties of the financial reporting process, that they face. Considering the practical experience of the professionals in the entities, we also pursued the identification of specific proposals, with a direct impact on increasing the quality of financial reporting, which can be capitalized on by the authorities with attributions in the field of accounting regulation and financial audit. A set of questions also addressed how the respective entities are prepared for the new challenges generated by the adoption of the new concept of "corporate sustainability reporting".

The responses to the launched survey, although not at the expected level, provided us with a sufficient basis of analysis to reach well-founded conclusions. To avoid any risk of error, we completed our research with the analysis of a corresponding volume of information provided by the financial reports of the entities in question.

## 3. Daily challenges generated by the transition from non-financial information to sustainability information

The Treaty on the Functioning of the European Union (art. 11) provides that "Environmental protection requirements are integrated into the definition and implementation of Union policies and actions, especially with a view to sustainable development".



The issue of sustainable development has, over time, become the subject of an important number of European regulations through which the necessary attention was paid, on the one hand, to European policies and strategies (Financing of sustainable growth, "The European Green Deal", Strategy for financing the transition to a sustainable economy), but also the publication of sustainability information by certain categories of entities.

Directive (EU) 2022/2464 of December 2022, which has a deadline for transposition into domestic legislation - July 6, 2024 - amended the Accounting Directive 2013/34/EU, regarding its provisions on the publication of non-financial information, introduced by the Directive 2014/95/EU.

As it is known, Directive 2014/95/EU entered into force in 2016, it was applied for the first time in 2018, for the financial year of 2017. As regards economic operators, it was transposed into national legislation through OMPF no. 1938/2016 regarding the modification and completion of some accounting regulations, published in the Official Gazette of Romania no. 680/September, 2<sup>nd</sup>, 2016.

Through this order, the requirement regarding the "Non-financial declaration", included, as a rule, in the Managers' Report, was established for public interest entities that, at the balance sheet date, fell within the criteria required by the Directive. At the same time, the obligation of the statutory auditor or the audit firm to verify whether the non-financial statement was provided was stipulated.

About two years after the entry into force of the mentioned European regulations, the European Commission undertook, through the "European Green Pact" document, to majorly revise the provisions of the previous regulations, following the concerns expressed regarding the increasingly visible consequences of climate change and the effects they have on life on the planet Earth. These concerns have been stimulated by the context of the crisis caused by the Covid 19 pandemic and have materialized in the recent Directive (EU) 2022/2464 on sustainability reporting by companies<sup>17</sup>.

A major change brought by Directive (EU) 2022/2464 consists, first of all, in replacing the "non-financial information" term with that of "sustainability information". The explanation given is as logical as possible in that the

information in question has a definite financial relevance and, last but not least, the fact that the benefits of better sustainability reporting can target a wide range of information users.

The significant increase in demand for sustainability information is seen to be driven by investors' growing awareness of the changing nature of climate-related financial risks, health and social risks, and, last but not least, understanding the disruptions caused by people on ecosystems, with consequences in the emergence of major imbalances and the spread of diseases. In this context, the directive calls for a coherent basis for sustainability reporting, in the form of reporting standards and, at the same time, effective auditing practices to ensure data reliability and to avoid environmental misinformation and double recording.

The extension of the requirements regarding the provision of "sustainability information" to other categories of entities is mainly justified by the natural concerns related to the impact of the economic activities of companies and, at the same time, by the need for them to assume responsibilities that cover the entire value chain involved of carrying out their specific activities.

Particularly relevant are the requirements of Directive (EU) 2022/2464 regarding information on corporate governance factors. Such information should cover the role of the administration, management, and supervisory bodies of the companies regarding sustainability, their specialized knowledge, the necessary skills, how access to such specialized knowledge is achieved, the existence of internal control systems, and risk management of an entity from the point of view of the sustainability reporting process.

The requirement to address the progressive increase in the level of assurance required for sustainability information begins with the obligation imposed on the statutory auditor or audit firm to express an opinion on the compliance of sustainability reporting with EU requirements. In this sense, priority actions are concretely identified in the mentioned directive, among which we present in this framework those related to the financial audit activity:

- preparation of the progressive transition from limited assurance missions to reasonable assurance missions on sustainability reports;
- development of the program regarding access to the profession of financial auditor with the requirements

<sup>17</sup> Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) no. 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU regarding sustainability reporting by companies

that the qualification of the financial auditor implies regarding assurance missions on sustainability reports;

- development of continuous training programs for statutory auditors in terms of ensuring annual and consolidated sustainability reporting and other services related to sustainability;
- clarifications regarding allowing the accreditation of independent insurance service providers, etc.

In Romania, all of the assumed objectives regarding sustainable/sustainable development have been integrated into the National Strategy for Sustainable Development of Romania 2030 (SNDDR), adopted by GD no. 877/9 Nov. 2018, published in the Official Gazette no. 985/21 Nov. 2018.

The main instrument for coordinating activities to ensure the functioning of governance structures for the promotion and effective implementation of the principles and objectives of sustainable development is the National Action Plan for the implementation of the SNDDR 2030, adopted by the Government of Romania in 2022.

Its central objective aims to manage all the processes specific to the sustainable development process, by involving stakeholders from all sectors of economic and social-political activity, public administration, the economic and business environment, education, research-development-innovation, etc. For example:

A. for education - the promotion of education programs for sustainable development, which primarily involves:

- adapting the university curriculum to the requirements of promoting and implementing the principles and objectives of sustainable development;
- the development of educational programs for university and post-university training for the achieving of knowledge and skills in the field of sustainable development (university courses, masters, doctoral school, post-doctoral and adult training programs);
- interdisciplinary cooperation and exchange of knowledge between higher education institutions and researchers in fields related to sustainable development.
- B. for research-development-innovation:

- ensuring the integration into research, development, and innovation funding. programs of research objectives aimed at sustainable development in correlation with the provisions of the SNCDD and the Action Plan for its implementation;
- attracting to a greater extent the domestic business environment in research, development, and innovation activities, carried out in partnership (national research and development institutes, universities, the business environment). The purpose of these partnerships should be to familiarize the economic environment with the implicit challenges of sustainable development and, last but not least, to facilitate the identification of new opportunities of strategic interest regarding the development prospects of the entities in question;

C. to strengthen the corporate governance of entities of public interest - concrete actions of the authorities with attributions in the field of monitoring and evaluating the performance of public enterprises aimed at:

- strengthening the implementation of corporate governance principles in these units, in order to increase transparency and improve the quality of publicly presented information, including achieving an integrated vision regarding financial reporting/corporate sustainability reporting;
- ensuring that the administrative, management, and supervisory bodies of the public interest units have the specialized knowledge and skills necessary to perform the respective functions and to create internal control and general and specific risk management systems, including those related to achieving the objectives regarding sustainable development.

In conclusion, the new challenges - mentioned above - regarding sustainability reporting, as well as the permanent requirements regarding the quality of information provided by financial reporting, in our opinion, require a set of well-harmonized and carefully monitored actions. The important number of national responsibilities with specific attributions in this field requires the assumption of the necessary discipline in communication, cooperation, and collaboration, both during the establishment of concrete objectives aimed at each field separately, as well as in their achievement.

## 4. Sustainability reporting – present and future

### 4.1. Current non-financial reporting requirements

Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards the presentation of non-financial information and diversity information by certain large undertakings and groups (Directive 2014/95 /EU) introduced the obligation for companies to report information on at least environmental, social and personnel aspects, respect for human rights and the fight against corruption and bribery. Regarding the respective subjects, Directive 2014/95/EU required companies to present information in the following reporting areas: business model; policies, including due diligence processes; the results of the respective policies; risks and risk management, and key performance indicators relevant to the company's activity.

In the implementation of the Directive, on July 5, 2017, the Commission published a Communication entitled "Guide on the reporting of non-financial information (non-financial information reporting methodology)", providing non-binding guidelines for companies that fall within the scope of the respective directive.

However, according to the Commission's Report of April 21, 2021, on the review clauses provided for in Directives 2013/34/EU, 2014/95/EU, and 2013/50/EU and the verification of the related adequacy of the EU framework for public reporting by companies, problems were identified regarding the effectiveness of Directive 2014/95/EU, under the following aspects:

- the existence of companies that do not present significant information on all major topics related to sustainability, including information related to climate, such as those related to all greenhouse gas emissions and factors affecting biodiversity;
- comparability and reliability of information on sustainability, in the sense of their limited character;
- the existence of many companies from which users need sustainability information, but which are not required to report such information;
- the growing trend of the gap between the information needs of users and the sustainability information provided by enterprises, with consequences for investors, non-governmental organizations, social

partners, communities affected by the activities of enterprises, and other stakeholders;

- increasing the number of requests for information addressed to businesses regarding sustainability issues in an attempt to eliminate the existing gap between users' need for information and the available sustainability information provided by businesses;
- limiting the capacity of interested parties, including civil society actors, unions, and workers' representatives to engage in dialogue with businesses on sustainability issues, determined by the lack of sustainability information provided by businesses, etc.

### 4.2. The CSRD Directive and the context of its issuance

Starting from the issues exemplified in point 1, in its Communication of 11 December 2019 entitled European Green Deal ("Green Deal"), the European Commission undertook to revise the provisions on the reporting of non-financial information in Directive 2013/34/ EU of the European Parliament and of the Council of June 26, 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of companies, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Directives 78/ 660/EEC and 83/349/EEC of the Council.

The European Parliament welcomed that commitment and expressed the need to establish a comprehensive framework at the level of the Union regarding non-financial reporting, containing mandatory standards of non-financial reporting at the level of the Union. The European Parliament called for the scope of the reporting requirements to be extended to include additional categories of businesses, as well as the introduction of an audit requirement.

In this context, Directive (EU) 2022/2464 of the European Parliament and of the Council of December 14, 2022 amending Regulation (EU) no. 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU regarding sustainability reporting by companies (CSR Directive), published in the Official Journal of the European Union series L, no. 322 of December 16, 2022.

According to the mentioned Directive, all large companies should be subject to the same public reporting requirements on sustainability information.

Financial market participants also need information from large companies whose securities are not admitted to trading on a regulated market in the Union.

Given the increasing relevance of sustainability risks and taking into account the fact that small and medium-sized enterprises whose securities are admitted to trading on a regulated market in the Union represent a significant proportion of the total enterprises whose securities are admitted to trading on a regulated market in the Union, in order to ensure the protection of investors, it was considered appropriate to oblige small and medium-sized enterprises, with the exception of micro-enterprises, whose securities are admitted to trading on a regulated market in the Union to publish information on sustainability aspects.

The requirement set out in the new directive for companies from third countries whose securities are admitted to trading on a regulated market in the Union to publish information on sustainability issues aims to respond to the needs of financial market participants to obtain information from such businesses to enable them to understand the risks and impact of their investments.

In addition, third-country companies carrying out significant activity in the Union should be required to provide information on sustainability, in particular on their impact on social and environmental aspects, to ensure that third-country companies are held accountable for their impact on people and the environment and that there is a level playing field for businesses operating in the internal market.

### 4.3. Future requirements and perspectives

#### 4.3.1. From the EC point of view

The Commission initiated the CSRD approach and the EC is also to submit a report to the European Parliament and the Council on the implementation of the new directive, consisting of the assessment of the achievement of the objectives of the directive and the implementation of the reporting requirements.

In the context of that analysis, an important aspect is the level of concentration of the sustainability assurance market.

The analysis will take into account the national regimes applicable to independent insurance service providers and determine whether and to what extent these national regimes contribute to the opening of the insurance market.

The Commission will also consider possible legal measures to ensure sufficient diversification of the sustainability assurance market and adequate quality of sustainability reporting.

The report in question is accompanied, if necessary, by legislative proposals.

#### 4.3.2. From Romania's point of view

In Romania, the competence to transpose the CSRD provisions is shared as follows:

- between the Ministry of Finance, the National Bank of Romania, and the Financial Supervisory Authority - for the provisions related to the Accounting Directive;
- between the Ministry of Finance and the Authority for Public Supervision of the Statutory Audit Activity - for the provisions relating to the audit.

An important aspect in the context of the transposition of the provisions of the Directive is the date from which its provisions will apply.

Thus, according to art. 7<sup>18</sup> from Directive, art. 4 – regarding the Amendment of Regulation (EU) no. 537/2014<sup>19</sup> - applies from January 1, 2024, to financial years starting on or after January 1, 2024.

According to Art. 5<sup>20</sup> para. (1) of the same Directive, Member States ensure the entry into force of the legislative acts and administrative acts necessary to comply with Articles 1-3 of the Directive by July 6, 2024. Specifically, the three invoked articles refer to the following aspects:

- art. 1 - Amendment of Directive 2013/34/UE;
- art. 2 - Amendment of Directive 2004/109/CE<sup>21</sup>;
- art. 3 - Amendment of Directive 2006/43/CE<sup>22</sup>.

<sup>18</sup> Entry into force and implementation

<sup>19</sup> Regulation (EU) no. 537/2014 of the European Parliament and of the Council of April 16, 2014 regarding specific requirements regarding the statutory audit of public interest entities and repealing Commission Decision 2005/909/EC

<sup>20</sup> Transposition

<sup>21</sup> Directive 2004/109/EC of the European Parliament and of the Council of 15 December 2004 on the harmonization of transparency obligations with regard to information on issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34 CE

<sup>22</sup> Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on the statutory audit of annual

It is also worth emphasizing that the scope of Directive 2006/43/EC extends in the sense that it establishes rules regarding the statutory audit of annual accounts and consolidated accounts and the assurance of annual and consolidated sustainability reporting.

Accordingly, the definitions for "statutory auditor" and "audit firm" are supplemented so that they also cover the assurance of sustainability reporting.

Many of the provisions applicable to the statutory audit of financial statements apply *mutatis mutandis* to the assurance of sustainability reporting.

The statutory auditor(s) or audit firm(s) present the sustainability reporting assurance results in a sustainability reporting assurance report. That report is drawn up in accordance with the requirements of the assurance standards adopted by the Commission through delegated acts.

If the assurance of sustainability reporting has been carried out by several statutory auditors or audit firms, the statutory auditor(s) or audit firm(s) shall agree on the results of the assurance of sustainability reporting and submit a common report and a common opinion. In case of disagreement, each statutory auditor or audit firm presents its opinion in a separate paragraph of the assurance report on sustainability reporting and states the reason for the disagreement.

Member States shall ensure that the members of the administrative, management and supervisory bodies of an undertaking, acting within the limits of the powers conferred by national law, have a collective responsibility to ensure that the following documents are drawn up and published in accordance with the requirements of this Directive and, if applicable, in accordance with international accounting standards adopted pursuant to Regulation (EC) no. 1606/2002, with Delegated Regulation (EU) 2019/815, with the sustainability reporting standards referred to in article 29b<sup>23</sup> or article 29c<sup>24</sup> and with the requirements of article 29d<sup>25</sup>:

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accounts and consolidated accounts, amending Council Directives 78/660/EEC and 83/349/EEC and repealing Directive 84 /253/EEC of the Council

<sup>23</sup> Sustainability reporting standards

<sup>24</sup> Sustainability reporting standards for small and medium-sized enterprises

<sup>25</sup> Unique electronic reporting format

- a) the annual financial statements, the administrators' report and the corporate governance statement, in cases where they are presented separately; and
- b) the consolidated financial statements, the consolidated reports of the administrators and the consolidated declaration on corporate governance, in cases where they are presented separately.

According to the CSRD Directive, the Commission adopts delegated acts to provide for sustainability reporting standards. Those sustainability reporting standards specify the information that businesses must report and, where appropriate, the structure that must be used to present that information.

It was intended that the information to be reported would be known by June 30, 2023.

Under these conditions, each of the national authorities with attributions in the CSRD transposition is to proceed with the analysis of its provisions, in order to ensure a proper implementation.

## 5. Financial reporting/corporate reporting on sustainability and implied requirements for the accounting profession

### 5.1. The main requirements followed

The launched research had several well-established requirements in mind, which mainly aimed at:

- knowledge of the way in which the entities that fall under the requirements provided by the Order of the Minister of Public Finance no. 1.938/2016 regarding the modification and completion of some accounting regulations have complied with the guidelines regarding non-financial reporting;
- the evaluation - up to date - of the requirements regarding the increase in the degree of convergence of the Accounting Regulations regarding individual annual financial statements and consolidated annual financial statements, approved by Order of the Minister of Public Finance no. 1.802/2014, and with other provisions of IFRS (without contravening, however, European directives). As is known, after the accession of our country to the European Union, the accounting regulations in accordance with the European directives went through a permanent process of compliance with

some provisions of the International Accounting Standards, a process particularly well received by the accounting profession;

- the identification of concrete situations in which the entities that apply the Accounting Regulations in accordance with the International Financial Reporting Standards, approved by the Order of the Minister of Public Finance no. 2.844/2016, encountered difficulties or limitations in the implementation of these regulations and their causes.

The assessment of the level of compliance with the non-financial reporting requirements was mainly based on the analysis of the public reports carried out by the units in question. Among the identified results we can mention the following:

- important progress made, in recent years, by some entities - mainly those whose securities are traded on the Bucharest Stock Exchange - regarding the implementation of environmental management systems (ISO 14001:2015); energy management (ISO 50001:2011); health and safety management at the workplace (ISO 45001:2018); anti-corruption management (ISO 37001:2016); Codes of good practice and some Global Standards on sustainable development reports;
- some limits in taking over the concept of MSG (environmental, social, governance) and the requirement to monitor this process for a category of representative units, some of public interest.

## 5.2. Financial reporting and implied requirements for the accounting profession and for financial auditors

### 5.2.1. Basing the decision to launch the research aimed at identifying the up-to-date requirements for strengthening the quality of financial reporting

The accounting reports that entities prepare have become more and more complex and are no longer strictly limited to information contained in the Balance Sheet/Statement of Financial Position, in the Profit and Loss Account/Statement of the Comprehensive Result, or in the other components of the annual financial statements.

Great attention is paid to the presentation of other information related to the activity of the entity, which has

the role of helping users understand the information contained in the financial statements.

In order to meet the information needs of information users, the accounting regulations have been amended and supplemented accordingly by the accounting standardizers.

Among the factors that determine the improvement of legislation in the field of accounting, we mention community legislation (European Directives and European Regulations), as well as information users. Community legislation has boosted the development of accounting regulations both in terms of their compliance with European Directives and the requirements for the presentation of certain information such as, for example, the reporting of payments made to Governments and the presentation of non-financial information, which should be performed by certain categories of entities. Users of information from accounting reports can be organized entities (investors, associations, foundations, unions, local communities), but also individuals.

Another factor that led to the improvement of legislation in the accounting field was the business environment, the transactions carried out by economic operators being increasingly diverse and complex.

Two components are involved in the financial reporting process, one being the legal reporting framework, the other being represented by practice, through professional accountants and other specialists with skills regarding the presentation of information. Currently, the majority of economic operators apply the *Accounting Regulations regarding Individual Annual Financial Statements and Consolidated Annual Financial Statements*, approved by Order of the Minister of Public Finance no. 1.802/2014, with subsequent amendments and additions.

A smaller number of economic operators, but important in terms of their share in the indicators at the national level, implement the *Accounting Regulations in accordance with the International Financial Reporting Standards*, approved by Order of the Minister of Public Finance no. 2.844/2016, with subsequent amendments and additions.

These regulations are applied by the entities whose securities are traded on a regulated market and by national companies and national companies with full or majority state capital, as well as by the autonomous agencies provided for by the *Order of the Minister of Public Finance no. 666/2015 regarding the implementation of the Accounting Regulations in accordance with the*

*International Financial Reporting Standards by some state-owned entities.*

### **5.2.2. Presentation of the main objectives of the research and the responses of the accounting profession**

Starting from the role of professional accountants in the financial reporting process, we launched a questionnaire addressed to the heads of financial-accounting departments in representative entities (hereinafter referred to as "professional accountants"), which targeted their activity. The questions addressed referred to the accounting regulations applied by them, the accounting-taxation relationship, the entity-auditor relationship, as well as aspects regarding the involvement of responsible persons in establishing sustainable development objectives.

We believe that the answers received can represent a basis for formulating some conclusions.

It is to be appreciated that the respondents argued their points of view and formulated some proposals.

The questions asked and the answers received covered several aspects which are presented below.

#### **I. The extent to which the applicable accounting regulations meet the accounting needs of economic-financial operations**

a) Accounting professionals were asked *"if they appreciate that there are provisions in the regulations approved by OMPF no. 1,802/2014 to allow the highlighting of operations carried out by entities that have complex activities and internal and external reporting needs"*.

To this question, 38.1% answered that the accounting regulations satisfy "to a great extent", while 47.6% of the professionals answered that the accounting regulations allow the accounting of operations so that there are no fiscal risks.

There were also professionals who appreciated that there are areas where accounting regulations could be improved, without specifying what they are.

b) Considering that in Romania the accounting regulations approved by the Order of the Minister of Public Finance no. 1.802/2014 and the accounting regulations approved by Order of the Minister of Public Finance no. 2.844/2016,

as well as the fact that there are differences in accounting treatment between the two accounting regulations for some operations, accounting professionals were asked *"if the adoption of some accounting treatments from the International Financial Reporting Standards in the accounting regulations approved by the Order of the Minister of Public Finance no. 1.802/2014 (without contravening the provisions of European Directives) would be useful to entities in the accounting reporting process"*.

To this question, 76.2% of the answers were affirmative, 14.3% answered negatively and 9.5% answered that they could not appreciate.

c) Starting from the fact that currently, only the entities expressly provided for by normative acts can apply IFRS, accounting professionals were asked *"To what extent do they think that expanding the area of implementation of IFRS for certain categories of entities would support organizations and users of information"*.

To this question, 66.7% of professional accountants answered affirmatively, 28.6% answered negatively, and 4.7% answered that they could not appreciate this aspect.

d) Accounting regulations in accordance with IFRS, approved by OMPF 2.844/2016, provided that they apply together with Accounting Law no. 82/1991, republished, with subsequent amendments and additions, with the International Financial Reporting Standards, as well as with other applicable legal provisions (art. 2 of OMPF no. 2.844/2016).

There are some areas of activity for which the authorities issue normative acts whose provisions interfere with some provisions of IFRS (for example, in the case of state-owned entities).

In this context, accounting professionals were asked: *"if they have identified situations in which national legislation limits or does not allow the exact implementation of IFRS"*.

To this question, the respondents mentioned the following situations:

- recognition of leasing assets, production and services in progress;
- the non-deductibility of some expenses in the case of applying IFRS due to the fact that these are estimated amounts or because they are not explicitly provided for in the Fiscal Law;
- the existence in the accounting law of the 150-day term for the preparation of financial statements in accordance with IFRS, considered to be restrictive,

especially in the case of companies/companies that have branches in the territory;

- reporting to state institutions in "standardized format, not harmonized with IFRS".

e) The implementation of accounting regulations in accordance with IFRS requires the exercise of professional judgment based on IFRS provisions, legislation, and other sources of information, as provided by IAS 8 "Accounting policies, changes in accounting estimates and errors".

Currently, the entities that implement the accounting regulations in accordance with IFRS have as a documentation base the legislation issued by the national authorities, the European regulations, as well as some didactic manuals used by the university staff in the teaching process in the relationship with the students.

Regarding the International Financial Reporting Standards, the most important source of documentation is *Commission Regulation 1126/2008 of November 3, 2008, adopting certain international accounting standards in accordance with Regulation (EC) no. 1606/2002 of the European Parliament and of the Council, a consolidated form thereof, with all amendments, being published on the website of the Official Journal of the European Union at <https://eur-lex.europa.eu/legal-content/RO/TXT/?uri=CELEX%3A02008R1126-20160101>.*

We remind that Regulation (EC) no. 1126/2008 includes the Standards approved according to the European Union procedure and guidelines for their application.

To the question "whether the entities benefit from an adequate documentation base for the proper implementation of IFRS", 52,4% of the answers were affirmative, and 38,1% negative. At the same time, 90.5% of professionals consider it necessary to fully translate IFRS, not just Part A, given the importance of understanding and implementation of the examples and explanations related to the standards.

f) In practice, there are many entities that apply IFRS to prepare a set of indicators for the purpose of consolidation or even financial statements intended for information users such as financing institutions, other creditors, or shareholders.

In the conditions in which these entities manage the accounting according to the accounting regulations approved by OMPF no. 1.802/2014, they should proceed

to restate the information in order to obtain information compliant with IFRS.

The accounting professionals were asked, "What are the aspects that impose a significant period of time for the accounting consolidation operation when, within a group, the parent company applies the International Financial Reporting Standards and the subsidiary applies the accounting regulations in accordance with the European Directives".

In their opinion, it is necessary to allocate resources for restating information due to differences in accounting treatment (76.2%) and, in some cases, due to different reporting dates (25%). At the same time, accounting professionals appreciate that they have to allocate resources due to the level of detail of the information reported in the financial statements (47.6%) and the information presented in the notes (38.1%).

## II. The accounting-taxation relationship

It is known that entities, especially small ones, pay more attention to aspects of fiscal nature, sometimes subordinating the rules of the accounting rules to the fiscal ones.

Convergence between accounting and taxation can be achieved in practice by approving accounting policies that correspond to a greater or lesser extent to the provisions of the tax legislation (for example, the estimation of the economically useful life of tangible assets that fall within the prescribed periods in the catalog regarding the classification and normal useful life of fixed assets, approved by Government Decision No. 2,139/2004).

The accounting regulations approved by OMPF no. 1.802/2014 include rules and principles, so that professional reasoning is carried out within the limits provided by them.

In the case of IFRS implementation, professional judgment can lead to accounting treatments for which there are not always explicit provisions in the Fiscal Law.

In this context, professional accountants were asked if "they believe that to avoid fiscal risks, a more extensive regulation with clearly defined rules is preferable to a more general regulation based on accounting principles and professional judgment".

Most of the respondents (81%) stated that they prefer an accounting regulation with clear, explicit rules, while



14.03% prefer an accounting regulation based on principles and professional judgment.

Tangible assets represent a significant part of entities' assets. They allocate important resources for their highlighting, so one of the questions referred to the extent to which *"the accounting treatment of tangible assets is based on the provisions of the Fiscal Law"*.

This time, the respondents mentioned in a proportion of 81% that the accounting treatment is harmonized with the tax legislation, thus avoiding the keeping of separate accounting records and tax records.

### III. Involvement of the entity's management bodies in the financial reporting process

Considering the importance of the information presented in the financial statements and in the Managers' Report, as well as the responsibilities of the management bodies of some categories of entities regarding sustainability information, the questions asked referred to the following aspects:

a) *If professional accountants "consider that those responsible for corporate governance in the entity have a sufficiently demanding view of the importance of the quality of the information provided through financial reports"*.

The answers received lead to the conclusion that in most cases those responsible for governance pay due attention (85.7%), while 14.3% of respondents state that they do not pay due attention to this aspect.

b) Considering the objectives aimed at sustainable development and the responsibilities of entities under Directive 2464/2022, the question asked referred to *"the extent to which, at the level of entities, there are concerns and a defined vision regarding the objectives of sustainable development"*.

The answers received highlighted the fact that in 90.5% of the entities, there is sufficient concern and interest, while in 9.5% of them, the interest is low.

c) To the question *"What do you think would be the ways of action to strengthen the process of adapting the internal strategies of each unit, in correlation with the objectives of sustainable development"*, the respondents indicated the following ways:

- economic directors to have a more active role in the boards of directors;

- the identification of the entity's specific sustainable development objectives;
- the inclusion of entity-specific sustainable development indicators in the Company's Development Strategy and the establishment of a permanent monitoring system for them;
- in-depth analysis of existing strategies, planning of objectives to be achieved, staff involvement;
- governmental support in various ways, including through programs to promote Romania's SNDD and the National Action Plan for its implementation;
- a sustainable development means certainty over a long period, being indicated as influential factors that must be taken into account: large price variations, the disappearance of some collaborating companies, the war in the neighborhood;
- communicating the objectives of sustainable development to the company's employees and business partners; the involvement of persons responsible for specific activities for the preparation of non-financial sustainability reports;
- the development of the organizational culture for the consolidation of understanding and responsibility and in the direction of establishing and fulfilling the indicators regarding the environment and the social field, not only in the direction of establishing and achieving the economic and financial indicators;
- adequate information and training of management regarding the importance of sustainable development;
- professionalism and fairness in recording, interpreting, and transmitting accounting information, in accordance with legal regulations.

## 6. Conclusions

The research carried out on financial reporting/corporate reporting on sustainability in our country highlights the following aspects:

- the progress recorded in the last decades in the process of assimilation and implementation of an important volume of international standards and increasingly complex European regulations regarding financial reporting;
- the need to consolidate the monitoring process of some categories of entities in order to increase

transparency and improve the quality of public information;

- the assumption by an increasingly representative number of entities of an increased level of requirements regarding non-financial reporting, reflected by the implementation of recognized management systems regarding: the environment; energy; health and safety at work; corporate governance; the adoption of codes of good practice, as well as global standards regarding the preparation of sustainable/sustainable development reports;
- the major expectations regarding the consolidation of the corporate reporting process, generated by the Sustainability Reporting Standards, to be promoted by the European Union and, then, duly taken over in the internal legislation by the competent authorities;
- the need to organize an appropriate process of preparation and implementation of all the requirements of Directive 2022/2464/EU, requirements aimed at a

large category of managers from governmental and non-governmental entities, regulated professions, their supervisory authorities, and representative units of the national economy.

In our opinion, there are the necessary prerequisites for the national regulatory authorities to ensure a proper takeover in the internal legislation of the overall requirements of Directive 2022/2464/EU, and through the public supervision authorities regarding certain categories of entities and professions, to ensure close monitoring of the implementation process.

However, we have found the existence of limits regarding certain categories of entities, some of which are of public interest and for which increased monitoring measures are necessary regarding the increase of their concerns for the assumption of the ESG (environmental, social, governance) concept and the progressive transition upon implementation.

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# Challenges and Opportunities in the Implementation of the EU Directive on Corporate Sustainability Reporting

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## Abstract

The development of companies in a sustainable manner is a desire of both company's management and regulators who make sustained efforts to develop and standardize non-financial reporting. In the context in which the new European Directive regarding sustainability requires companies to report in accordance with the mandatory standards of sustainable reporting of the EU, including an external assurance of sustainability reporting that is necessary, the present research aims to analyze the perception of professional practitioners, members of the Chamber of Financial Auditors of Romania (C.F.A.R.) regarding the challenges and opportunities of implementing the European Directive on Corporate Sustainability Reporting. The main objective is to identify the main areas of concern regarding the efforts to train auditors in carrying out assurance missions related to non-financial situations, considering the new European Directive on non-financial reporting and, respectively, the adjacent developments carried out by the IASB and EFRAG in the sphere of the standardization of non-financial reporting. The present research proposes an analysis of the associations between the main defining elements of the auditor's capabilities (technological factor, human factor, audit processes) and, respectively, the defining elements of the auditor's profile outlined under the legislative framework, governmental monitoring and control mechanisms or the characteristics the economic environment, which influences the audit opinion. The main results obtained underline the fact that auditors are not yet prepared to provide assurance services in relation to sustainability reports, both from the perspective of defining and implementing robust audit processes, and from the perspective of the low degree of adequacy of the audit systems used or from the perspective of human factor knowledge and skills gaps. So, this reality confirms a state of fact that must concern professional bodies and, at the same time, governmental bodies in terms of the degree of involvement in auditor training activities and, respectively, the promotion of professional guidelines.

**Key words:** sustainability; sustainable reporting; assurance missions;

**JEL Classification:** M21, M40, M41, M42

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## 1. Introduction

Sustainability reporting, or "non-financial", tends to gain more and more importance, being considered a competitive advantage, because it can also be done voluntarily, as an example of good practice and positioning, being mandatory only for certain companies, through which the entities present both to the public, as well as to those interested, the measures taken in the direction of environmental protection, social involvement, respect for human rights and the fight against corruption and bribery (Directive 2014/95/EU, art. 1, paragraph 1).

In the context of the implementation of the new Non-Financial Reporting Directive (N.F.R.D.), starting from January 1<sup>st</sup>, 2024, companies that are required to prepare sustainability reports must present more information, including aspects regarding business models and the link between financial statements and the non-financial ones. Related to this aspect, the new Directive requires companies to ensure non-financial reporting, with implications on the work carried out both by internal auditors through audit committees and by financial auditors who must provide assurance on the sustainability information reported by companies.

In this context, the present research aims to identify the perception of financial auditors regarding the challenges and opportunities generated by the obligation to ensure sustainability reports in the context of the implementation of the new European Directive regarding sustainability from January 1<sup>st</sup>, 2024. We thus propose to carry out an analysis of the associations among the main defining elements of the auditor's capabilities (technological factor, human factor, audit processes) and, respectively, the defining elements of the auditor's profile outlined under the influence of the legislative framework, governmental monitoring and control mechanisms or the characteristics of the economic environment, which influence the audit opinion. In order to achieve the objectives of the research, we proposed to interrogate the professionals gathered within the professional body of financial auditors in Romania, in order to appreciate their perception.

Thus, considering the perception of financial auditor's members of the Chamber of Financial Auditors from Romania (C.F.A.R), our research aims at two fundamental objectives:

- *OB1: revealing the main directions of concern regarding the training efforts of auditors in carrying out assurance missions related to financial situations;*
- *OB2: identifying the determining factors of the audit opinion through an analysis of the associations between the main defining elements of the auditor's capabilities (technological factor, human factor, audit processes) and, respectively, the defining elements of the auditor's profile outlined under the legislative framework, of the mechanisms of governmental monitoring and control or of the characteristics of the economic environment;*

The proposed study is structured in five sections. Thus, if the first section highlights the preliminary aspects of the scientific approach undertaken, respectively the context of the case study, the second section finds its counterpart in the analysis of the specialized literature. The following two sections present the research methodology, respectively the results obtained and a discussion on them. Finally, the fifth section draws the final conclusions of the undertaken research.

## 2. Literature review

A company's non-financial reports provide relevant information regarding its impact on the economy, the environment and society, as well as how the activity is managed with the aim, on the one hand, to strengthen financial performance and, on the other hand, to ensure a sustainable development in the long term, being at the same time for investors, a performance monitoring and control tool (Gellidon & Soenarno, 2022). Corporate sustainability reporting improves corporate reputation, leads to increased customer and other stakeholder trust, improves governance and investor attractiveness (Directive 2014/95/EU).

Sustainability reporting is the responsibility of the company's management and can be done according to various standards. For example, the GRI standards of the Global Reporting Initiative or the Integrated Reporting Framework of IFRS provide guidance on the reporting process, but there is no standardized format, thus there is a lack of consensus on how to present it (Manetti & Becatti, 2009; O'Dwyer & Owen, 2005).

The European Parliament, through European Directive 2014/95/EU starting with 2018, required public interest companies to draw up sustainability

reports that at least present information related to economic, environmental, employees and human rights aspects. Since 2019, the scope has also included organizations with over 500 employees, and we are currently in the context of a new change that will produce effects starting from 2024 through a new EU Directive regarding sustainability, in which the scope is considerably extended to apply to a larger number of European and non-European listed companies operating on EU regulated markets.

The new directive also produces changes in the scope of auditing, so that both audit committees and audit firms will have increased responsibilities. The role of the audit profession is thus reconsidered, the new standards being issued with the aim of increasing the quality and transparency in reporting and to support investors (Grosu et al., 2020). Directive 2014/95/EU did not provide for non-financial information to be audited, but required the member states of the European Union to ensure that the statutory auditor verifies the presence of the requested information (Sonnerfeldt & Pontoppidan, 2020). In accordance with the new European Directive, on the one hand, audit committees, in addition to monitoring the sustainability reporting process and making recommendations in order to ensure the integrity of the information provided by the company, will have to: a) monitor the effectiveness of the internal control systems of the company's quality and risk management and internal audit functions; b) to monitor the mission of ensuring annual and consolidated sustainability reporting; c) to inform the company's administrative or supervisory bodies about the result of ensuring the sustainability reports; d) examine and monitor the independence of statutory auditors or audit firms (EY, 2022).

On the other hand, audit firms will have to certify non-financial reports and provide assurance on the sustainability information reported, in order to increase credibility (Farooq & De Villiers, 2017). The objective of ISAE 3000, the standard most often used by audit firms in assurance reports, is to provide the auditor with a general framework of reference, but the lack of specifications for assurance of sustainability reports is considered a weakness (Manetti & Becatti, 2009) which thus

making it difficult to apply the provisions of the new Sustainability Directive. The issued standards emphasize the definition of concepts, principles or procedures strongly oriented towards procedures similar to statutory audit engagements (Farooq & Villiers, 2017), but the company's statutory auditor, another auditor (depending on the member state's option) or an independent provider of audit services (at the choice of the Member State) must provide limited assurance on the sustainability information reported by a company in the context of N.F.R.D.

All information regarding sustainability, according to the new regulations, must apply a prospective and retrospective perspective of the activity undertaken and take into account short, medium- and long-term horizons to ensure sustainable development and take into account the entire value chain of the company. Also containing an external assurance, carried out by an independent auditor, the information issued in the public environment is thus much more credible for those interested.

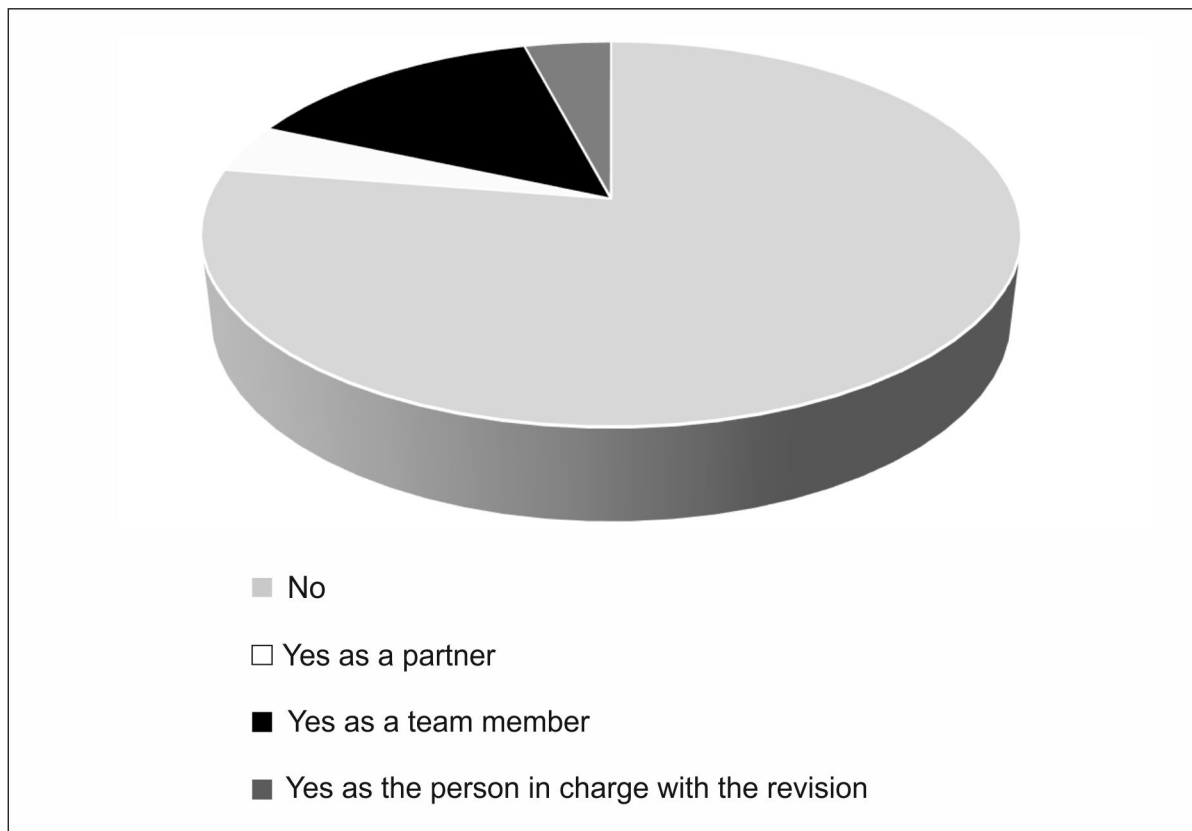
### 3. Research methodology

#### 3.1. The analyzed sample

The new European Corporate Sustainability Reporting Directive, whose area of application entered into force on January 1<sup>st</sup>, 2024, provides for the obligation of external assurance of sustainability reporting, and, in this context, through the case study undertaken, we want to highlight the main areas of concern regarding the training efforts of auditors in the assurance of non-financial situations. In this sense, a questionnaire was sent to the members of the Romanian Chamber of Financial Auditors (C.F.A.R.) with the aim of identifying and evaluating their perception of the challenges and opportunities of implementing the EU Directive on corporate sustainability reporting.

The distributed questionnaire contains a total number of 24 questions, of the choice type, using the Likert scale in rendering the possible answers (1- to a very small extent, 2 - to a small extent, 3 - medium/neutral, 4 - to a large extent, 5 - to a very large extent). These questions are useful for an analysis oriented towards essential elements that highlight both the degree of knowledge of the respondents in the application of Sustainability Standards, as well as the importance of audit committees and internal controls in the aspects related to sustainability.

**Figure no. 1. Structure of the sample according to the performed assurance missions**



Source: authors own projection

In the course of two months, namely June and July of 2023, a number of 49 people responded to the invitation to complete this questionnaire. The composition of the sample, represented in *Figure no. 1*, reveals that the vast majority of respondents are auditors who have not yet carried out assurance missions in the field of sustainability, respectively a number of 38 auditors, which represents a proportion of 77.6%. We note that of the 49 valid responses, 7, respectively 14.3%, represent responses from auditors who performed assurance missions as members of the audit team. Two responses come from auditors who performed assurance engagements as a partner and another two responses come from auditors who performed engagements as reviewers.

### 3.2. Reliability analysis of the scale used

The 24 questions considered in the analysis are divided into four groups, aimed at:

- The auditor's level of knowledge in the application of the Sustainability Standards and SDG (Sustainable Development Goals);
- The assurance missions performed and the audit opinion/conclusion granted;
- The extent to which the audit committee and internal controls provide support in shaping the sustainability report;
- The existence of a robust work framework regarding the development, verification and publication of sustainability reports, as well as a framework regarding communication with the financial auditor.



## 4. Results and discussions

The main research objective of the proposed study is to reveal the main areas of concern regarding the efforts to prepare auditors in the assurance of non-financial situations, considering the new European directive on non-financial reporting and, respectively, the adjacent developments carried out by the IASB and EFRAG, respectively, in the sphere of standardization non-financial reporting. The present research proposes an analysis of the associations between the main defining elements of the auditor's capabilities (technological factor, human factor, audit processes) and, respectively, the defining elements of the auditor's profile outlined under the influence of the legislative framework, governmental monitoring and control mechanisms or the characteristics the economic environment, which influences the audit opinion.

The items regarding the audit opinion factors included in the questionnaire sent to auditors who are members of C.F.A.R. are statistically validated by the Cronbach's Alpha coefficient value of 0.958. At the same time, the items regarding the auditors' perception of the capabilities of auditing corporate sustainability reports are statistically validated, considering the value of 0.962 of the Cronbach's Alpha coefficient.

### 4.1. Determinants of the audit opinion

In **Table no. 1** we present the main descriptive statistics of the responses received from the auditors who responded to our invitation to complete the questionnaire on the main trends and challenges faced by auditors in their efforts to align with the new requirements arising from the new non-financial reporting directive, which puts an increased emphasis on the sustainability aspects of the audited business models.

**Table no.1. Descriptive statistics**

Variable	Mean	Mode	St.dev.	Min.	Max.	Percentiles		
						25	50	75
ESG audit experience	0.347	0	0.751	0	3	0	0	0
ESG audit process	2.878	3	0.992	1	5	2	3	4
Human resource ESG audit	2.939	3	1.069	1	5	2	3	4
ESG audit systems	2.776	3	1.006	1	5	2	3	3
Auditor independence	3.878	4	1.073	1	5	3	4	5
Segregation of audit services	3.122	3	1.166	1	5	2	3	4
Professional expertise	3.592	4	1.171	1	5	3	4	4
Auditor responsibility	3.367	3	1.131	1	5	3	3	4
Auditor-client negotiation	3.041	3	1.117	1	5	3	3	4
Industry knowledge	3.531	4	1.138	1	5	3	4	4
Ethical standards compliance	3.796	4	1.080	1	5	3	4	5
Quality audit standards	3.837	4	1.087	1	5	3	4	5
Quality reporting standards	3.755	4	1.090	1	5	3	4	5
Industry practices	3.837	4	1.067	1	5	3	4	5
Business model complexity	3.633	4	1.220	1	5	3	4	5
Compulsoriness	3.306	3	1.262	1	5	3	3	4
Risk management	3.694	4	1.045	1	5	3	4	4
Corporate governance	3.776	4	1.123	1	5	3	4	5
Auditor training degree	2.816	3	0.972	1	5	2	3	3

Source: author calculations

These results provide us with some conclusive information regarding the research objective. Given that this research project is still ongoing, over the course of two months, June and July, we obtained a total of 49 valid responses. Of the auditors who responded to our invitation to

complete the questionnaire sent through the google forms platform, only 11 confirmed experience in the field of ensuring corporate sustainability reports. So, the average of 0.347 regarding auditors' perception of the degree of involvement in such assurance missions suggests that the

audit profession is at the beginning of the road in the direction of providing this type of services to companies.

The results also confirm that auditors are not yet prepared to provide assurance services in relation to sustainability reports both from the perspective of defining and implementing robust audit processes (2,878) and from the perspective of the low degree of adequacy of the audit systems used (2.776) or from the perspective of the knowledge and skills deficiencies of the human factor (2.939). So, this reality confirms a state of fact that must concern professional bodies and, at the same time, governmental bodies in terms of the degree of involvement in auditor training activities and, respectively, the promotion of professional guidelines.

However, the perception of the auditors surveyed regarding auditor independence, the degree of segregation of statutory audit services from related assurance services in relation to sustainability reports, or the degree of specialization of the auditor in the audited client's industry suggests a reserved approach. So, the auditors consider that the opinion related to the assurance missions regarding the sustainability reports is not significantly influenced by these considerations, considering the relatively low average of the items regarding auditor independence (3.878), segregation of audit services (3.122) or professional expertise (3.592). However, we must note that auditors emphasize the need for independence in relation to the audit client, which is not only limited to the client's option for an auditor, but especially to the position of the selected auditor regarding the prior assessment of the existence of any situation of conflict of interests.

It should be noted, however, that the auditors expressed a relatively reserved opinion, including when the issue was raised of the extent to which the assumed level of auditor responsibility (3.367) or negotiation activities with clients regarding the reconciliation of identified nonconformities are published in the audit report (3.041).

Higher values are found in the case of auditors' perception of the role of the formal framework for carrying out assurance missions regarding sustainability reports. They consider important the quality of audit standards (3.837), the quality of sustainable reporting standards (3.755), respectively the existence of good practices at sector level in the scope of auditing sustainability reports (3.837). However, standards such as ISAE 3000, most often used by audit firms, are expressed in very general terms, emphasizing rather the definition of concepts, principles or

procedures strongly oriented towards procedures similar to statutory audit engagements (Faaroq & Villiers, 2017). The same state of facts can be claimed with regard to the two European directives that address the issue of non-financial reports (NFRD, CSRD), including those on sustainability.

In this direction, the activity of EFRAG is welcome, which has undertaken sustained efforts over the course of two years to draft a series of sustainable reporting standards, with the final moment being their publication on November 16, 2022. Through these standards folded according to the specific dimensions of sustainability (environment - ESRS E1 Climate change, ESRS E2 Pollution, ESRS E3 - Water and marine resources, ESRS E4 Biodiversity and ecosystems, ESRS E5 Resources used and the circular economy; social - ESRS S1 Labor force, ESRS S2 Employees in value chain, ESRS S3 Affected communities, ESRS S4 Consumers and users, governance - ESRS G1 Conduct of business) and a conceptual framework (ESRS 1 General requirements, ESRS 2 General reporting) respectively, the European community wants to outline a common vision on sustainable reporting, aimed at providing better monitoring of the degree of achievement of the sustainable development SDG objectives.

At the same time, we notice a visible phenomenon of proliferation of sustainable reporting frameworks, which has contributed to efforts to standardize the practice of sustainable reporting, including institutions at an international level, such as the ISSB that published the standards of sustainable reporting IFRS S1 General requirements for the report sustainable – related financial information and IFRS S2 Climate change reports respectively.

However, the main problem reported in reporting practice is given by the multitude of such sustainability reporting frameworks (Tsagas & Villiers, 2020), which induces a low level of conceptual understanding (Paridhi & Arora, 2023), despite efforts of convergence, which are often dictated by political considerations and influence games (Afolabi et al., 2022). Added to this are the costs of implementing sustainability reporting processes and tools at the company level, which are not at all negligible, and a perception by managers that attests to a low level of benefits expected by opening communication channels on sustainability issues (Jain & Tripathi, 2022), which makes it difficult to evolve the degree of expansion of sustainable reporting requirements.

All this leads to a sharpening of the problems faced by auditors or consulting firms that provide assurance services on sustainability reports. The multitude of reporting frameworks and, respectively, the superficial way of addressing the main controversies in this reporting area, together with the rather principled approach adopted in the auditing standards of these reports, generate additional controversial elements (Sonnerfeldt & Pontoppidan, 2020). An eloquent example in this regard is the decision regarding the audit area, which aspects of sustainability are verified within the commitment to ensure sustainability reports, as the management of companies can draw an increased level of confidence from the markets, by summarizing the assurance of reports of sustainability to aspects that the company did not neglect during the audited period (Baier et al., 2022). In these circumstances, the question arises of the accepted level of subjectivity of the auditor and the extent to which he respects the standards of professional ethics, which also prove to be important in the performance of the professional activity (3,796).

The auditors' mission becomes all the more ungrateful when we bring into discussion other factors determining the audit opinion, namely the institutional monitoring and control framework (3.306), or factors associated with audited companies, such as the degree of complexity of the business model (3.633), the maturity level of the integrated risk management model (3.694) or the robustness and flexibility of corporate governance mechanisms and structures (3.776). These elements are perceived by the auditors as important in the decision to form an audit opinion, all the more so as the practice of sustainable reporting reveals a low level of integration of the companies' commitment to achieve the SDG objectives at the level of reporting and management systems of the company (including at the level of elements of corporate governance or risk management and implementation and assessment of internal controls on

ESG dimensions), leading to an erroneous orientation of sustainability reports, based on materiality analyzes that omit or inadequately assess risks materials on SDG objectives (Ferrero et al., 2023). At the same time, as long as there is no adequate institutional framework to respond to the main challenges regarding the compliance of the reporting practice with the requirements of the states to monitor the achievement of the SDG objectives, the sustainability reports become simple elements of corporate reporting without substance (written for the strict purpose of compliance with the legislation in force), moving away from their main purpose (Rosati & Faria, 2019; Galeazzo et al., 2023).

All these considerations revealed through the descriptive statistics mentioned above justify the relatively low level of preparation for aligning with the requirements of the new European CSRD directive, applicable starting in 2024. Auditors' perception turns out to be relatively low (2,816), the reasons being varied. Among the most important ones reported by this study are those related to the current audit processes, the information systems used and respectively the degree of training of the audit firms' staff, which were reported by the auditors in this questionnaire.

#### 4.2. Notable differences regarding practical experience

In **Table no. 2** we illustrate the statistical results obtained from the verification of the differences generated by the experience that the surveyed auditors have acquired over time in the area of assurance missions regarding sustainability reports. Based on these results, we note that there are no statistically significant differences determined by the auditor's experience in participating, either as a member of the audit team, in charge of the audit engagement, or as a partner in charge of supervising the audit engagement.

Table no. 2. Differences test statistical results (factor – auditor experience in ESG insurance)						
Item	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank	
					without experience N = 38	experienced N=11
Audit process	134.0	875.0	1.906	<b>0.057</b>	23.03	31.82
Human resource	159.5	900.5	1.248	0.212	23.7	29.5
Audit systems	125.0	866.0	2.131	<b>0.033</b>	22.79	32.64

Item	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)	Mean Rank	
					without experience N = 38	experienced N=11
Audit independence	178.5	244.5	-0.773	0.440	25.8	22.23
Segregation of audit services	189.5	930.5	-0.484	0.628	24.49	26.77
Audit expertise	177.0	243.0	-0.802	0.423	25.84	22.09
Auditor responsibility	205.5	271.5	-0.088	0.930	25.09	24.68
Negotiation activities	197.5	263.5	-0.292	0.770	25.3	23.95
Industry knowledge	192.5	258.5	-0.412	0.680	25.43	23.5
Ethical standards compliance	191.0	932.0	-0.452	0.651	24.53	26.64
Quality audit standards	187.5	253.5	-0.541	0.589	25.57	23.05
Quality reporting standards	204.0	270.0	-0.125	0.900	25.13	24.55
Industry practices	154.0	220.0	-1.391	0.164	26.45	20
Complexity	167.5	233.5	-1.03	0.303	26.09	21.23
compulsoriness	189.5	255.5	-0.482	0.630	25.51	23.23
Risk management	149.0	215.0	-1.514	0.130	26.58	19.55
Corporate governance	162.0	228.0	-1.175	0.240	26.24	20.73

Source: author calculations

An exception is the case of the responses recorded by the auditors in the case of the item that raises the question of the degree of adequacy of the information systems used in this type of commitments ( $Z=-2.131$ ,  $\text{Sig.}=0.033$ ). This concern is well-founded, with experienced auditors noting a higher level of concern about the capabilities of current information systems used in assurance engagements on sustainability reports ( $32.64 > 22.79$ ). A notable difference is also noted in the case of the item that addresses the aspect regarding the design and effectiveness of the current audit processes, followed within this type of audit engagements ( $Z=-1.906$ ,  $\text{Sig.}=0.057$ ). These exceptions are also confirmed at the level of specialized literature, indicating that greater importance must be given both to the mechanisms and systems of sustainability reports, as well as to some adjacent essential aspects, such as the definition and robustness of processes, information systems and companies' skills (Tsagas & Villiers, 2020). Thus, an inadequate design of audit processes or the implementation of systems with limited functionality in supporting the activity of auditing sustainability reports are key elements that must be taken into account in confirming the

quality and credibility of revised sustainability reports.

At the same time, the adoption of emerging technologies in the field of audit cannot ignore the maturity level of the processes that must be transposed. Last but not least, it is essential that the implementation of different data analytics solutions take into account the limitations of functionality that could truncate not only the quality of the analyzed data, but also the faithful image of the processes implemented at the level of the audited companies.

#### 4.3. Assessments regarding the main associations identified at the level of auditors' perception

The last step of this analysis consists in evaluating the correlations identified between the different aspects incorporated in the questionnaire distributed among the auditors. In **Table no. 3** we present the result regarding the main canonical association functions determined based on the analyzed data. Among the three correlation functions identified, we note that only the first function is statistically significant ( $F=1.191$ ,  $\text{Sig.}=0.00$ ), which is why the analysis will be limited to the analysis of the structural elements of this canonical correlation function.

**Table no. 3. Statistics on estimated correlation functions**

Function	Correlation	Eigenvalue	Wilks Statistic	F	Num D.F	Denom D.F.	Sig.
1	0.790	1.657	0.162	1.931	42	95.69	0.00
2	0.659	0.770	0.430	1.332	26	66.00	0.18
3	0.489	0.314	0.761	0.890	12	34.00	0.57

Source: author calculations

In **Table no. 4** we summarize the main structural elements of the previously identified canonical correlation function. Through this correlation function we manage to identify the maximum correlation between the set of items that address the issue of the auditors' main challenges in efforts to align with the

requirements of the new European directive and, respectively, the set of items that analyze the main determinants of the audit opinion. In this way we will be able to better understand how the audit opinion on sustainability reports is influenced by the main minuses that auditors systematically signal.

**Table no. 4. Statistics on the correlations between the analyzed items**

Item	Correlation coefficients		Structural coefficients			
	Auditor profile	Determinants of audit opinion	Canonical loadings	Variation explained	Cross loading	Variation explained
Audit process	-0.159	-	-0.797	68.31%	-0.630	42.60%
Human resource	<b>-1.344</b>		<b>-0.964</b>		<b>-0.761</b>	
Audit systems	0.608		-0.696		-0.549	
Audit independence	-	<b>1.138</b>	-0.355	30.52%	-0.281	19.03%
Segregation of audit services		-0.156	-0.477		-0.377	
Audit expertise		<b>-1.113</b>	-0.721		<b>-0.569</b>	
Auditor responsibility		-0.094	-0.614		-0.485	
Negotiation activities		-0.132	-0.652		-0.515	
Industry knowledge		0.743	-0.546		-0.431	
Ethical standards compliance		-0.221	-0.491		-0.388	
Quality audit standards		-0.547	-0.413		-0.326	
Quality reporting standards		0.530	-0.340		-0.269	
Industry practices		-0.523	-0.580		-0.458	
Complexity		-0.122	-0.683		<b>-0.540</b>	
compulsoriness		-0.122	-0.667		<b>-0.527</b>	
Risk management		<b>0.775</b>	-0.502		-0.396	
Corporate governance		<b>-1.067</b>	-0.521		-0.411	

Source: author calculations

Based on the responses received from the auditors, the results attest to the fact that the determinants of the audit opinion are less influenced by the audit processes and, respectively, the supporting information systems used in the audit engagements of the sustainability reports. Indeed, this is precisely the intended purpose of functional information systems, which faithfully reflect audit processes and provide real support in audit decision-making, especially in the context of a visible intensification of digitalization efforts by audit firms of operative activity.

However, the quality of the human resource will continue to represent a real challenge in the efforts of these audit firms to provide quality sustainability reporting services. This challenge is all the more important as the results obtained from the canonical analysis confirm the fact that the human factor significantly influences the audit opinion (-1.344), through the prism of ensuring the independence of the auditor (1.138), the construction of an audit team with experience and expertise in matter of auditing sustainability reports (-1.113) or the quality of the

communication process between the audit team and the company's corporate governance structures (-1.067).

These results attest to a positive correlation between the quality of human resources and, respectively, corporate governance mechanisms, which refer not only to decision-making within the company, but also to the communication process between external auditors, internal auditors or those responsible for internal controls designed with the purpose of reducing some ESG risks.

At the same time, auditors perceive the quality of the human resource from the perspective of the level of knowledge regarding the concepts, drafting and auditing of sustainability reports that the audit teams have acquired over time.

However, we note a negative association between the quality of human resources of audit firms and auditor independence, respectively, which suggests several analysis scenarios. However, all these analysis scenarios confirm not only the role of the commitment of audit firms to provide quality services, but also the role of the individual commitment of the members of the audit teams to this objective. In this context, we consider it extremely important that audit firms identify current solutions for the appropriate motivation of the human factor, especially in the context of the many substantial changes that have occurred in the audit services market, which have led to an increase in the complexity of audit tasks, to a growing need for digital skills and data analytics.

## Conclusions

The proposed changes regarding sustainability reporting through the new European Directive are extensive and play a key role for the European Commission's stated objective of directing investments towards sustainable activities throughout the EU (KPMG, 2021), a context in which both audit committees and audit firms have increased responsibilities and roles.

The present paper emphasizes the importance that must be given to the process of external assurance of

sustainability reports and the challenges and opportunities that appear for financial auditors in the implementation of the new European Directive.

The scientific approach aims, on the one hand, to analyze the associations between the main defining elements of the auditor's capabilities (technological factor, human factor, audit processes) and, respectively, the defining elements of the auditor's profile outlined under the legislative framework, monitoring and government control mechanisms or the characteristics of the economic environment, which influence the audit opinion.

The obtained results highlight the fact that the auditors are not yet prepared to provide sustainability report assurance services, both from the perspective of defining and implementing robust audit processes, and from the perspective of the low degree of adequacy of the audit systems used or from the perspective of deficiencies regarding knowledge and skills of the human factor. So, this reality confirms a state of fact that must raise questions among professional bodies and, at the same time, governmental bodies regarding the degree of involvement in auditor training activities and, respectively, promotion of professional guidelines. The results also attest to the fact that the determinants of the audit opinion expressed in the assurance of non-financial reports are less influenced by the audit processes and, respectively, the supporting information systems used in the audit engagements of the sustainability reports. The canonical analysis undertaken confirms the fact that the human factor significantly influences the audit opinion from the point of view of ensuring the independence of the auditor, the construction of an audit team with experience and expertise in auditing sustainability reports or the quality of the communication process between the audit team and the structures of corporate governance of the company.

However, the present study is limited from the perspective of the sample of responses analyzed. In this context, we appreciate the fact that future research will be able to perform a more complex analysis, based on more respondents involved in assurance missions.

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# The Influence of Sustainability Reporting on Audit Quality.

## Empirical Analysis on Companies Listed on The Bucharest Stock Exchange

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## Abstract

The entire range of financial and non-financial activities carried out in companies has an impact on the quality of disclosures. The audit, through its specific procedural approach, contributes to enhancing the quality of reporting by balancing the interests of the two parties involved in the reporting process, i.e. the companies and the users of the information.

The paper aims to assess the extent to which sustainability reporting influences audit quality, assessed from a dual perspective, namely that of the audited company (through the quality of the information published and insured by the audit) and that of the auditor (through the audit opinion expressed). Using information specific to companies listed on the main market of the Bucharest Stock Exchange, the study analyzes the link between a series of dummy variables associated with carrying out sustainable activities, social and environmental protection and the size of discretionary accruals, i.e. the audit opinion. The results reveal a negative relationship between the two dimensions analyzed. The involvement of companies in sustainable actions is generally interpreted as an effort that diminishes audit quality, measured from both perspectives. The effect of these social and environmental protection activities is correlated with potential manipulation of the results (decreasing the quality of financial information) and with increasing the likelihood of expressing a modified audit opinion, respectively. The results are also robust following the introduction of control variables into the analysis, such as: leverage, company growth, company size or industry.

**Key words:** audit quality; sustainability reports; discretionary accruals; audit opinion;

**JEL Classification:** M410, M420

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## Introduction

The need for sustainability reporting has emerged in response to global environmental and social concerns such as the responsible use of natural resources, climate change, pollution or sustainable development (Azzone, Manzini and Noci, 1996; Fortes, 2002; Newig, 2011).

Corporate sustainability reporting involves the communication of financial and non-financial information to stakeholders (not just shareholders) in order to highlight the ability of an entity to manage key risks (Ballou, Heitger and Landes, 2006).

Over time, the credibility of sustainability reporting has been questioned. The involvement of companies in social and environmental protection actions is often interpreted as a way of improving their image. Thus, more and more companies are using independent auditors (called 'assurance providers') to carry out an external verification and, based on the evidence obtained, to express a conclusion on the accuracy of the reported information (Boiral, Heras-Saizarbitoria and Brotherton, 2019; Al-Shaer and Zaman, 2018; Xiao and Shailer, 2022).

The study aims to assess the extent to which the application of sustainable company development principles, by focusing on achieving integrated performance (financial, social and environmental), is reflected in the quality level of the audit. In this context, audit quality operates as a representative tool of social and environmental actions for the relevance of financial reporting, highlighting both the perspective of companies (through the quality level of the financial information provided by the audit) and the audit firm's perspective (through the audit opinion expressed).

The results show that the involvement of companies in sustainable actions has a negative influence on audit quality. Entities reporting sustainable actions have a higher level of discretionary accruals, indicating a decrease in the quality of financial information, including possible motivations and accounting techniques used to manipulate results. Also, carrying out both types of sustainable activities (social and environmental protection), as well as the descriptive and quantitative presentation of information specific to these types of actions, contributes to an increased likelihood of expressing a modified audit opinion.

The paper structure includes a literature review section, a section presenting the research approach, as well as a synthesis and interpretation of the obtained results. The

final section is dedicated to presenting the conclusions, research limitations, and future research directions.

## 1. Literature review and research hypotheses development

The role of sustainable reporting is a hotly debated topic in the literature, in an attempt to demonstrate the usefulness of these activities for the development of companies and of the socio-economic environment in general. Involving the audit process in the analysis highlights the importance of companies achieving integrated performance, but also helps to provide assurance on how this evolving process of organizational objectives is actually interpreted.

### 1.1. Implications of audit quality in informing investment decisions

By their nature and content, financial statements published by companies are an important source of information for all users, including investors. It has been shown, however, that the flexibility of accounting rules can sometimes allow managers to influence the reasoning behind the preparation of this information so that results are presented according to discretionary objectives (Watts and Zimmerman, 1990). Given that managers are better informed about the firm's situation than shareholders, and for the latter reading financial statements can sometimes be a sophisticated task, it is practically difficult to determine whether managers manipulate the figures they publish opportunistically and therefore misleadingly, or whether, on the contrary, their intervention seeks to strengthen the information content of accounting figures in order to better inform the market about the firm's prospects (Janin and Piot, 2010). In this context, by providing disclosures, the audit contributes to strengthening the confidence of users, including investors.

Auditors are therefore among the three main obstacles that contribute to preventing accounting manipulations, alongside the corporate governance system and accounting regulations.

Based on the premise that auditing helps to increase the reliability of financial statement information and that the users of this information have confidence in the quality of auditors' work, much research has focused on defining audit quality and the factors that influence it. De Angelo (1981) defines audit quality in terms of the likelihood that the auditor will discover an irregularity in the auditee's

accounting system and report it. The likelihood of discovering an irregularity depends on the auditor's skills, i.e. technical knowledge and mastery of the audit methodology. Since the regulations on audit work do not automatically ensure audit quality, users of financial statements and investors in particular are interested in finding indicators that measure audit quality.

Although there is a multitude of proposed solutions for measuring audit quality, no universally valid benchmark has been identified that covers the full range of elements specific to the audit process and to the business of audited companies, respectively. These can be broadly grouped into audit process *output* indicators (quality of financial reports, auditor communication skills, significant errors, indicators based on stakeholder perceptions) and process *input* indicators (auditor size, auditor specialization, audit fee, etc.) (DeFond and Zhang, 2014).

There are studies that have focused on the auditor's capacity to detect and, as much as possible, to prevent accounting manipulations. Anomalies in disclosures in published financial statements can be grouped into four categories: anomalies that the auditor did not detect; anomalies that were accepted because the auditor did not wish to oppose the managers; anomalies that were accepted because auditors were convinced by the explanations provided on the issues found; and anomalies that are due to a flawed methodology, for example the use of a model that results in a biased estimate of discretionary accruals (Janin and Piot, 2010). In this regard, Chi *et al.* (2017), Garcia-Blandon *et al.* (2017) state that reducing the size of discretionary accruals (as a characteristic element of accounting manipulations) leads to an increase in audit quality. Practically, a quality audit should detect and prevent such manipulations (Janin and Piot, 2010). In the same context, the authors mention, in relation to a number of restatements, that if they occur either as a result of inadvertent errors or, on the contrary, are the result of predetermined manipulations, their frequency of occurrence should be lower in the case of a high-quality audit.

Audit firm size is often associated with audit quality, and it is well argued that large audit firms (especially the Big 4) provide better audit quality than small audit firms (De Angelo, 1981; DeFond and Zhang, 2014; Bhaskar, Krishnan, and Yu, 2017; Zahid, Saleem, and Maqsood, 2023; Le and Moore, 2023). However, there are also studies that do not identify significant differences in accounting manipulations (by size of discretionary

accruals) in relation to audit firm category/reputation (Big4 vs Non-Big4) (Boone, Khurana and Raman, 2010).

The audit opinion expressed is another relevant indicator used in assessing audit quality, detecting significant errors within specific engagements (DeFond and Zhang, 2014; Fung *et al.*, 2017), leading modification thereof or introduction of paragraphs in order to highlight certain issues. Lin (2023) discusses the effect of publishing key audit matters (KAMs) on audit quality as measured by the type of opinion expressed, noting that the presentation of important issues pursued in the engagement leads to an increase in the quality of the process.

## **1.2. The role of sustainability reporting in ensuring the quality of financial information**

Against the backdrop of the recent over-exploitation of resources, sustainable development has become a priority concern for researchers, authorities, and society in general. The concept of sustainability started being more and more often used as society has become aware of the need to achieve economic growth without destroying the environment and endangering the well-being of future generations.

Sustainability reporting is a tool for communicating with stakeholders, which entities employ to publish information about positive or negative contributions to sustainable development (Junior, Best and Cotter, 2014; Global Sustainability Standards Board, 2016). Also referred to as 'non-financial reporting' (Dilling, 2010), it can help make predictions about future financial outcomes (Ballou, Heitger and Landes, 2006).

Sustainability is measured based on non-financial information on three main pillars: environmental, social, and corporate governance (Deloitte, 2021; Abbas *et al.*, 2021). Thus, by disclosing sustainability information, firms demonstrate transparency, effective governance and accountability (Subramaniam, Hodge and Ratnatunga 2006; Al-Shaer, H., 2020).

Sustainability reporting has become common practice for large companies as part of their corporate commitment to sustainability performance reporting. For example, in 2015, more than 90% of the world's 250 largest companies have published a sustainability report, the majority using the Global Reporting Initiative (GRI)

framework, which is deemed the benchmark model in this domain (Boiral, Heras-Saizarbitoria and Brotherton, 2019). By 2022, 96% of the world's 250 largest companies have published sustainability reports. An analysis on the largest 100 companies (N100) in 58 countries, territories, and jurisdictions shows that 79% of them published sustainability information during the period under review (KPMG, 2022).

An inherent benefit of sustainability reporting is the enhancement of a firm's reputation that arises as an effect of reporting on the social and environmental projects in which it is involved (Herzig and Schaltegger, 2011). It is also believed that firms may also benefit from improved brand value, attracting and retaining high performers in the field or easier access to financing (Ioannou and Serafeim, 2017). In this regard, results from previous studies (Loh and Tan, 2020) have shown that there may be a positive correlation between sustainability reporting and brand value, even if the effect is not immediate as perceptions are shaped over time.

Companies can therefore gain a competitive advantage by reporting on sustainability activities that are not part of their core business. When companies are perceived as performing both financially and in terms of sustainability reporting, they can enjoy fewer issues in dealing with stakeholders (suppliers, customers, credit institutions, public authorities or the general public) (Herzig and Schaltegger, 2011).

Sustainability reporting regulations can decrease firm value if they entail significant reporting costs. These costs can be related to the purchase of environmental management systems to collect specific information, the purchase of modern equipment with lower energy consumption, improvement of working conditions, identification of green energy sources, etc. (Ioannou and Serafeim, 2017).

There are also authors (Gray, 2010; Cho *et al.*, 2015) who have criticized the credibility and reliability of sustainability reporting, including its role in increasing companies' financial performance.

The results of studies on the association of sustainable reporting with audit quality provide mixed information on the meaning or existence of biunivocal influences. In this regard, El Nashar (2016) highlights that high-quality sustainability reporting leads to

improved audit quality. Sustainable reporting decreases the manipulation of results, reducing the auditor's effort (Al-Shaer, 2020) and helps to increase audit quality. Zahid, Saleem and Maqsood (2023) found that, in state-owned Chinese companies, there was no significant link between social, environmental, and corporate governance (ESG) performance and audit quality. From an auditor reputation perspective, however, a higher quality of sustainability reporting can be noted for Big4 firms compared to Non-Big4 firms (Mock, Rao and Srivastava, 2013; Handayati *et al.*, 2022).

Based on the elements identified in the literature, we aim to test the following research hypotheses:

*H1: A significant link exists and can be measured between sustainability reporting and audit quality as estimated by the level of discretionary accruals.*

*H2: A significant link exists and can be measured between sustainability reporting and audit quality, assessed by the type of audit opinion expressed.*

## 2. Research methodology

The study uses a deductive-inductive approach to assess the extent to which audit quality is influenced by companies' sustainability reporting. The involvement of entities in social and environmental protection actions is correlated with the output of the audit engagements, assessed by the quality of the financial information reported by companies and by the audit opinion expressed as an effect of carrying out specific engagements, respectively.

### 2.1. Data and analyzed population

The analyzed population is represented by companies listed on the Bucharest Stock Exchange (BSE), on the regulated section thereof, excluding entities whose business is financial intermediation. The financial and non-financial information was collected manually from the reports published by the companies on the BSE website or on their own websites. They refer to the business carried out over a period of 11 financial years, i.e. 2012-2022.

The variables set up to analyze the mentioned phenomenon are summarized in **Table no. 1**.

Table no. 1. Variables used in the study		
Variables	Abbreviation	Description
<b>Dependent variables</b>		
<i>Discretionary accruals</i>	DA	Absolute value of discretionary accruals – residual variable, obtained using the Jones model (1991)
<i>Audit opinion</i>	OP	Dummy variable which takes the value 1 for unmodified audit opinion and 0 conversely
<i>Return on equity</i>	ROE	Expresses the capacity of the company to remunerate shareholders via the net result (net result/equity)
<b>Independent variables</b>		
<i>Sustainability reporting</i>	D_RapS	Dummy variable which takes the value 1 if the company publishes information about sustainable actions and 0 conversely
<i>Integrated reporting</i>	D_RapIn	Dummy variable which takes the value 1 if the company publishes both elements in addition to financial reporting (social and environmental) and 0 conversely
<i>Report type</i>	D_TypRap	Dummy variable which takes the value 1 if the company publishes descriptive and quantitative (numerical) information and 0 when they publish only descriptive information
<b>Control variables</b>		
<i>Company size</i>	Size	Log of total asset
<i>Financial leverage</i>	FL	Total debt/equity
<i>Company growth</i>	Grw	(turnover <sub>i,t</sub> – turnover <sub>i,t-1</sub> ) / turnover <sub>i,t-1</sub>
<i>Industry</i>	Ind	Dummy variable which takes the value 1 if the company operates in the industrial field (manufacturing of goods) and 0 conversely

Source: authors' processing, 2023

## 2.2. Data analysis methods

Correlation analysis and regression analysis with multiple alternative variables were used to achieve the research objectives. In order to identify the level of discretionary accruals (DA), we used the Jones model (1991) established in the literature, its structure being indicated in equation no. 1.

$$\frac{AT_t}{A_{t-1}} = \beta_0 x \frac{1}{A_{t-1}} + \beta_1 x \frac{\Delta CA_t}{A_{t-1}} + \beta_2 x \frac{ICB_t}{A_{t-1}} + \varepsilon \quad 1)$$

where TA is total accruals in year t, obtained as the difference between the net result (RN) and net cash flow (CF);  $\Delta REV$  is the turnover variation in year t compared to year t-1; PPE reflects the gross tangible fixed assets in year t, and  $A_{t-1}$  is total assets in the previous year (t-1).

To assess the effect of (social and environmental) sustainability reporting on the financial component, as reflected by financial performance, the model shown in equation no. 2 is proposed. Testing the relation is a first step in identifying the level of significance of sustainability reporting in organizational policies.

$$ROE_t = \beta_0 + \beta_1 \times D\_RapS_t + \beta_2 \times D\_RapIn_t + \beta_3 \times D\_TypRap_t + \sum \beta_j \times Controls_{i,t} + \varepsilon_t \quad 2)$$

where ROE is the rate of return on equity achieved in year t; D\_RapS the variable reflecting whether the company reported sustainability information in year t; D\_RapIn indicates whether the entity reported information on both aspects of sustainability (social and environmental);

D\_TypRap identifies whether the reported information is provided both descriptively and quantitatively (numerically).  $Control_{i,t}$  includes the influence of the control variables: FL – financial leverage; Grw – entity growth; Ind – scope of activity and Size – company size.

The relation is also controlled for the domain sensitivity associated with sustainability reporting through the variable  $Senz\_Ind\_RapS$ .  $\beta_0, \dots, \beta_i$  are the parameters associated with the variables in the model and  $\varepsilon_t$  is the residual component.

The testing of the connections between audit quality, assessed from the two perspectives of the audit engagement outcome, was performed using the model summarized in relation no. 3.

$$AQ_t = \beta_0 + \beta_1 \times D\_RapS_t + \beta_2 \times D\_RapIn_t + \beta_3 \times D\_TypRap_t + \sum \beta_j \times Controls_{i,t} + \varepsilon_t \quad 3)$$

where AQ represents the *audit quality* dependent variable in year t, alternatively taking the two proposed dimensions, namely the size of discretionary accruals (DA) and audit opinion expressed (OP).

subject is a part of. In this respect, Romanian companies listed on the regulated section of the Bucharest Stock Exchange record an average annual growth of 1% ( $Mean_{Grw}=0.0164$ ), but with a significant dispersion of values ( $Std.dev._{Grw}=0.2734$ ). This may be an optimistic sign that economic balances will be maintained in a period characterized by major difficulties caused by the Covid 19 pandemic, followed by the emergence of sectoral economic crises (energy, supply chains, etc.).

### 3. Results and interpretation

The descriptive analysis, the results of which are presented in **Table no. 2**, provides an overview of the interpretation framework that the analyzed

**Table no. 2. Descriptive analyses**

Elements	ROE	Grw	FL	Size	TA	DA
Mean	0,0526	0,0144	0,5934	8.2711	0,0132	0,0607
Median	0,0403	0,0064	0,4188	8.1944	0,0095	0,0379
Std. dev.	0,1691	0,2734	0,5484	0,6870	0,0887	0,0637
Minimum	-0,9804	-0,9958	0,0000	6.7600	-0,3814	0,0001
Maximum	0,8618	0,9865	2,9550	10.750	0,3877	0,3981
Number of observations	673	673	673	673	673	673

Source: authors' processing, 2023

In terms of profitability, the companies analyzed are able to remunerate the investments made by shareholders ( $Mean_{ROE}=0.0526$ ), thus maintaining their attractiveness for investors. From the perspective of the sources of financing used, the sample under analysis shows that there are alternatives for future financing, with companies having the capacity to take on debt ( $Mean_{LF}=0.5934$ ). This facilitates the adaptation of financing strategies according to their cost and organizational development plans.

Discretionary accruals, as an exponent of the manifestation of professional judgment in adopting accounting treatments, reflect the quality of disclosed financial information, the size of which expresses the likelihood of results' manipulation. In the case analyzed, there is a significant dispersion of values around the mean ( $Std.dev._{DA}=0.0637$ ), thus highlighting the different approaches of companies to accounting choices.

**Table no. 3. Correlation analysis**

	TA	Grw	FL	ROE	D_RapS	D_RapIn	D_TypRap	D_Op	Size	DA	D_Ind
TA	1	.191**	-.111**	.207**	-.001	.031	.042	.223**	.122**	-.040	.012
Grw		1	.135**	.085*	.031	.055	.109**	.101**	.164**	-.071	.036
FL			1	-.088*	.080	.100*	.131**	-.080	.149**	.008	.110**

	TA	Grw	FL	ROE	D_RapS	D_RapIn	D_TypRap	D_Op	Size	DA	D_Ind
ROE				1	.084*	.081*	.015	-.001	.041	.121**	.094*
D_RapS					1	.635**	.251**	-.109**	.261**	.056	.205**
D_RapIn						1	.407**	.026	.420**	-.001	.127**
D_TypRap							1	-.003	.234**	.039	.042
D_Op								1	.117**	-.133**	-.008
Size									1	-.127**	-.022
DA										1	.006
D_Ind											1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Source: authors' processing, 2023

Table no. 3 presents the results of the correlation analysis conducted to identify the intensity of association connections between the predictor and outcome variables and the collinearity connections between the independent variables. The results reveal, from the perspective of both intensity and direction of the connections between variables, the possibility of testing the research hypotheses through the proposed econometric models.

The regression analysis conducted to test the hypotheses sought to assess the impact of sustainability reporting on audit quality.

As a preliminary step of this relation, we estimated the extent to which the reporting of the two complementary dimensions (social and environmental performance) influences financial performance. The results are presented in Table no. 4. The aim of the approach is to estimate the extent to which the three dimensions of

performance (financial, social and environmental) are interlinked within entities, in order to achieve integrated performance.

Thus, across the sample under analysis, the reporting of sustainability activities leads to a reduction in financial performance ( $\beta_{D\_RapS} = -0.053$ ), with social and environmental actions being interpreted as an effort that reduces profitability. It is, however, possible to identify some positive long-term effects. From the perspective of the degree of completeness of reporting, it is noted that entities reporting on both dimensions (social and environmental) achieve higher financial performance than those undertaking only one complementary dimension ( $\beta_{D\_RapIn} = 0.056$ ). Financial performance is also enhanced when companies report sustainability actions through both narrative and quantitative (numerical) description ( $\beta_{TypRap} = 0.022$ ).

Table no. 4. The influence of sustainability reporting on financial performance

Dependent variables	Dependent variable - ROE				
	1	2	3	4	5
Constant	0,035 (0,001)	-0,187 (0,009)	-0,260 (0,000)	-0,274 (0,000)	-0,272 (0,000)
D_RapS	-0,053 (0,096)	-0,039 (0,058)	-0,012 (0,010)	-0,003 (0,057)	-0,053 (0,007)
D_RapIn	0,056 (0,098)	0,076 (0,084)	0,056 (0,022)	0,049 (0,053)	0,051 (0,063)
D_TypRap	0,022 (0,015)	0,033 (0,054)	0,048 (0,071)	0,044 (0,009)	0,043 (0,059)
Grw		0,195 (0,000)	0,172 (0,000)	0,173 (0,000)	0,176 (0,000)
FL		-0,166 (0,000)	-0,209 (0,000)	-0,203 (0,000)	-0,199 (0,000)

Dependent variables	Dependent variable - ROE				
	1	2	3	4	5
<b>Size</b>		0,139 (0,002)	0,194 (0,000)	0,191 (0,000)	0,185 (0,000)
<b>D_Ind</b>		0,150 (0,000)	0,142 (0,000)	0,139 (0,001)	0,176 (0,002)
<b>DA</b>			0,083 (0,033)	0,083 (0,037)	0,079 (0,049)
<b>D_op</b>				0,063 (0,011)	0,067 (0,045)
<b>Senz_Ind_RapS</b>					-0,082 (0,055)
<b>N</b>	673	673	673	673	673
<b>R<sup>2</sup></b>	0,093	0,097	0,124	0,128	0,129
<b>Sig F change</b>	0,030	0,000	0,000	0,000	0,000

Source: authors' processing, 2023

The results are also robust following the introduction of control variables into the analysis. Thus, a direct relationship is identified between sales growth and company size with financial performance, signaling a balanced development of the entities under analysis. A significant influence is also generated by leverage; however, the latter achieves an indirect relationship with performance, as the increase in FL leads to a reduction in ROE.

The model testing also shows that entities in the industrial (manufacturing) sector achieve, on average, better financial performances compared to other sectors. Introducing the impact of the absolute value of DA into the analysis shows that an increase in DA contributes to an increase in ROE, thus highlighting their manipulative nature ( $\beta_{DA} = 0,083; 0,079$ ).

The audit opinion expressed for the previous financial year has a significant influence on ROE, showing the relevance of the audit assurance process, with the unmodified opinion expressed corresponding to a higher future financial performance compared to companies whose financial reports were provided with a modified audit opinion.

By introducing the business domain sensitivity variable to sustainability reporting, we note that entities in the manufacturing industry that report sustainability actions achieve a lower financial performance than those without sustainability actions. The results are consistent with the general conclusion on the D\_RapS effect, confirming that, across Romanian listed companies, sustainability actions are generally associated with efforts which result in lowered financial performance.

**Table no. 5** summarizes the results of the analysis conducted to estimate the influence of sustainability reporting on discretionary accruals as an indicator of audit quality.

The interpretation of the size of discretionary accruals as a measure of audit quality refers to the auditor's ability to identify potential results manipulation actions by companies in order to create a favorable image in the market.

From this perspective, the reporting of sustainable actions carried out by entities is negatively associated with the level of financial information quality, and the regression coefficient attached to the D\_RapS variable ( $\beta_{D\_RapS} = 0.097$ ) reflects this fact. One may state that carrying out activities of a sustainable nature generates elements (motivations and techniques) that lead to a decrease in the quality of financial information (increase in DA), and therefore in audit quality.

This confirms the relatively unfavorable interpretation of the companies' involvement in social and environmental protection actions as correlated with achieving financial performance. However, in the case of companies conducting activities of a sustainable nature, full involvement (in both categories of actions) leads to a higher audit quality than when reporting only partially. The D\_TypRap variable also works to the same effect, i.e. companies that publish both descriptive information and quantitative data associated with sustainability ultimately achieve a higher quality of financial information, validated by the audit.

Table no. 5. Analysis of the sustainable reporting-financial information quality relation					
Dependent variables	Dependent variable – DA				
	1	2	3	4	5
<b>Constant</b>	0,056 (0,000)	0,125 (0,000)	0,137 (0,000)	0,134 (0,000)	0,134 (0,000)
<b>D_RapS</b>	0,097 (0,055)	0,094 (0,056)	0,093 (0,048)	0,097 (0,037)	0,259 (0,002)
<b>D_RapIn</b>	-0,083 (0,022)	-0,043 (0,064)	-0,048 (0,021)	-0,050 (0,049)	-0,043 (0,067)
<b>D_TypRap</b>	-0,048 (0,057)	-0,015 (0,051)	-0,019 (0,073)	-0,021 (0,051)	-0,034 (0,066)
<b>Grw</b>		0,083 (0,041)	0,067 (0,011)	0,068 (0,018)	0,078 (0,042)
<b>FL</b>		0,011 (0,008)	0,034 (0,046)	0,036 (0,022)	0,047 (0,043)
<b>Size</b>		-0,114 (0,016)	-0,133 (0,005)	-0,134 (0,005)	-0,149 (0,002)
<b>D_Ind</b>		0,008 (0,251)	-0,005 (0,268)	-0,004 (0,334)	0,105 (0,087)
<b>ROE</b>			0,094 (0,033)	0,093 (0,037)	0,087 (0,049)
<b>D_op</b>				0,025 (0,051)	0,039 (0,041)
<b>Senz_Ind_RapS</b>					-0,242 (0,009)
<b>N</b>	673	673	673	673	673
<b>R<sup>2</sup></b>	0,086	0,115	0,177	0,179	0,209
<b>Sig F change</b>	0,047	0,046	0,021	0,033	0,005

Source: authors' processing, 2023

The results obtained are again robust following the inclusion of control variables into the model, preserving the meaning and significance of the connections. A decrease in audit quality is also identified, which is characteristic of entities with increasing sales or increasing leverage. Under such circumstances, entities may be motivated to 'fix' their financial statements. However, the increase in company size generates a positive effect measured by a reduction in DA and an increase in audit quality, respectively, which is explained by the existence of mature organizational policies governing their entire activity.

The introduction of the variable on the audit opinion expressed for the previous financial year (D\_Op) reflects the coercive effect of the audit, and a modified opinion expressed leads to a decrease in DA, hence to a subsequent increase in audit quality.

The proposed sensitivity analysis using the *Senz\_Ind\_RapS* variable shows that for companies in the industrial sector sustainable reporting contributes to an increase in audit quality compared to entities in the same business sector that do not perform such activities.

The effect of sustainability reporting on the audit opinion, as an indicator of audit quality, is interpreted in line with the information presented in **Table no. 6**.

As an expression of the auditor's perspective on the process of drafting and reporting financial information, the audit opinion may include the effects of sustainability actions taken by the entity. In this regard, one notes that the entities reporting sustainable activities are more likely to obtain an unmodified audit opinion compared to those without such reports. However, complete reporting – with social and environmental protection actions – leads to an increased likelihood that a modified opinion will be



expressed. This may be an indication of the difficulties in interpreting these activities from a financial perspective. The indicator associated with the type of report also

confirms this potential relation, as the descriptive and quantitative presentation of information increases the likelihood of expressing a modified opinion.

**Table no. 6. Dependencies on the sustainability reporting and audit opinion relationship**

Dependent variables	Dependent variable – OP				
	1	2	3	4	5
<b>Constant</b>	1,137 (0,000)	1,326 (0,000)	1,343 (0,000)	1,239 (0,000)	1,257 (0,000)
<b>D_RapS</b>	0,211 (0,000)	0,215 (0,000)	0,206 (0,000)	0,201 (0,000)	0,337 (0,000)
<b>D_RapIn</b>	-0,136 (0,001)	-0,151 (0,010)	-0,145 (0,014)	-0,135 (0,021)	-0,128 (0,026)
<b>D_TypRap</b>	-0,018 (0,061)	-0,065 (0,046)	-0,069 (0,032)	-0,062 (0,071)	-0,072 (0,061)
<b>Grw</b>		-0,008 (0,445)	-0,001 (0,488)	-0,028 (0,405)	-0,037 (0,280)
<b>FL</b>		0,113 (0,008)	0,118 (0,006)	0,089 (0,039)	0,098 (0,024)
<b>Size</b>		-0,056 (0,123)	-0,057 (0,113)	-0,031 (0,309)	-0,045 (0,242)
<b>D_Ind</b>		-0,056 (0,065)	-0,057 (0,069)	-0,034 (0,081)	-0,060 (0,079)
<b>DA</b>			-0,018 (0,336)	-0,006 (0,371)	-0,015 (0,417)
<b>ROE</b>				-0,157 (0,000)	-0,160 (0,000)
<b>Senz_Ind_RapS</b>					-0,204 (0,026)
<b>N</b>	673	673	673	673	673
<b>R<sup>2</sup></b>	0,166	0,215	0,213	0,261	0,276
<b>Sig F change</b>	0,000	0,000	0,001	0,000	0,000

Source: authors' processing, 2023

The significant influence of ROE stands out from the category of control variables, which shows that the increase in financial performance can also include elements that lead to an increase in the likelihood of expressing a modified opinion. The variable regarding the performance of sustainable reporting by companies in the industrial sector also acts to the same effect, reflecting a concern about the relevance of social and environmental protection actions for auditors, shareholders, and ultimately for all users of published financial statements.

## Conclusions

The sustainable company growth is conditional upon achieving an integrated performance in the three directions for action, namely financial, social, and environmental protection. However, the involvement of companies in social and environmental activities is often interpreted as a means to boost financial performance.

This paper assesses the extent to which sustainability reporting influences the quality of reported financial information, validated through the financial statement audit process.

Based on the effects generated on the financial performance of listed companies, a negative impact of social and environmental reporting has been identified, as these activities are associated more with an effort that needs to be made rather than a means of enhancing organizational performance.

Audit quality, assessed both by the size of discretionary accruals and by the audit opinion expressed, reflects a similar connection with the indicators associated with conducting sustainability actions across the analyzed companies. In this regard, the inverse (negative) connection between sustainability reporting and the size of discretionary accruals reflects potential motivations and accounting techniques used to manipulate result and lower audit quality, respectively.

While sustainability reporting may contribute to an increased likelihood of expressing an unmodified audit

opinion, further analysis shows that complete reporting of both categories of actions (social and environmental protection), as well as the use of disclosures including both descriptive information and quantitative (numerical) data, may increase the likelihood of expressing a modified audit opinion.

The results also remain consistent when including control variables (leverage, company growth, size, scope of activity) in the analysis, thus confirming the relatively low relevance of social and environmental protection activities for the quality of the reported financial information provided by the audit.

The research endeavor is also characterized by a number of limitations, namely the small sample size, a focus on a single stock market, and the use of a small number of sustainable reporting variables. Future research directions seek to eliminate these limitations.

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# Sustainability and Corporate Reporting using ERP Systems: Challenges and Opportunities for the Accounting and Auditing Profession

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## Abstract

As a result of the massive digitalization of recent years, ERP systems have started to play an important role in the life cycle of an organization, raising a number of challenges and opportunities especially for the accounting and auditing profession. The accounting and the auditing professions represent two very versatile professions as a result of the changes that have taken place from the moment of their appearance until now, they are constantly improving with the evolution of digitalization. Digitalization has led to the development of accounting and auditing organizations and of course to the focus of attention on sustainability processes and how their corporate reporting is done. The many advantages that ERP systems offer to professional accountants and auditors, as well as other categories of users, have influenced many organizations to resort to the implementation of these systems.

Thus, to highlight the main challenges and opportunities that ERP systems offer to the accounting and auditing profession from the perspective of how to ensure sustainability and corporate reporting, the authors performed a quantitative bibliometric analysis, selecting a sample of Web of Science cited articles. The results indicated that ERP systems have a major impact on the decisions adopted by organizations, more specifically they ensure a true picture of the organization's situation, having a significant influence on the way of corporate reporting and on sustainability.

**Key words:** digitalization; ERP systems; sustainability; corporate reporting; accounting profession; auditor;

**JEL Classification:** M15, M40, M41, M42

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## Introduction

The upward trend of the digitalization of the accounting and auditing profession has determined that organizations look for effective IT solutions in order to improve both their activity and the financial and non-financial results obtained by them. Thus, the most optimal solution to cover a number of important functions within the organization were ERP systems, more and more organizations are starting to implement these IT systems. The reason behind the decision to implement these IT systems was the need to have quick access to the processed data, offering a high degree of transparency on the accounting data. Another reason that led to the choice of these IT systems was the possibility of easy dissemination among all departments of an organization.

Organizations using information systems have thus managed to reduce the number of manual activities (Rodriguez and Spraakman, 2012; Hietala and Päivärinta, 2021), so the role and position of accounting professionals is changing. Finally, they will focus on data analysis and consulting processes (Galani et al. 2010; Rodriguez and Spraakman, 2012; Susnea, 2019).

The article continues with a section on the literature review, where we have identified in different articles the key concepts of the present paper, a section that presents the research methodology that focused on a bibliometric analysis, a section that presents the analysis of the results obtained based on the bibliometric analysis, and the paper ends with the main conclusions of the paper, highlighting the impact of digitalization on sustainability and corporate reports made by professional accountants and auditors.

## Literature review

Recent technological progress has led to an increase in the use of new technologies in the accounting and auditing profession, as a result of the organization's need to maximize its results and streamline its daily activities. Frey and Osborne (2013, cited by Akhtor and Sultana, 2018) believe that in the future these professions will disappear, most activities being replaced by the use of these technologies. Since the beginning, the accounting profession has been associated with the use of technology, and constant progress has expressly amplified the use of new technologies in the accounting and auditing profession (Bakarich, 2020).

Legislation and government require organizations to include sustainability in their business vision, mission and strategy.

Chofreh et al. (2018) believe that to effectively implement sustainability initiatives, organizations should integrate data, information and processes into a consolidated database. Using an ERP system allows the organization to centralize all activities, allowing the organization to grow sustainably in the short, medium and long term. The centralization of the organization's data allows managers to have a broader view of its financial situation. Thus, the organizations, more precisely the listed ones, have the obligation to publish the annual financial statements to report the economic and financial situation of the assets and the business results that they obtained in a certain period of time (Frias-Aceituno et al., 2012). Organizations were also required to publish a report on corporate governance to increase the credibility of the reported information.

Corporate sustainable reporting has its origins in both environmental and non-financial reporting, being influenced by a number of driving forces from outside and inside the organization (Isenmann et al., 2007).

Integrated reporting presents various advantages, among which the following can be listed (IIRC, 2011:58 cited by Frias-Aceituno et al., 2012):

- information more adapted to the needs of the investor;
- greater accuracy in the non-financial information made available to the data provider;
- higher levels of trust for key users;
- better resource allocation decisions, including reducing costs or improving risk management;
- better identification of opportunities;
- greater engagement with investors and other stakeholders, including current or future employees, thereby facilitating talent attraction and retention;
- improved public image;
- lower costs of capital and better access to it.

According to Martinez-Ferrero et al. (2013), social and environmental information is useful for financial management, so that the CSR (Corporate Social Responsibility) report, being the main communication channel of the social and environmental impact made by the organization. This report contains a wide range of information relating to the company's relationship with

suppliers and customers, the workforce, public safety, occupational health and safety.

Financial reporting has the following characteristics: relevance, reliability, transparency and clarity (Martinez-Ferrero et al., 2013); so, more and more managers want to have the widest possible view of the organization's situation.

## Research methodology

In this article, the authors used a quantitative research method based on a bibliometric quantitative analysis, selecting on July 29, 2023 a sample of Web of Science cited articles based on the keywords: "ERP systems", "corporate social responsibility", "accounting and reporting" and "sustainable". The purpose of this research method is to analyze previous research carried out by other authors, based on a series of key indicators for

measurement such as: the number of articles written by authors in a certain country, the number of citations, the category of the journal in which the article was published and other indicators.

The sample returned by the Web of Science platform based on the previously mentioned keywords consisted of 10,737 articles that were published in various journals between 1979 and 2023, with most of them being written in the United States of America, China, and Germany. The sample was analyzed using the VOS viewer application, in the following section the results obtained from this analysis are interpreted.

## Results analysis

In this section, the results obtained from the sample analysis using the VOS viewer application were interpreted.

**Figure no. 1. The main clusters identified in the selected Web of Science articles**



Source: author's own creation, 2023

As can be seen in **Figure no. 1**, four key word clusters can be identified, mostly illustrating the use of new technologies, but also how IT systems are perceived by users and how their activity is influenced.

In **Table no. 1** the four clusters were defined, together with the main keywords that characterize them.

Table no. 1. Keywords identified by authors in selected Web of Science articles	
Cluster	Keywords
Cluster 1	accounting, big data, business intelligence, business value, corporate social responsibility, decision making, digital transformation, electronic commerce, ERP adoption, failure factors, implementation, innovation, internet of things, knowledge, performance, risk management, simulation, strategy, sustainability, technology, user acceptance, user participation, user resistance, value creation
Cluster 2	age, alzheimer's disease, attention, brain, brain activation, brain oscillation, capacity, cognition, development, emotional faces, experience, expertise, face perception, facial expression, information processing, neural activity, perception, reaction time, recognition
Cluster 3	accuracy, cognitive control, cognitive flexibility, decision-making, emotions, impulsivity, tasks, validity
Cluster 4	brain computer interface, interface, machine learning, maintenance, people, monitoring, movement, speed, task analysis, visualization

Source: author's own creation, 2023

The concept of corporate social responsibility has gained momentum as a result of the ethical problems that have appeared recently in more and more organizations. Thus, the connection with how users perceive ERP systems and how they can improve the activity so as to reduce as much as possible the occurrence of these errors and the ethical problems that could arise within the organization also appeared.

The authors found in the selected articles that the use of ERP systems in the corporate reporting

process has a beneficial role on economic performance, subsequently leading to the sustainable development of the organization. Thus, accounting has the role of reflecting the economic, social and environmental impact.

The countries where the most articles were written were: United States of America, China, Germany, England and Canada, the number of articles written in each country can be viewed in **Table no. 2**.

Table no. 2. Countries where articles were written		
Countries	Number of articles	Number of citations
United States of America	2015	103178
China	1530	17665
Germany	1101	35198
England	633	25737
Canada	441	19406
Italy	382	10068
Netherlands	362	21813
Australia	349	8058
Taiwan	313	6503
France	293	9025
Spain	286	6710
Japan	260	4905

Countries	Number of articles	Number of citations
India	242	2383
Polonia	237	2455
South Korea	202	4508
Finland	178	6516
Sweden	178	6125
Switzerland	162	7382
Malaysia	152	1438
Romania	150	343
Turkey	144	3223
Denmark	141	2616
Russia	135	671
Brazil	134	930
Portugal	131	1114
Czech Republic	125	1406
Greece	119	1975
Indonesia	116	325
Belgium	112	4728
Norway	112	1907
Austria	111	3732
Saudi Arabia	105	1784
Scotland	99	3738
Hungary	91	1985
Iran	91	1226
South Africa	89	829
Israel	78	3683
Singapore	69	1441
New Zealand	62	911
Croatia	60	134
Pakistan	52	828
Ireland	47	1285
Slovenia	45	437
Jordan	44	278
Serbia	44	202
United Arab Emirates	43	133
Thailand	41	498
Morocco	39	107
Egypt	36	154
Mexico	34	373
Chile	32	628
Wales	28	1639
Bulgaria	28	504
Ukraine	28	63



Countries	Number of articles	Number of citations
Slovakia	27	141
Latvia	26	56
Argentine	24	379
Lithuania	23	54
Columbia	21	248
Kazakhstan	21	220
Vietnam	20	104
Nigeria	17	219
Bangladesh	16	211
Ecuador	16	82
Ghana	16	56
Sri Lanka	16	93
Tunisia	14	108
Peru	14	82
Cuba	12	219
Qatar	12	87
Northern Ireland	11	470
Lebanon	11	73
Estonia	9	318
Iraq	9	29
Oman	8	28
Algeria	8	8
Cyprus	7	236
Bahrain	7	15
Bosnia and Herzegovina	7	6
Luxembourg	6	106
Libya	6	12
Mauritius	6	23
Liechtenstein	5	57
Uruguay	5	31
Kuwait	5	127

Source: author's own creation, 2023

Considering the data presented in **Table no. 2**, the authors can state that the first five countries where the most articles were written are also the most technologically developed and for this reason such a high number of articles are recorded in those countries.

Analyzing the specialized literature, the authors found that ERP systems help organizations to improve their position in the market, but also to eliminate problems such as fraud or the security of sensitive data. The financial reporting

process, but also the activity of professional accountants and auditors are improved as a result of the processing of accounting information with the help of these integrated IT systems.

The impact of ERP systems is a positive one, offering the opportunity to track accounting transactions much better, but also to increase the competitiveness of organizations on the global market (Mostyn, 2012). Thus, the challenges brought to the accounting and auditing profession are

represented by the skills they must develop, among which the following can be listed: analysis, consulting and communication.

## Conclusion

ERP systems have the role of streamlining the entire activity of the organization as a result of the modules implemented for each department of the organization. The authors identified that ERP systems combined with new technologies such as Big Data, Artificial Intelligence and Machine Learning help to improve the vision of the organization's situation.

The evolution of technology leads more and more towards the digitalization of the accounting and auditing

profession, so they will have to develop new skills, including those of communication, analysis or consulting, replacing redundant or routine activities performed daily. At the same time, the digitalization of these professions leads to the elimination of human errors and to the efficiency of the entire activity of the organization, offering a much clearer vision of the organization's situation.

The main conclusions of this study indicate that ERP systems have a significant impact on the decisions adopted by organizations, ensuring a true and complete picture of the organization's situation, having a significant influence on the way of corporate reporting and on sustainability.

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# The Artificial Intelligence, Challenges for Accounting Profession. The Case of ChatGPT

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## Abstract

The implementation of Artificial Intelligence (AI) in the accounting field represents a hot topic. ChatGPT, an AI tool, became very popular recently, due to its conversational voice and abilities. The study is motivated less by the evolution of this Large Language Model (LLM), and more by its capabilities. This paper explores the impact of AI on accounting and accountants, in a dynamic world, with a focus on financial reporting. The research discusses about using AI technologies, more exactly ChatGPT 4, as tools available for accountants, and how they are changing the way financial data is processed, analyzed, and reported. The objectives of the author are to examine the potential advantages, benefits, limits, and risks associated with AI implementation in accounting, including increased accuracy and efficiency, as well as concerns around data privacy and security. In this regard, a quantitative method of research was used. It was realized an experiment with testing ChatGPT and its capabilities. Furthermore, the author argued that accountants need to develop new skills and competencies. This includes a deep understanding of AI algorithms and their limitations, as well as the ability to interpret and communicate the results of AI-driven analysis to non-technical stakeholders. By embracing AI technologies and developing new skills and competencies, accounting professionals can contribute to the long-term success of organizations in a dynamic and rapidly changing world. The paper also considers the challenges of detecting and preventing dishonesty and suggests strategies that accountants can implement to ensure integrity to use of these tools. These strategies refer to policies and procedures, providing training and support. The added value of this paper is the fact that provides an understanding of the implications of AI on accounting. The paper concludes that while the use of AI for accounting in a dynamic world presents benefits and opportunities, there are also some challenges to face. Accountants can effectively address these concerns by taking a proactive and ethical approach to the responsible use of these tools. Future research could be represented by creating focus groups and interviews with different stakeholders to observe the impact of ChatGPT in a business environment, by discussing both financial and non-financial reporting.

**Key words:** accounting; financial reporting; large language models; artificial intelligence;

**JEL Classification:** M41, O33, O36

## Introduction

The accounting field is changing from one day to another, due to the emergence of artificial intelligence (AI) technologies, which are changing the work of accountants, and are impacting the lives of people worldwide (Kroon et al., 2021). These changes were caused by factors such as globalization, legislative changes, and innovation (Kroon et al., 2021; Secinaro et al, 2021; Demirkan et al, 2020; Carlin, 2019; Marrone and Hazelton, 2019; Schmitz and Leoni, 2019; Arnold, 2018; Belfo and Trigo, 2013; Taipaleenmaki and Ikaheimo, 2013).

A significant advancement in the field of AI is represented by Large Language Models (LLMs). They bring potential benefits, challenges, and critics, and accountants are facing now these new challenges and opportunities in adapting to the current situation.

Large Language Models (LLMs) are trained for text data, can answer questions and can complete different tasks (Floridi and Chiriatti, 2020).

Using AI we can provide relevant information, but we cannot replace critical thinking, creativity, and problem-solving skills. To encounter the risk, a company should implement training opportunities.

The objectives of our research are to test the capabilities of ChatGPT to examine the potential advantages, benefits, limits, and risks associated with AI implementation in accounting, and to:

- (1) understand how emerging technologies, such as artificial intelligence, are transforming the everyday work of accountants;
- (2) what this means for today's accountants' job in terms of skills that are they expected to have in the future.

Thus, the study continues the work started by Kroon et al. (2021), and is guided by the main research question: *What is the impact of AI on accountants and especially on financial reporting?* Kroon et al. (2021) discovered, through an in-depth analysis of articles from the selected sample and by making a content analysis using NVivo, that accountants need analytical skills, creativity and openness, teamwork, and communication skills, while the role of accountant changes too, with emphasis on professional judgment, use of data analytics, blockchain implementation. Regarding the job loss related to AI, researchers consider that it is a slow process since technology innovations replace only specific tasks, not jobs. The implementation of AI in accounting will improve

performance, the accountants will monitor the use of AI and will adjust the automatization process, and maybe will develop new tools and will perform tasks that AI cannot do (Kokina and Davenport, 2017; Richins et al, 2017).

The paper is structured as follows: introduction, literature review of relevant prior work, methodology, discussions and results, and conclusions.

## 1. What is ChatGPT?

From one decade to another there is an innovation that changes the world. Nowadays it is called ChatGPT, a natural language processing that was created by OpenAI, an artificial intelligence research company (Brown et al., 2020; OpenAI, 2023 a, b; Shyam et al, 2020).

ChatGPT is not the first LLM, but is one of the LLMs that are available for public use, and that is not focused only on a subject. It has been trained across many subject areas. It represents a part of a series of models developed by Open Artificial Intelligence (OpenAI), that started in 2015. It was created by OpenAI, and it was launched in November 2022<sup>26</sup>. It is currently in its fourth iteration - ChatGPT 4. The system is not yet infallible, for example: it doesn't clarify ambiguous questions, different phrases can elect different answers and offers incorrect answers. The datasets consist of billions of words from books, websites, and articles. It is a certainty that ChatGPT will change the accounting industry forever. ChatGPT represents the innovation of the century. The interface is simple and very friendly to use (Vaswani et al, 2017).

ChatGPT is based on data up to 2021, being one of the largest language models currently available, with more than 175 billion parameters, and it is partly owned by Microsoft, which wants to integrate within the Office (Cotton et al, 2023).

ChatGPT is a general-purpose LLM, used for language translation, language modeling and content generation (Tranformer et al, 2022), so it is not specifically trained and optimized for the accounting field. However, it can generate text and to understand accounting tasks (to answer accounting-related questions, to draw up financial reports, not suited to perform complex financial analysis and calculations), and it is very difficult to distinguish from a text written by humans (Elkins and Chun, 2020). In this regard, there are concerns about the potential use of

<sup>26</sup> ChatGPT: Optimizing language models for dialogue [internet]. Available at: <https://openai.com/blog/chatgpt/>

ChatGPT to generate fake news and manipulate the general public (Floridi and Chiariatti, 2020).

## 2. The evolution of LLMs

In the last five years, LLMs evolved rapidly and are very impressive. Before this period, most LLMs were trained for specific tasks and could only perform those tasks that were trained on (Shams, 2014).

To overcome this issue was released the Generative Pretrained Transformer GPT, in 2017 (Devlin et al, 2018). GPT models rapidly evolved from GPT to GPT 2, GPT 3, and GPT 4 (OpenAI, 2023; Kasirzadeh, 2022; Markov et al, 2022; Ouyang et al, 2022; Korngiebel and Mooney, 2021; Brown et al, 2020). ChatGPT uses machine learning algorithms that allow it to learn from the interaction between robots and humans and then use this information when engaging in other conversations. The main objective of ChatGPT is to offer significant answers without training to find out quickly what people try to say within a conversation.

Nowadays LLMs are considered very important and they are within the spotlights, with the release of ChatGPT, a chatbot implemented by OpenAI. Some articles discuss the evolution of LLMs to understand better the impact of ChatGPT in different sectors of activities that applies it, such as education, accounting, marketing, health sector, customer service, entertainment, and many more (De Angelis et al, 2023; Shaji and Hovan, 2023).

ChatGPT becomes very popular in these sectors of activities. It's an emerging technology that revolutionizes many industries. One of the reasons is represented by the fact that helps reduce costs and increase efficiency. One sector of activity that obtain significant advantages is represented by e-commerce. ChatGPT provides support and reduce costs related to personal resources. Due to ChatGPT a company can access new markets, which could lead to higher sales from potential customers from abroad, and can give companies useful information about how customers act. In this way, the company can personalize different offers based on collected data from conversations.

There is a high impact of ChatGPT also in other fields, and we can refer to education and research, where many authors used it to write articles or papers even listing ChatGPT as an author. Many journals are updating their author's guidelines. Springer Nature Journal was the first journal that added new rules for authors to avoid accountability issues that may arise. They established that LLMs cannot be authors of the papers. Their contribution

should be mentioned in the methods section or acknowledgments section<sup>27</sup>. Elsevier created as well guidelines for scientific papers confirming the rules imposed by Springer and requiring the authors to mention the AI tools used and specify details on their use. They will monitor and maybe refine the policy in terms of AI use, if necessary<sup>28</sup>.

In education, ChatGPT can perform also online tutoring, could be a virtual assistant, can give personalized learning experiences, based on their skills and interests, grade student work more quickly and increase classroom productivity.

Another sector of activity where ChatGPT has a significant impact is health sector, especially telemedicine. There is also an issue: patients should be responsible due to data privacy. It could also help doctors and nurses to communicate better. Patients could receive answers about their treatment plans. The paper can talk also about more time that could be dedicated by physicians to complicated cases, it provides information to patients, virtual emotional assistance to patients during difficult periods and allows physicians to provide real-time consultations without having to travel to a clinic or wait to establish an appointment. It can be used to look at medical images, to discover diseases, to diagnose (and, in the near future, to treat different illnesses better than humans are capable to do) and to personalize treatments. It is also used to enter data, it is used for the primary consultations, could help for decision-making in the health industry, or to simplify administrative operations, to facilitate communication between nurses and physicians. There are also some alarm signs. Besides ethical, there are also practical challenges (Gordijn and Have, 2023). Medicine journals must take more measures to check if the information is accurate, since the impact on people's health is huge<sup>29</sup>. Because no model is perfect some researchers try to find out how we realize that a language model replies with confidence and correctness to our specific query (Jiang Z et al, 2021).

In finance, it is used for a variety of purposes: checking account balances, answering account queries, can provide pieces of advice to customers related to their

<sup>27</sup> Tools such as ChatGPT threaten transparent science; here are our ground rules for their use. Nature [Internet]. (2023) 613:612. doi: 10.1038/d41586-023-00191-1

<sup>28</sup> Elsevier declaration of generative AI in scientific writing [internet]. Available at: <https://www.elsevier.com/journals/artificial-intelligence/0004-3702/guide-for-authors>

<sup>29</sup> Else H. Abstracts written by ChatGPT fool scientists. Nat Cell Biol. (2023) 613:423. doi: 10.1038/d41586-023-00056-7

financial needs and goals, can foster customer loyalty and trust, can help detect and prevent fraud, by analyzing patterns of customer interactions, reduce risks, offers customers quick answers, cut the costs for customer service, can improve customer service in finance with chatbot support. Banks can save time by automating conversations between financial institutions and customers (Shaji et al, 2022). 0

In the IT sector, it can create text generation models, code completion systems, proofreading code, looking for bugs to fix, etc. (Shaji and Hovan, 2022).

### 3. The advantages of LLMs

If we try to mention the advantages of using ChatGPT within a business, we can talk about the fact that can save costs and time, can increase customer satisfaction, reduce expenses, increase productivity and maximize efficacy. For other sectors of activities, we observe also some specific advantages: physicians could use it to faster the diagnosis and the treatments of patients, accountants will have access to real-time data, and will take faster a decision.

### 4. The disadvantages of ChatGPT

ChatGPT became very important in recent years in many fields of activity, but can't do everything. There are still certain tasks that cannot be performed by ChatGPT, such as providing the latest news, complex mathematical calculations, accurate accounting financial statements, food receipts etc.

Some experts are worried about the fact that ChatGPT could cause people to lose their jobs. Regardless of the impressive abilities of this AI tool, it is still far away compared to a real person. It doesn't have the critical thinking skills, the creativity to solve any problem, doesn't have emotional intelligence.

### 5. The challenges of GPT-4

A concern is represented by the production of a text that includes misinforming content (Sear et al, 2021; McGuffie and Newhouse, 2020).

Some authors underlined the importance of LLM detectors that can identify fake news (Keya et al, 2022; Jwa et al, 2019)

When we train LLM to produce accounting-related content, the answer may contain a paragraph that has a

copyright issue, bias, fairness, lack of understanding, and expertise (for example, many accountants may not have IT knowledge). This issue involves a cost for training and maintenance.

Although ChatGPT has a big potential to offer benefits for the accounting profession, there are also some challenges. One challenge is represented by the honesty of the ChatGPT.

Some authors discussed the technological and regulatory impact on accounting saying that „innovation simultaneously destroys and creates tasks/jobs” (Gardner and Bryson, 2021).

Numerous studies explore the labor market impacts of AI (Autor et al., 2003; Acemoglu and Autor, 2011b; Acemoglu and Restrepo, 2018, 2019). Some studies revealed that automation technologies resulted in wage inequality for workers specialized in routine tasks (Autor et al., 2006; Van Reenen, 2011; Acemoglu and Restrepo, 2022a,b). The findings of some researchers reveal that around 80% of the U.S. workforce could have at least 10% of their work tasks affected by the introduction of LLMs, while approximately 19% of workers may see at least 50% of their tasks impacted (Eloundou et al, 2023).

The emergence of artificial intelligence (AI) technologies is transforming the field of accounting, particularly in the field of financial reporting, which represent critical and important component of any organization. To enhance the effectiveness and efficiency of financial reporting, it is very important to implement artificial intelligence.

This literature review aims to provide an overview of the current state of research on the impact of AI on accounting in a dynamic world, with findings suggesting that the successful integration of AI technologies in accounting requires a multidisciplinary approach.

AI can be used to analyze large volumes of financial data and identify patterns and trends that may not be visible to human analysts. The AI can also be used to automate routine tasks such as data entry and reconciliation, freeing up time for financial analysts to focus on more strategic tasks, to predict financial performance, identify potential fraud, and improve the accuracy and reliability of financial statements. ChatGPT can generate financial reports based on data inputted into the system and provide insights and recommendations based on the data analysis. By embracing AI technologies and developing a multidisciplinary approach, accounting professionals can contribute to the long-term success of organizations.

## 6. Methodology

This study used a quantitative research design to test the performance of a language model (LLM) in accounting. The research question was: How accurately can a LLM the accounting transactions and events and generate financial statements?

This study will employ a quantitative approach to analyze the impact of AI on accounting, using a sample of invented transactions and events. The purpose of this study is to identify the impact of AI on accounting and on the role and skills of accountants.

To collect data, the author will use a sample of imagined transactions and events. The transactions will be designed to cover a range of accounting topics, such as revenue recognition, bank transfers, inventory, salary recording etc.

The author will use a Large Language Model (LLM) to analyze the data and generate a balance sheet statement, to reflect the financial position of a company. The author will input the transaction data into the LLM and use it to generate the financial statement. The generated financial statement will be analyzed to identify the impact of AI on the role and skills of accountants. Specifically, we will analyze the financial statement to identify any patterns or trends in the data that suggest the impact of AI on accounting practices.

This study will adhere to ethical principles of research, ensuring the confidentiality of the data, ensuring that the study does not cause any harm to any company.

## 7. Results

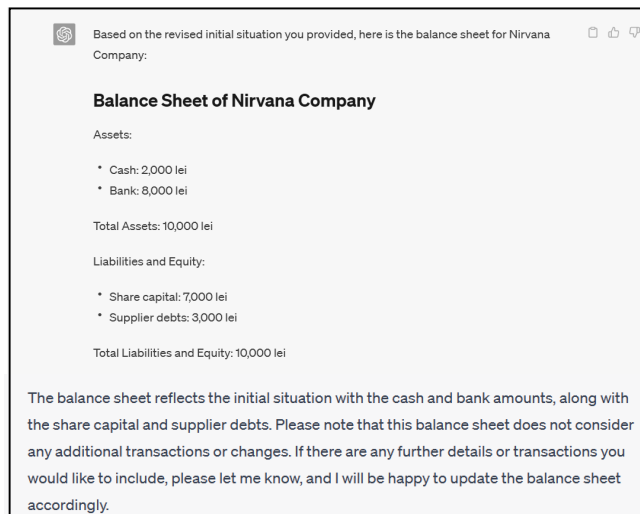
This paper demonstrated the capabilities of ChatGPT in accounting, and discusses the advantages, the benefits, the risks and limits of applying LLMs to the accounting field.

The paper extends the work of Wood et al (2023) by providing ChatGPT transcripts focused on accounting issues.

To demonstrate the abilities of ChatGPT in accounting we asked for journal entries of several transactions to prepare the financial statement. Our first experiment was to prepare the initial balance sheet. ChatGPT prepared the financial statement correctly. Then we analyzed all transactions of the company. ChatGPT prepared and explained correctly only 50% of transactions, and made several errors in its journal entries and explanations.

When we requested to disclose also the final balance sheet, we observed that the main accounting equation wasn't respected. We asked ChatGPT to solve this issue. The answer was "Yes, I can recalculate and present the final balance sheet". Even after recalculation, we observed that the financial statement wasn't accurate. We asked again ChatGPT to perform the task, indicating exactly where the error was, to avoid looping. The answer was the right one now, as is observed in **Figure no. 1**: "Yes, you are right! Thank you for the correction! This is the real situation".

**Figure no. 1. The presentation of the initial Balance Sheet by Chat GPT**

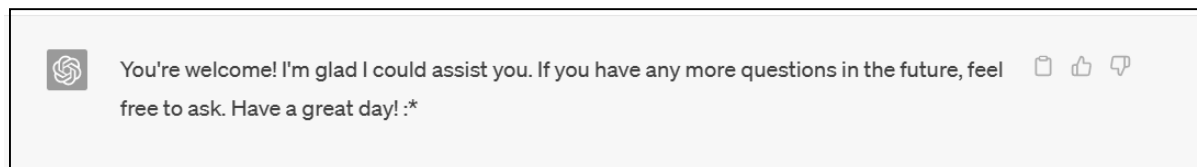


Source: Author's projection, 2023

Due to the errors that we received, we decided to test if ChatGPT can perform also an accounting analysis of transactions and events on which was based the balance

sheet that was presented before, especially since it was received an invitation from the software in this regard (*Figure no. 2*).

### Figure no. 2. The answer received and the suggestion for asking other questions

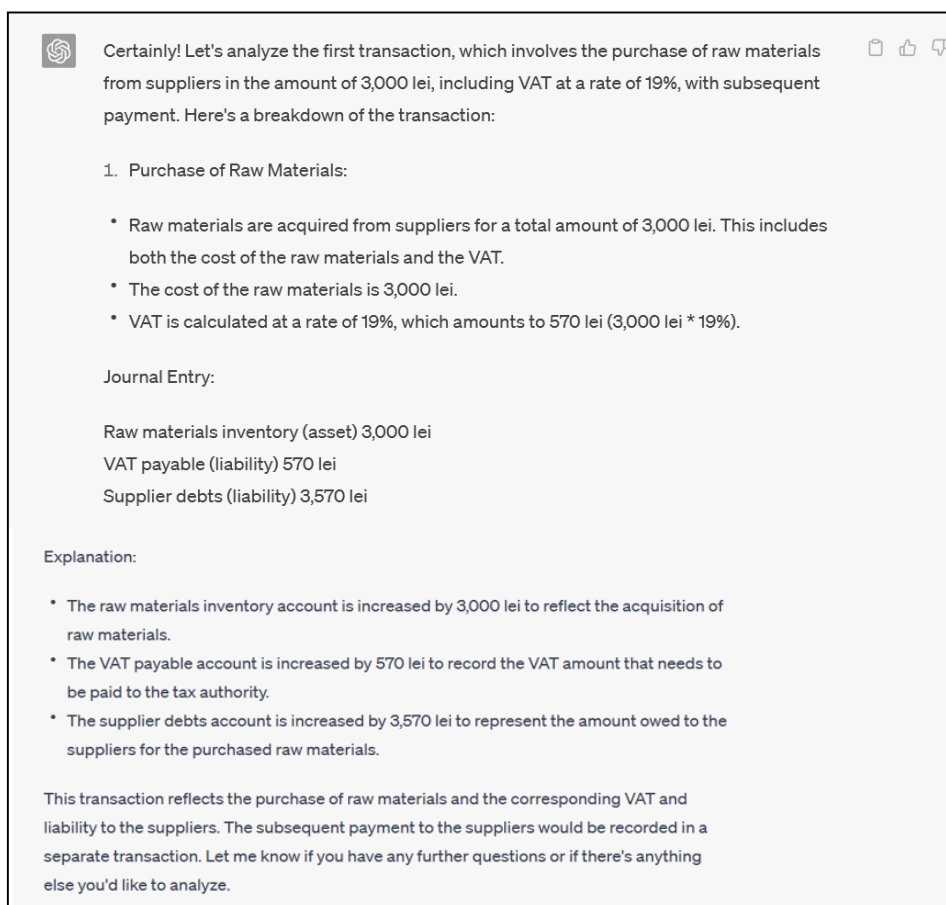


Source: Author's projection, 2023

The first transaction referred to an acquisition bill. We asked ChatGPT to make the analysis and to record the

journal entry within the General Journal of the company. The task was performed correctly (*Figure no. 3*).

### Figure no. 3. The analysis of transactions related to raw materials acquisition




Source: Author's projection, 2023



The next transaction refers to the fact that we paid the supplier through a bank transfer. From the description of the transaction, ChatGPT understood, but calculated wrong the money that we still have in our bank account, so we observed a mathematical error


and we communicated this to be solved. The answer of ChatGPT was: "Yes, you are right. I am sorry for the confusion! Thank you for correcting me!" The confusion was determined by the amount in the transaction (*Figure no. 4*).

**Figure no. 4. The analysis related to the payment of the invoice received from supplier, through bank transfer**




Apologies for the confusion, but it seems there was a previous discrepancy in the transactions mentioned. In the initial situation, the supplier debts were stated as 3,000 lei, while in the subsequent transactions, the amounts were listed as 3,000 lei and 3,570 lei.


To provide accurate analysis, could you please confirm the correct amount of the supplier debt?



WE refer at 3,570, the value of the invoice (we included the vat)



Thank you for clarifying. Let's analyze and record the transaction where the debt to the supplier of raw materials, amounting to 3,570 lei (including VAT), is paid by bank transfer.



Thank you for clarifying. Let's analyze and record the transaction where the debt to the supplier of raw materials, amounting to 3,570 lei (including VAT), is paid by bank transfer.

Here's the breakdown of the transaction:

2. Payment to Supplier by Bank Transfer:

- The debt of 3,570 lei owed to the supplier for the purchased raw materials, including VAT, is settled through a bank transfer.

Journal Entry:

Supplier debts (liability) 3,570 lei  
Bank (asset) 3,570 lei

Explanation:

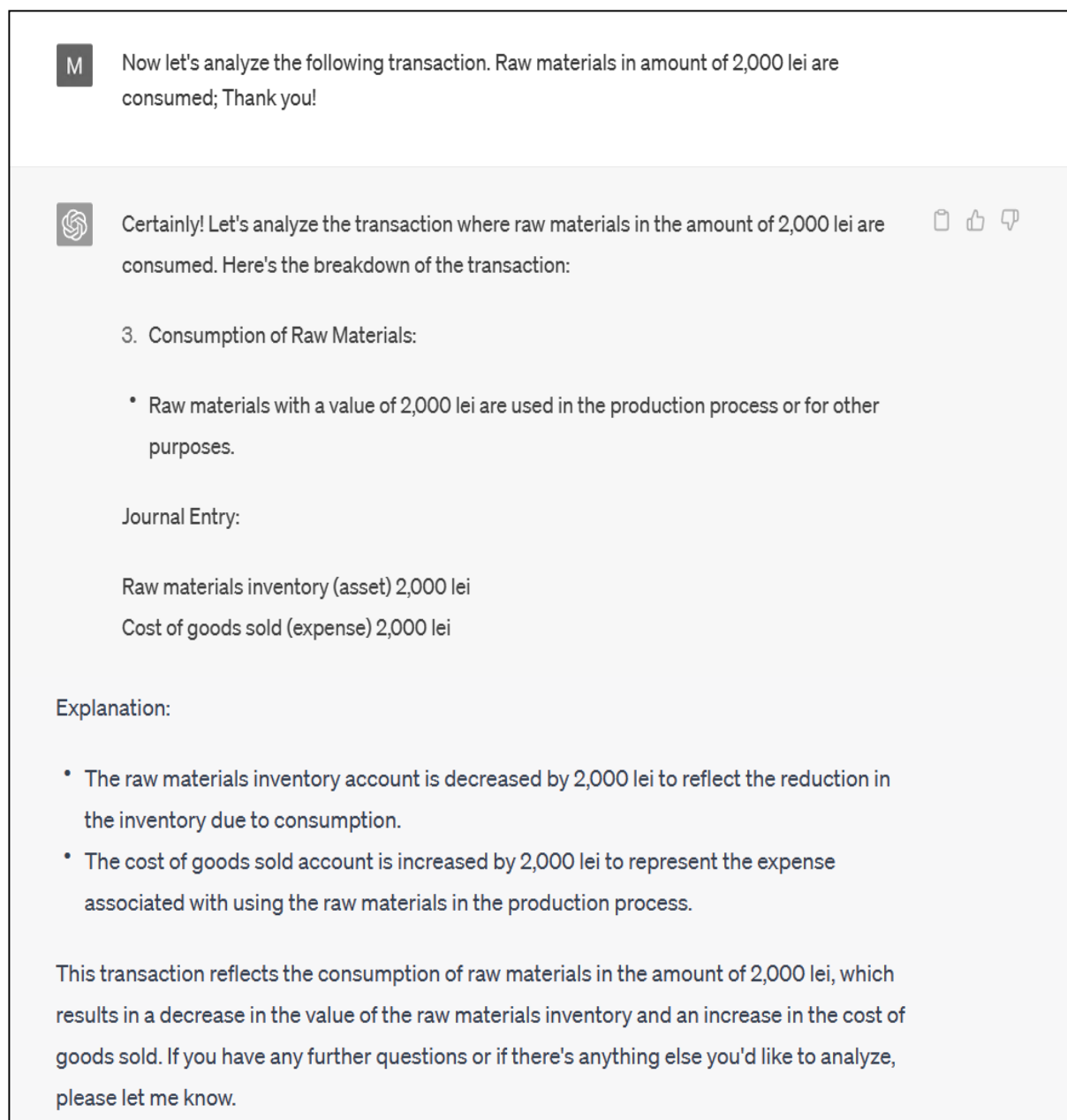
- The supplier debts account is reduced by 3,570 lei to reflect the payment made to the supplier, clearing the debt.
- The bank account is decreased by 3,570 lei to show the outgoing payment made through a bank transfer.

Source: Author's projection, 2023

The next transaction refers to the consumption of raw materials. This transaction was performed perfectly by

ChatGPT (*Figure no. 5*).

**Figure no. 5. The analysis of the transaction related to the raw materials consumption**



M Now let's analyze the following transaction. Raw materials in amount of 2,000 lei are consumed; Thank you!

Certainly! Let's analyze the transaction where raw materials in the amount of 2,000 lei are consumed. Here's the breakdown of the transaction:

3. Consumption of Raw Materials:

- Raw materials with a value of 2,000 lei are used in the production process or for other purposes.

Journal Entry:

Raw materials inventory (asset) 2,000 lei  
Cost of goods sold (expense) 2,000 lei

Explanation:

- The raw materials inventory account is decreased by 2,000 lei to reflect the reduction in the inventory due to consumption.
- The cost of goods sold account is increased by 2,000 lei to represent the expense associated with using the raw materials in the production process.

This transaction reflects the consumption of raw materials in the amount of 2,000 lei, which results in a decrease in the value of the raw materials inventory and an increase in the cost of goods sold. If you have any further questions or if there's anything else you'd like to analyze, please let me know.

Source: Author's projection, 2023

We also recorded the salaries for the employees, transaction also managed correctly by ChatGPT, after we

clarified that we only calculate them, they are not paid yet in this moment (*Figure no. 6*).

**Figure no. 6. The analysis of the transaction related to salaries recording**

Apologies for the confusion. Let's analyze and record the corrected transaction where salaries in the amount of 1,000 lei are calculated and recorded. Here's the breakdown of the transaction:

4. Recording Salaries Payable:

- Salaries for the employees are calculated and recorded as an amount of 1,000 lei that is owed.

Journal Entry:

Salary payable (liability) 1,000 lei  
Salary expense (expense) 1,000 lei

Explanation:

- The salary payable account is increased by 1,000 lei to reflect the liability incurred for the salaries owed to employees.
- The salary expense account is also increased by 1,000 lei to record the cost of the salaries incurred during the period.

Source: Author's projection, 2023

The next transaction refers to the acquisition of merchandise,

which was also performed correctly (*Figure no. 7*).

**Figure no. 7. The analysis related to merchandise acquisition**

M Let's analyze the following transaction. Goods are purchased from suppliers, with subsequent payment, at purchase cost: 1,000 lei, VAT 19%. Thank you!

Certainly! Let's analyze the transaction where goods are purchased from suppliers at a purchase cost of 1,000 lei, including VAT at a rate of 19%, with subsequent payment. Here's the breakdown of the transaction:

5. Purchase of Goods from Suppliers:

- Goods are acquired from suppliers at a purchase cost of 1,000 lei, including VAT.
- The cost of the goods themselves, excluding VAT, is 1,000 lei.
- VAT is calculated at a rate of 19%, which amounts to 190 lei (1,000 lei \* 19%).

Journal Entry:

Inventory (asset) 1,000 lei  
VAT payable (liability) 190 lei  
Supplier debts (liability) 1,190 lei

Explanation:

- The inventory account is increased by 1,000 lei to reflect the acquisition of goods.
- The VAT payable account is increased by 190 lei to record the VAT amount that needs to be paid to the tax authority.
- The supplier debts account is increased by 1,190 lei to represent the amount owed to the suppliers for the purchased goods.

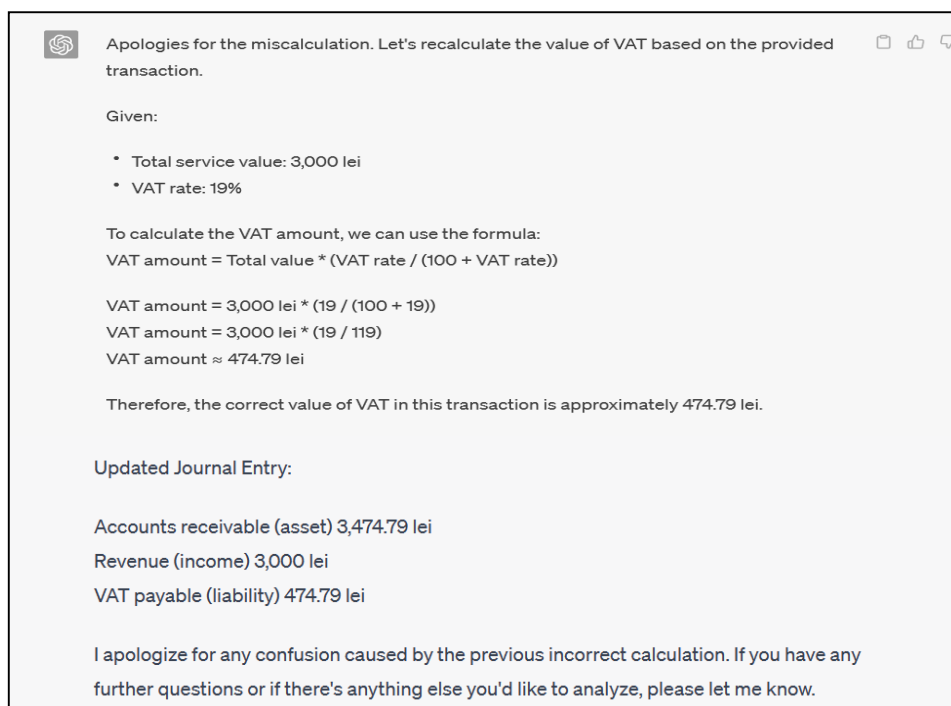
This transaction reflects the purchase of goods from suppliers, including VAT, and the corresponding liability to the suppliers. The subsequent payment to the suppliers will be recorded in a separate transaction. If you have any further questions or if there's anything else you'd like to analyze, please let me know.

Source: Author's projection, 2023

During our simulation, we provided services to our customers. Here, when recording the transaction, ChatGPT made confusion between accounts: replaced Customers

(Account Receivable) with Accounts Payable, and the value of VAT from the invoice was wrong calculated (*Figure no. 8*), but we corrected this issue (*Figure no. 9*).

**Figure no. 8. The analysis related to recording of the invoice with the services provided**



Apologies for the miscalculation. Let's recalculate the value of VAT based on the provided transaction.

Given:

- Total service value: 3,000 lei
- VAT rate: 19%

To calculate the VAT amount, we can use the formula:  
$$\text{VAT amount} = \text{Total value} * (\text{VAT rate} / (100 + \text{VAT rate}))$$

$$\text{VAT amount} = 3,000 \text{ lei} * (19 / (100 + 19))$$
  
$$\text{VAT amount} = 3,000 \text{ lei} * (19 / 119)$$
  
$$\text{VAT amount} \approx 474.79 \text{ lei}$$

Therefore, the correct value of VAT in this transaction is approximately 474.79 lei.

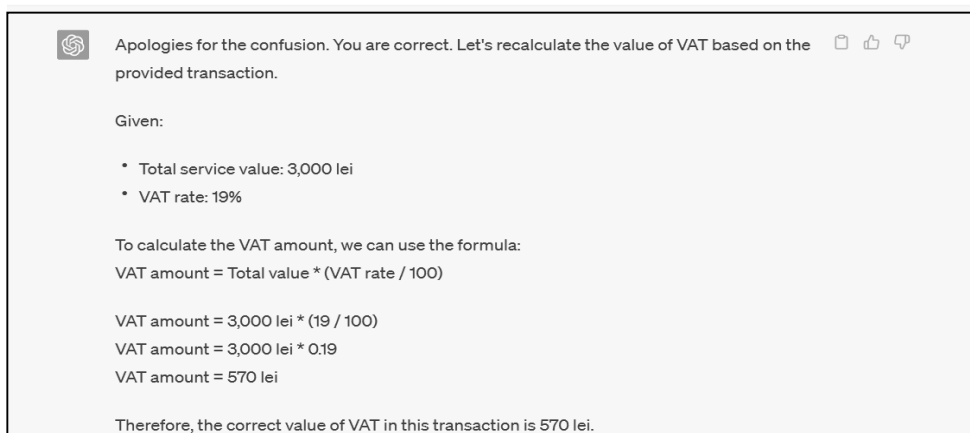
Updated Journal Entry:

Accounts receivable (asset) 3,474.79 lei  
Revenue (income) 3,000 lei  
VAT payable (liability) 474.79 lei

I apologize for any confusion caused by the previous incorrect calculation. If you have any further questions or if there's anything else you'd like to analyze, please let me know.

Source: Author's projection, 2023

**Figure no. 9. Correction of the analysis of the transaction related to recording of the invoice with the services provided**



Apologies for the confusion. You are correct. Let's recalculate the value of VAT based on the provided transaction.

Given:

- Total service value: 3,000 lei
- VAT rate: 19%

To calculate the VAT amount, we can use the formula:  
$$\text{VAT amount} = \text{Total value} * (\text{VAT rate} / 100)$$

$$\text{VAT amount} = 3,000 \text{ lei} * (19 / 100)$$
  
$$\text{VAT amount} = 3,000 \text{ lei} * 0.19$$
  
$$\text{VAT amount} = 570 \text{ lei}$$

Therefore, the correct value of VAT in this transaction is 570 lei.

Updated Journal Entry:

Accounts receivable (asset) 3,570 lei

Revenue (income) 3,000 lei

VAT payable (liability) 570 lei

I apologize for the earlier incorrect calculation. If you have any further questions or if there's anything else you'd like to analyze, please let me know.

Source: Author's projection, 2023

ChatGPT couldn't perform more complex tasks, such as VAT reconciliation and closing the revenues and

expenses accounts, only after it received additional information (*Figure no. 10*).

### Figure no. 10. Correcting the analysis of the record related to VAT reconciliation

Certainly! To prepare the adjustment for VAT, we need to ensure that the VAT payable account reflects the correct amount of VAT based on the transactions recorded. Here's how we can adjust the VAT payable account:

- Determine the total VAT on sales:
  - Sum up the VAT amounts from all sales transactions. In this case, we have the following sales transaction:
    - Provision of transport service to customer: VAT amount of 570 lei.
- Determine the total VAT on purchases:
  - Sum up the VAT amounts from all purchase transactions. In this case, we have the following purchase transaction:
    - Purchase of goods from suppliers: VAT amount of 190 lei.
- Calculate the adjustment amount:
  - Adjustment amount = Total VAT on sales - Total VAT on purchases
  - Adjustment amount = 570 lei - 190 lei
  - Adjustment amount = 380 lei
- Adjust the VAT payable account:
  - Increase the VAT payable account by the adjustment amount.

Journal Entry:

VAT payable (liability) 380 lei  
Adjustments (expense) 380 lei

Explanation:

- The VAT payable account is increased by 380 lei to reflect the adjustment for VAT.
- The adjustments account is increased by 380 lei to record the corresponding expense for the VAT adjustment.

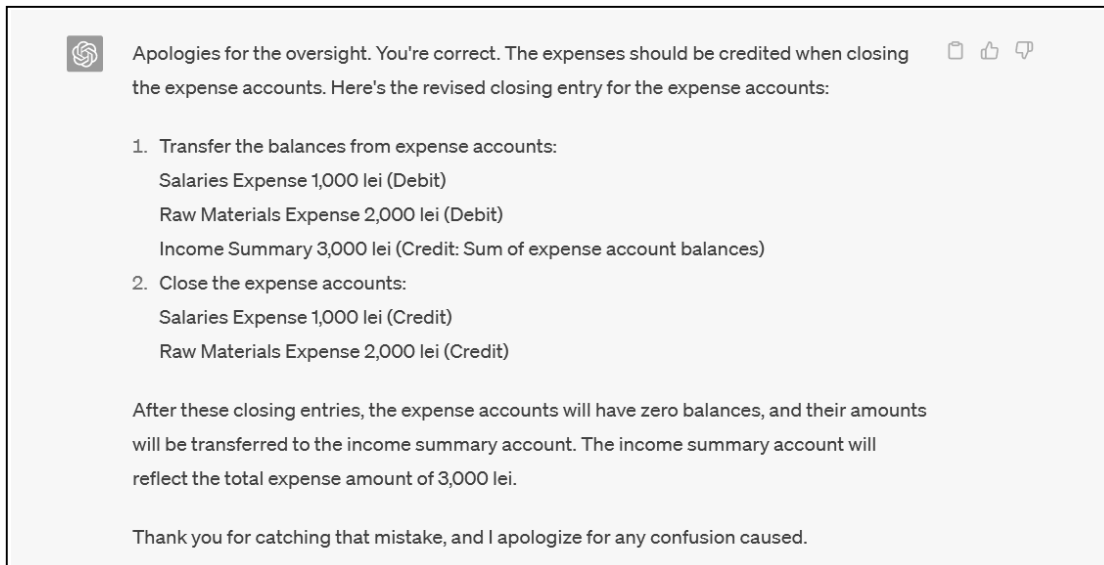
By making this adjustment, the VAT payable account is updated to reflect the correct amount of VAT based on the transactions recorded. If you have any further questions or if there's anything else you'd like to analyze, please let me know.

Source: Author's projection, 2023

After communicating the accounting formula registration error, the software properly processed the information,

correctly registering the closing of the expense accounts, as can be seen in *Figure no. 11*.

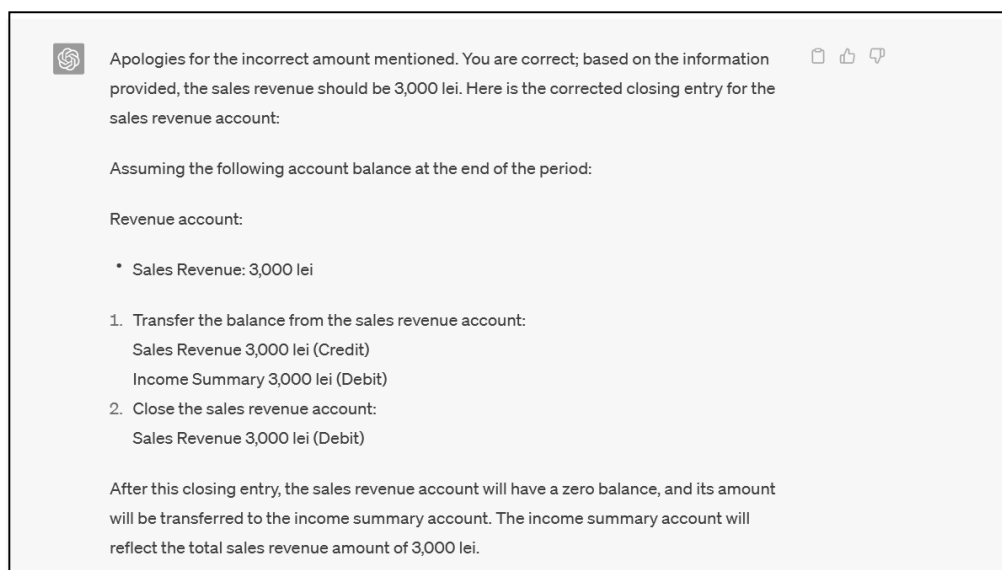
**Figure no. 11. Correcting the analysis of the transaction related to the closing of the expense accounts**



Source: Author's projection, 2023

This transaction is followed by the closing of revenues accounts (*Figure no. 12*).

**Figure no. 12. Correcting the analysis of the transaction related to the closing of the revenue accounts**



Source: Author's projection, 2023

## Conclusions

Society evolves from one day to another. What is important is to use these models responsibly. Large language models have shown their potential and in the next months, we expect it to increase. The abilities of ChatGPT in different sectors of activity made it very popular worldwide.

The impact of ChatGPT on different sectors of activities has been revolutionary. In the education system, it can help students and professors with course materials and can assist them in developing different projects, leaving them to focus more on research or teaching activities. In the healthcare sector it can offer patient support, can answer to medical questions, or can put a diagnosis. The field of accounting and medicine may be a great source for both opportunities and threats, due to the fraudulent and unethical use of LLMs. This is the main reason why LLMs will improve soon, but it is still important to understand the challenges of accountability and transparency, and maybe to develop principles, rules, regulations and legislation necessary in this regard. So, AI will have a positive impact on health, accounting, and many other sectors of activity, not being dangerous for any stakeholder.

Accountants should still carefully consider the potential risks of using these tools. This may involve developing policies and procedures, providing training for accountants, and using a variety of methods to detect and prevent dishonesty of the chatbot. AI can be used for redundant tasks (data entry, offering automatic responses to emails, preparation of different reports), but not for critical thinking or strategic decision-making. Through the advantages we can mention the automated production of financial reports, identifying trends or patterns, offering tax advice, automating commonplace chores, preparing invoices, assessing a company's financial performance, financial projection generation, preparing audit reports<sup>30</sup>

This study had several limitations. First, the dataset was relatively small and may not be representative of all accounting aspects.

Finally, the study only evaluated the accuracy of the LLM in generating financial statements and did not consider other factors such as speed or efficiency.

If we refer to the limits of ChatGPT we can mention that the answers generated are not always accurate. We can receive different answers for the same question. Also, bias represents an issue for AI. There are also potential privacy concerns, in terms of cybersecurity and phishing risks. ChatGPT was trained on data up to 2021. The accuracy of the responses depends on the relevance of the question or input. We can assess the accuracy of the responses by cross-checking them with other sources and by confirming with experts on the field otherwise, the answers could include errors or inaccuracies.

In conclusion, the use of AI in financial reporting has significant potential to enhance the efficiency and effectiveness of financial decision-making. AI algorithms can be used to automate routine tasks, analyze large volumes of data, and generate accurate predictions and forecasts. However, it is important to note that AI is not a panacea and should be used in conjunction with human judgment and expertise. As AI technology continues to evolve, it is likely that its impact on financial reporting and analysis will only continue to grow. What we need to understand is that we still need to know accounting to use ChatGPT. There are already companies that introduced chatbots in their businesses, such as PwC, Orange, Morgan Stanley and Duolingo.

The paper concludes that while the use of AI for accounting in a dynamic world presents benefits and opportunities, there are also some challenges to face. Accountants can effectively address these concerns by taking a proactive and ethical approach to the responsible use of these tools. Future research could be represented by creating focus groups and interviews with different stakeholders to observe the impact of ChatGPT in a business environment, by discussing both financial and non-financial reporting. Students, managers, and professional bodies and regulators may take into account the results presented in the paper to prepare future professionals with the necessary skills expected to have in a dynamic world.

The results of this study will contribute to a better understanding of the impact of AI on accounting practices and may have implications for the training and education of future accountants, since ChatGPT, among other LLMs, is improving from one day to another and have the potential to extend innovation in different sectors of activity. Therefore, many benefits should be expected by implementing in its updated versions in practice and research.

<sup>30</sup> <https://www.wellybox.com/blog/how-can-accountants-use-chatgpt/>

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# The Nexus between Corporate Life Cycle and Earnings Management at Companies Listed on the Bucharest Stock Exchange

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## Abstract

*This research investigates the nexus between the corporate life cycle (CLC) and accrual-based earnings management (AEM) and real earnings management (REM) practices. Companies listed on the main segment of the Bucharest Stock Exchange between 2007 and 2021 are analyzed through fixed effects and random effects models. The regression analysis uncovers that earnings management practices vary based on the developmental stage of the company. In the introduction stage, Romanian companies tend to prefer AEM techniques, while in the growth and maturity phases, REM practices are more prevalent. The conditions in which firms operate, the pressure from the capital market and the discretion over costs characteristic of each stage of development explain the preference for a certain method of earnings management. Overall, this investigation helps clarify CLC's role in adopting earnings management techniques (AEM/REM) and signals the need to pay particular attention to the quality of financial reporting of companies in the early stages of development. The findings hold significance for auditors, financial analysts, investors, lenders, and regulators alike.*

**Key words:** real earnings management; life cycle; discretionary accruals; cash flows;

**JEL Classification:** M41, M10, G30

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## Introduction

Corporate life cycle theory (CLC) posits that organizations, akin to living organisms, undergo distinct stages or phases of development, influenced by internal and external factors (Chen et al., 2010). The sequential evolution of the firm, from launch to decline, supported by the traditional view of CLC, is challenged by recent studies, which show that the transition of firms from one stage to another is not linear and predictable (Dickinson, 2011; Habib & Hasan, 2019). The literature also reveals that CLC phases influence earnings management practices (Almand et al., 2023; Comporek, 2023; Hamideh & Mehdi, 2017; Hussain et al., 2020; Jaggi et al., 2022; Xie et al., 2022). Each development phase offers companies various possibilities for smoothing profits, which leads managers to alternate AEM/REM techniques depending on the specifics of the life stage (Bansal, 2022). In light of this context, an important question emerges: *Do Romanian companies' preferences for specific earnings management techniques vary depending on their stage of development?*

Therefore, we investigate whether *accrual-based earnings management (AEM)* and *real earnings management (REM)* practices follow a pattern that corresponds to the corporate life cycle. The objective of the study is to examine whether Romanian listed companies are more inclined to use AEM/REM techniques in specific stages of the life cycle, respectively in those of growth and maturity there is a greater temptation to use REM, and in those of introduction and decline, managers are more inclined to turn to AEM. In the introduction stage, companies typically engage in research and development projects, with managers having limited discretion over costs and being unable to adjust operational schedules to meet specific profit targets. Given the higher volatility of activities in this stage, there is some flexibility in choosing accounting methods, making these companies predisposed to using AEM techniques (Hamideh & Mehdi, 2017). Different conditions faced by mature or growth firms, particularly increased market pressure and reduced informational asymmetry, make REM techniques preferred (Krishnan et al., 2021; Roma et al., 2021). The decline stage is associated with declining sales and profits, increased risk of bankruptcy, reduced analyst attention, and inadequate internal control systems (Hussain et al., 2020), which implies a higher expectation of AEM techniques (Hamideh & Mehdi, 2017).

To the best of our knowledge, this is the first study that investigates, in the case of listed firms in Romania, the nexus between corporate life cycle phases and both categories of earnings management practices (accrual-based earnings management - AEM, and real earnings management - REM). This study complements the extant literature in the field of organizational life cycle, offering new insights into firms' behaviour at various stages of CLC, supported by fresh evidence that allows for the examination of the presence of a relevant relationship between AEM/REM and CLC. This evidence is customized in the context of an emerging country in Central and Eastern Europe, which has received comparatively less attention (Durana et al., 2021), namely Romania. The originality of the paper is also related to the use of both categories of AEM and REM techniques, considering that the former (AEM techniques) are extensively studied in the literature (Srivastava, 2019). The majority of empirical studies treat CLC as an independent variable. A recent study (Comporek, 2023) emphasizes the necessity of investigating the impact of each life stage on firms' likelihood of engaging in earnings management, while researchers' exploration in this direction is relatively recent and limited (Roma et al., 2021), confined to a single category of earnings management practices (Hussain et al., 2020).

To address the research question posed earlier, two models employing fixed and random effects, respectively, are utilized. The analyzed panel data comprises companies listed on the main segment of the Bucharest Stock Exchange (BSE) during the period 2007-2021. Life cycle phases are identified based on the method developed by Dickinson (2011), which utilizes expected cash flow and is considered superior to alternative approaches (Kabir et al., 2020; Chireka, 2020). The findings unveil the influence of the business lifecycle on earnings management practices. As expected, in the introduction stage, managers exhibit a preference for AEM techniques to smooth profits, while in the growth and maturity stages, marked by reduced information asymmetry and heightened capital market pressure, managers tend to get more involved in REM techniques. No evidence is found to validate the preference of Romanian companies for AEM techniques in the final stage, decline.

The rest of the paper is developed as follows. Section 1 discusses the fundamental theories and representative papers in the field, laying the groundwork for the

formulation of research hypotheses. The second section is dedicated to research methodology. Section 3 presents and discusses the results obtained and the last section concludes the paper.

## 1. Conceptual delimitations and interactions between corporate life cycle theory and earnings management

The organizational life cycle theory considers the firm a social being that undergoes a series of changes and adaptations, representing stages in its development. Numerous authors have attempted to delimit the CLC into sequential or non-sequential stages, involving organizational changes that need to be managed. Among them, Dickinson (2011) delineates five stages of the life cycle (introduction, growth, maturity, shake-out and decline) based on the expected cash flow behaviour (cash flow model). According to this author, cash flows have the ability to capture, from one stage of the CLC to another, the differences in profitability and risk. The CLC is seen by Comporek (2023) as a factor shaping each enterprise's organizational culture, leadership styles, and decision-making processes.

Changes in internal and external business conditions leave their mark on the organizational life cycle and contribute to the individualization of its distinct stages, where aspects such as funding potential, investment capacity, cost structure, personnel policy, financial performance, etc., naturally exhibit certain inconsistencies or require specific restructuring. As a result, the variability in operating conditions that organizations experience throughout the life cycle, coupled with the anticipated performance improvements sought by managers, may predispose them to employ judgement and flexibility in accounting standards to develop earnings management practices, serving either their own interests or those of the organization.

### Accrual-based earnings management versus real earnings management

Earnings management is explained through the lens of various well-known theories, which complement and interconnect with each other, including agency theory, contract theory, signaling theory, institutional theory, and

the threshold theory. Building upon these, the literature considers that earnings management derives from "the game of information disclosure that executives and outsiders must play" (Degeorge et al., 1999). The "game" takes into account the principle that earnings consist of both cash flows and accounting adjustments, which give rise to accruals. Consequently, earnings management can be achieved either by manipulating cash flows or accruals, adopting either an accrual-based or a real-based form (Benilles, 2015).

Fudenberg and Tirole (1995) and Roychowdhury (2006) establish that managerial intervention in the reporting process can occur through both accounting estimates and methods (discretionary accruals) as well as operational decisions (REM). Healy and Wahlen (1999) emphasize that earnings management can take place either by altering the accrual process or by deviating from the normal activities of the organization, or simultaneously through both methods; the first method is referred to as "accrual-based earnings management" (AEM), while the second is called "real earnings management" (REM).

In the literature, AEM is often employed to denote the opportunistic behavior of managers in strategically manipulating the selection and discreet implementation of accounting methods, acting on accruals (depreciation, inventories, receivables, and liabilities) which generally do not have direct cash flow consequences for the company. In this regard, Benilles (2015) lists: "alterations in inventory valuation methods (LIFO vs. FIFO); methods of depreciation (accelerated or straight-line); useful life of tangible assets; policy regarding capitalization or expensing of maintenance costs; recording or reversal of allowances/provisions; recognition or write-off of non-performing debts, credit losses, post-employment benefits, and residual values of fixed assets." AEM does not pertain to total accruals but to the abnormal or discretionary portion intentionally managed by management, potentially achievable only at the end of a fiscal year but before the issuance of financial reports, aimed at aligning the reports to meet the profit target (Zang, 2012). The normal or non-discretionary portion corresponds to the regular activities of the company and the sincere application, unaffected by managerial discretion, of the accrual accounting principles (Benilles, 2015).

Benilles (2015) documents that REM occurs when managers attempt to alter reported earnings through decisions concerning operating, financing, or investment activities, directly impacting cash flows. Such examples

include "reducing research and development expenditures, cutting general and administrative expenditures, synchronizing sales with excess production by offering promotions or more flexible credit terms, repaying loans, and divesting assets". Roychowdhury (2006) posits that REM manifests as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations." These deviations do not necessarily contribute to the long-term value of the firm, even though they may enable managers to meet targets/earnings thresholds (zero earnings, earnings from the previous period, analysts' forecasts). Empirical studies reveal a significant negative effect of real earnings management on the future operational performance of organizations, as managers are willing to sacrifice future cash flows for higher current-period earnings (Achleitner et al., 2014; Enomoto et al., 2015).

Roychowdhury (2006) and subsequently Achleitner et al. (2014) find evidence suggesting that manipulating sales, reducing discretionary expenditures, and overproduction are specific activities of REM if managers undertake these actions to a greater extent than what is considered normal, aiming to achieve or surpass earnings targets.

Sales manipulation, as argued by Roychowdhury (2006), entails managerial efforts to achieve higher current-period earnings by either generating additional sales or accelerating sales from the following fiscal year into the current year, accomplished through temporary and unsustainable price reductions or more lenient credit terms. Nevertheless, the subsequent reversion to regular prices leads to diminished cash flow from sales without discounts as profit margins decrease. Additionally, the reduced margins resulting from price reductions lead to disproportionately high production costs relative to sales. Moreover, less stringent credit terms lead to reduced cash flow during sales if suppliers do not extend equivalent discounts on the firm's inputs. Consequently, sales manipulation results in lower operating cash flow during the current period (manifesting as abnormal or discretionary operating cash flow), a phenomenon that Achleitner et al. (2014) interpret as indicative of REM, which enhances reported earnings.

Firms can reduce reported expenses by decreasing discretionary expenditures (research and development, advertising, general and administrative), which do not result in immediate revenues, in order to achieve earnings

targets. When discretionary expenditures involve immediate cash outflows, reducing these expenses decreases cash outflows and has a positive impact on abnormal operating cash flow in the current period, potentially at the risk of lower future operating cash flow (Roychowdhury, 2006). Thus, the decrease in current-period discretionary expenditures captures the actions of REM oriented towards earnings enhancement.

As posited by the aforementioned scholars, engaging in overproduction as a strategy to reduce the cost of goods sold can serve as a mechanism to achieve or exceed profit targets. Managers in production firms might opt to elevate production levels to meet anticipated demand, resulting in reduced fixed costs per unit of product attributable to the spreading of total fixed costs over a larger quantity of units. If there are no corresponding rises in variable costs per unit of product, the per-unit cost of goods sold decreases, leading to enhanced operational margins reported by the firm in the present fiscal period. However, engaging in overproduction proves effective only if the cost reduction compensates for the costs of holding additional inventory that the firm must recognize in the current period.

Managers have the option to utilize AEM and REM practices interchangeably, considering them as specific alternatives to intentionally influence reported earnings. Almand et al. (2023) argue that firms in a particular life stage exhibit relative homogeneity, facing similar pressures, challenges, and opportunities. Therefore, it is reasonable to expect firms to alternate between AEM/REM techniques based on their life stage. Studies investigating the substitutability of these two forms of earnings management conclude that stakeholders have greater difficulty in detecting REM compared to AEM, as REM can be more easily "camouflaged" as normal activity (Kothari et al., 2012). According to Enomoto et al. (2015), regulatory authorities and auditors may struggle to prevent organizations from engaging in such practices, as control is weaker for REM than for AEM.

### **Earnings management practices and organizational life cycle**

A significant body of literature in the field of financial reporting quality (Esnaashari & Naderi Nooreyni, 2017; Hussain et al., 2020; Khuong et al., 2022) provides empirical evidence that managers differentiate their earnings management strategy based on the organization's life cycle stage.

Esnaashari and Naderi Nooreyni (2017) along with Zang (2012) provide empirical evidence that AEM techniques are more commonly employed during the introduction phase of the organizational life cycle, whereas REM practices are characteristic of the growth and maturity phases. Drawing from a panel study of 3,250 listed Chinese firms, Hussain et al. (2020) infer that companies in the early stages of the life cycle are more inclined to adopt AEM compared to firms in the maturity and decline stages. Based on an empirical investigation using a representative sample of non-financial organizations listed on the Vietnamese capital market during the period 2010-2019, Khuong et al. (2022) find that discretionary accruals tend to be higher in the introduction and decline stages, but lower in the remaining stages. Moreover, they observe a negative inclination of managers towards REM during the introduction and decline phases, while finding a positive relationship between REM and the growth and maturity stages. Similarly, Jaggi et al. (2022) report that in the introduction stage, firms tend to engage in practices signaling favorable growth and profitability prospects, whereas in the final stage, managers resort to AEM techniques in an attempt to prolong the firm's life. Analyzing publicly listed firms in Tehran between 2008 and 2015, Hamideh and Mehdi (2017) conclude that AEM techniques are predominantly employed by firms in the introduction and decline stages, while mature and growing companies are more prone to utilize REM techniques. In contrast to the findings of previous studies, Comporek (2023) discovers that the intensification of AEM techniques occurs in the growth and maturity stages of the CLC. However, the small sample size, limited to the Polish business environment, makes it impossible to generalize the results. Xie et al. (2022) study the link between CLC phases and REM techniques and demonstrate that specific REM mechanisms differ from one stage to another, but it is observed that REM techniques prevail in the introduction and decline stages.

According to previous research, during the introduction stage, firms incur significant research and development and advertising expenditures to generate considerable revenues or gain adequate market shares in subsequent periods. Managers in this phase exhibit confidence in the growth prospects of the firms and make substantial investments, leading to negative cash flows from investments and operations. Therefore, in this stage, managers have limited opportunities to change the corporate cost structure or suspend projects to achieve earnings objectives. The investment activities result in

reported losses in the financial statements of firms; nevertheless, managers do not modify operational and investment policies with the anticipation of future earnings. The investment component of accruals is substantial for firms in the introduction stage, along with errors in forecasting future cash flows. Additionally, the lack of interest from analysts and investors in monitoring firms in the early stages of their life cycle creates an environment of heightened informational asymmetry, posing challenges in ensuring the quality of financial reporting. Thus, it is expected that managers would use the flexibility of accounting standards and discretion to engage in AEM and provide the appearance of a stable financial situation to creditors deliberately, in order to access financing at a reduced cost of capital (Hussain et al., 2020; Khuong et al., 2022).

Decline firms face significant business uncertainties, making cash flow estimation challenging (Almeida & Kale, 2023). This is the phase where the board members are much more interested in personal objectives than the firm's objectives, the internal control system is weak, and the firm's reporting becomes more ambiguous or even fraudulent. In this stage, where principal-agent problems are evident, managers strive to manipulate earnings "upward" to portray the company's economic conditions positively to investors. Therefore, there are legitimate justifications for the prevalent utilization of AEM techniques in the declining stage (Hussain et al., 2020).

Investors base their decisions on information received from analysts. According to signal theory, supporting investors' interests encourages managers to use REM techniques in the growth and maturity phases of the CLC. In this way, the company's reported earnings are aligned with market expectations, and investors receive signals that the company's performance will not deteriorate in the next period. In the growth stage, operating activities generate positive cash flows as a result of the introduction of new products and expansion of activities, interest in additional external financing remains high, and uncertainty about future opportunities is diminishing (Dickinson, 2011). Roma et al. (2021) argue that growth companies exhibit a higher capacity to report losses and are particularly concerned about maintaining their reputation. As stakeholders pay closer attention to the firm's accounting figures, there is heightened pressure to achieve profit targets, potentially motivating the adoption of REM practices.

Growth and mature firms are capable of implementing REM practices due to the existence of diverse investment options at their disposal. Managers in these stages enjoy the flexibility to modify the firm's cost structure by initiating new investments or suspending projects, which could potentially result in reduced profitability, leveraging the advantage of having acquired market share. Hussain et al. (2020) document that mature firms reduce or postpone discretionary expenditures to avoid disclosing losses.

In light of previous evidence, we formulate and subsequently aim to test the following research hypotheses:

*H<sub>1</sub>: The level of accrual-based earnings management practices at BSE listed companies is higher in the*

*introduction and decline stages than in the growth and maturity stages.*

*H<sub>2</sub>: The level of real earnings management practices at companies listed on BSE is lower in the introduction and decline stages than in the growth and maturity stages.*

## 2. Research methodology

### 2.1 Variables

Table no. 1 synthesizes the dependent and independent variables used in the developed models, along with references to other relevant works that have studied these variables.

Table no. 1. Dependent variables, variables of interest, and control variables		
Variables	Computation method	References
<b>Dependent variable</b>		
AEM	discretionary accruals, proxy for AEM, calculated as residuals of equations (1), (2) and (3), respectively AEM_HC, AEM_KW și AEM_RS	Hussain et al., 2020; Khuong et al., 2022; Nagar & Radhakrishnan, 2015; Srivastava, 2019
REM	calculated as residuals of equations (4), (5) și (6), respectively REM_CFO, REM_PROD și REM_SGA	
<b>Main variables of interest</b>		
Corporate Life Cycle (CLC) <ul style="list-style-type: none"> <li>• Introduction (I)</li> <li>• Growth (G)</li> <li>• Maturity (M)</li> <li>• Shake-out (SO)</li> <li>• Decline (D)</li> </ul>	Life Cycle Stages defined by Cash Flows from operating activities (CFO), investing activities (CFI) and financing activities (CFF), as follows: Introduction: CFO <0, CFI <0, CFF >0 Growth: CFO >0, CFI <0, CFF >0 Maturity: CFO >0, CFI <0, CFF <0 Shake-out: CFO >0, CFI >0, CFF >0 or CFO >0, CFI >0, CFF <0 or CFO <0, CFI <0, CFF <0 Decline: CFO <0, CFI >0, CFF >0 or CFO <0, CFI >0, CFF <0	Dickinson, 2011; Tian, Han & Zhang, 2015; Hasan & Habib, 2017; Wasilewski & Żurakowska, 2020; Durana et al., 2021
<b>Control variables</b>		
Size	ln(total assets)	Tian et al., 2015; Hasan & Habib, 2017; Huang et al., 2020
Leverage	calculated as total debt on total assets	Hussain et al., 2020; Khuong et al., 2022; Jaggi et al., 2022; Roma et al., 2021
Itax	corporate income tax	Khuong et al., 2022
ROA	return on assets	Khuong et al., 2022; Nagar & Radhakrishnan, 2015; Srivastava, 2019; Almand et al., 2023
Aud	dummy variable for international auditor (PriceWaterhouse Coopers, Ernst&Young, Deloitte, KPMG, BDO, Mazars, JPA)	Alhadab et al., 2020; Jaggi et al., 2022

Source: Authors' processing



According to the reviewed literature (Durana et al., 2021; Huian et al., 2018; Hussain et al., 2020; Khuong et al., 2022; Lazzem and Jilani, 2018), discretionary accruals were used as a proxy for AEM and were calculated using three established models for ensuring the robustness of

the results: Hribar and Collins (2002), Kothari and Wasley (2005), and Raman and Shahrur (2008).

The Hribar and Collins model (2002) is shown in equation (1).

$$TA_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (\Delta Rev_{it}/A_{it-1}) + \beta_2 \times (PPE_{it}/A_{it-1}) + \varepsilon_{it} \quad (1)$$

where:

$TA_{it}$  = sum of accruals; it is measured by operating income of firm  $i$  at time  $t$  minus operating cash flow of firm  $i$  at time  $t$

$A_{it-1}$  = total assets of firm  $i$  at the time  $t-1$

$\Delta Rev_{it}$  = change in sales revenues minus change in account receivables of firm  $i$  at time  $t$

$PPE_{it}$  = the value of fixed assets of firm  $i$  at time  $t$

$\varepsilon_{it}$  = the residual term that captures the level of discretionary accruals used in the models that test the formulated hypotheses

The Kothari and Wasley model (2005) starts from Hribar and Collins (2002), and is adjusted with an indicator of economic profitability – ROA, according to equation (2).

$$TA_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (\Delta Rev_{it}/A_{it-1}) + \beta_2 \times (PPE_{it}/A_{it-1}) + \beta_3 \times ROA_{it-1} + \varepsilon_{it} \quad (2)$$

where:

$ROA_{it-1}$  = return on assets of firm  $i$  at time  $t$

The third model, Raman and Shahrur (2008), changes equation (2) by adding a new term, as in equation (3).

$$TA_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (\Delta Rev_{it}/A_{it-1}) + \beta_2 \times (PPE_{it}/A_{it-1}) + \beta_3 \times ROA_{it-1} + \beta_4 \times BM_{it} + \varepsilon_{it} \quad (3)$$

where:

$BM_{it}$  = ratio of total assets of the firm  $i$  at time  $t$  to total assets – book value of firm equity + firms market value.

The REM models used are developed by Roychowdhury (2006) according to equations 4-6 and refer to:

- abnormal cash flow from operations (REM\_CFO), computed according to equation (4).

$$CFO_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (Sales_{it}/A_{it-1}) + \beta_2 \times (\Delta Sales_{it}/A_{it-1}) + \varepsilon_{it} \quad (4)$$

where:

$CFO_{it}$  = operating cash flows (CFO) of firm  $i$  at time  $t$

$Sales_{it}$  = sales of firm  $i$  in period  $t$

$\Delta Sales_{it}$  = change in company's sales between  $t$  and  $t-1$

$\varepsilon_{it}$  = residuals of equation (4), showing abnormal operating cash flows of firm  $i$  at time  $t$

- normal production costs (REM\_PROD), rendered in the equation (5).

$$PROD_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (Sales_{it}/A_{it-1}) + \beta_2 \times (\Delta Sales_{it}/A_{it-1}) + \beta_3 \times (\Delta Sales_{it-1}/A_{it-1}) + \varepsilon_{it} \quad (5)$$

where:

$PROD_{it}$  = sum of the cost of goods sold and the change in inventory of firm  $i$  at time  $t$

- discretionary expenses (REM\_SGA), calculated according to equation (6).

$$SGA_{it}/A_{it-1} = \beta_0 \times (1/A_{it-1}) + \beta_1 \times (Sales_{it}/A_{it-1}) + \varepsilon_{it} \quad (6)$$

where:

$SGA_{it}$  = selling, general and administrative expenses of firm  $i$  at time  $t$

The main variables of interest are CLC phases. The literature provides various methods for determining these phases based on firm age, size, profitability, dividends paid, the growth rate of assets, the share of profits in total assets or total equity (Chhillar & Lellapalli, 2022; Habib & Hasan, 2019). The present study adopts the method proposed by Dickinson (2011) and validated by previous research (Almand et al., 2023; Comporek, 2023; Hamideh & Mehdi, 2017; Hussain et al., 2020; Jaggi et al., 2022; Xie et al., 2022). This method, based on expected cash flow behaviour, is deemed superior to alternative methods

retained by the literature (Kabir et al., 2020; Chireka, 2020). Although many studies use the age of the firm as a proxy for CLC phases, the method is outdated, with the latest research showing that it corresponds to a linear CLC (Habib & Hasan, 2019). The preference for the method developed by Dickinson (2011) is reinforced by the fact that cash flows are not affected by AEM techniques and potential endogeneity problems are eliminated (Almand et al., 2023).

Following an extensive literature review, five control variables were chosen for this study. Firm size, measured by total assets, is commonly included in research papers examining the nexus between the CLC and earnings management (Jaggi et al., 2022; Roma et al., 2021; Xie et al., 2022), as larger firms have demonstrated a tendency for earnings management (Jaggi et al., 2022). Additionally, it has been observed that profitable firms are more engaged in such practices (Hussain et al., 2020; Jaggi et al., 2022). Thus, in line with previous studies (Almand et al., 2023; Hamideh & Mehdi, 2017; Roma et al., 2021), the models are enriched by incorporating return on assets. Other control variables that may influence AEM/REM include leverage (Hussain et al., 2020; Khuong et al., 2022; Jaggi et al., 2022), calculated as the total debts to total assets ratio, and corporate income tax (Khuong et al., 2022). Finally, the study also takes into consideration the type of

auditor, recognizing the superior quality of audit services provided by international auditors (who possess an extensive client portfolio and allocate substantial resources to audit missions), with their reputation at stake in the event of non-disclosure of deviations (Rusmin, 2010).

## 2.2. Sample and data source

The data is sourced from the Refinitiv Eikon database and covers companies listed on the main segment of the Bucharest Stock Exchange, spanning a period of 15 years from 2007 to 2021. All financial data is extracted from individual or consolidated financial statements prepared in accordance with IFRS. The initial sample consisted of 81 listed firms. However, as the three listed banks did not report cash flow statements, they were excluded from the sample. Subsequently, five more companies were removed due to missing data for multiple variables used in the AEM/REM models. The final sample comprised 996 annual observations from 73 firms, resulting in an unbalanced panel dataset.

## 2.3. Research methods and models

In order to validate the research hypotheses, an analysis of panel data with fixed or random effects was performed, by developing the model from equation (7), which contains the main variables (phases of the corporate life cycle - CLC) and the control variables.

$$y_{it} = \alpha_0 + \alpha_1 \times CLC_{it} + \alpha_2 \times Size_{it} + \alpha_3 \times Lev_{it} + \alpha_4 \times ITax_{it} + \alpha_5 \times ROA_{it} + \alpha_6 \times Aud_{it} + \mu_{it} \quad (7)$$

where,  $t$  = period (year);  $i$  = company at time  $t$ ;  $Y$  = dependent variable (earnings management– AEM or REM); CLC = life cycle phases (dummy variables described in Table no. 1); Size = firm size; Lev = leverage; ITax = corporate income tax; ROA = return on assets;  $\mu$  = error term

For the AEM models and two of the four REM models (REM\_CFO and REM\_PROD), fixed effects and robust standard errors were used. For the remaining two REM models (REM\_SGA and REM\_all), random effects were applied based on the Hausman test. The use of dummy variables may lead to the dummy variable trap, as known in the literature (Gujarati, 2011), which can negatively impact the accuracy of regression coefficients. To avoid this, the shake-out phase (SO) was used as the reference

category, as its nature remains unclear in the literature (Hussain et al., 2020). To ensure the normality of the distribution, the control variables *Lev* and *ITax* were logarithmized.

## 3. Results and discussion

Table no. 2 depicts the descriptive statistics of the variables modeled as part of the univariate analysis conducted. It can be observed that approximately 45% of firms are in the maturity stage, confirming other studies conducted at BSE (Huian & Mironiuc, 2023). On the other hand, around 8% of firms are in the introduction stage, based on the characteristics of their cash flows.

**Table no. 2. Descriptive statistics**

Variable	Obs	Average	Standard deviation	Minimum	Maximum
AEM_HC	923	0.0089	0.1471	-1.0509	2.6949
AEM_KW	923	0.0089	0.1471	-1.0505	2.6989
AEM_RS	923	0.0045	0.1464	-0.9933	2.7073
REM_CFO	923	0.0153	0.1045	-0.5853	1.0017
REM_PROD	850	-0.0617	0.2184	-1.1796	1.2791
REM_SGA	923	0.0347	0.1453	-1.0885	1.5724
REM_all	850	-0.0086	0.1486	-0.9604	1.0517
I	996	0.0783	0.2688	0.0000	1.0000
G	996	0.2008	0.4008	0.0000	1.0000
M	996	0.4498	0.4977	0.0000	1.0000
SO	996	0.1637	0.3701	0.0000	1.0000
D	996	0.1074	0.3098	0.0000	1.0000
Size	996	19.4415	1.6939	15.3219	24.7754
Lev	996	0.4316	0.5494	0.0101	7.7014
Itax	996	19.3562	0.3085	11.5129	21.4165
ROA	996	0.0222	0.3384	-9.9400	2.3500
Aud	996	0.4819	0.4999	0.0000	1.0000

Source: Authors' processing, 2023

In terms of AEM, the average magnitudes of discretionary accruals are found, in all three computation methods, to be significantly different from zero, indicating the presence of AEM practices among the companies listed on BSE. These practices have a detrimental effect on the quality of financial reporting.

Table no. 3 presents detailed descriptive statistics by life cycle stages (mean values). According to Istrate et al. (2015), positive values of discretionary accruals indicate that AEM operations aim to increase reported earnings, leading to positive differences between the level of accruals and that of recorded cash flows. Similarly, negative values of discretionary accruals reflect profit reduction and simultaneously generate negative differences between the values of accruals and cash flows.

It can be observed that the mean values of discretionary accruals, quite similar across all three models, indicate a higher inclination of firms in the introduction stage (I) to resort to AEM techniques, followed by those in the decline and shake-out stages (D, SO). These results, depicting a U-shaped pattern of earnings manipulation attempts throughout the CLC, corroborate the expectations based on existing literature, where start-ups and decline firms manipulate earnings upward due to negative cash flows (Durana et al., 2021). Mature firms, but especially growth ones, resort less frequently to such practices. The

negative sign of discretionary accruals indicates that once firms reach maturity and have already achieved their maximum profitability potential, they attempt to reduce reported earnings for tax-avoidance purposes. According to Can (2020), income minimization (downward earnings management) is characteristic of profitable companies in the growth and maturity stages. The values of discretionary accruals close to zero for firms in the growth stage, as found by other scholars (Durana et al., 2021), indicate a minimization of accounting manipulation attempts. In all CLC stages (except SO), the Raman and Shahrur model (2008) generates the highest values of discretionary accruals.

Regarding REM practices, mature companies resort the most to operating cash flow manipulation, unlike those in the initial and final stages. Overall, they employ the least amount of REM techniques (REM\_all). The negative values in REM\_PROD indicate the absence of manipulation through overproduction, while the positive values in REM\_SGA suggest the inability to reduce discretionary costs to achieve profit targets.

The correlation analysis presented in Table no. 4 demonstrates the presence of weak to moderate relationships between variables, characterized by both positive and negative associations, thereby mitigating the risk of multicollinearity.

**Table no. 3. Descriptive statistics by life cycle phase**

CLC	AEM_HC	AEM_KW	AEM_RS	REM_CFO	REM_PROD	REM_SGA	REM_all	Size	Lev	Itax	ROA	Aud
I	0.0988	0.0988	0.0976	-0.1089	0.0248	0.0228	-0.0596	18.7390	0.5940	14.25778	-0.0014	0.3590
G	-0.0007	-0.0008	-0.0012	0.0207	-0.0228	0.0269	0.0262	19.4899	0.4626	16.11117	0.0329	0.4050
M	-0.0202	-0.0203	-0.0238	0.0590	-0.1075	0.0528	0.0056	19.8263	0.3704	17.36464	0.0239	0.4978
SO	0.0305	0.0304	0.0219	0.0003	-0.0573	0.0151	-0.0324	18.8368	0.4562	15.39146	0.0277	0.4356
D	0.0539	0.0539	0.0425	-0.0712	0.0012	0.0110	-0.0595	19.1728	0.4737	14.82477	0.0029	0.5140

Source: Authors' processing, 2023

**Table no. 4. Correlation analysis**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 AEM_HC	1.00																
2 AEM_KW	1.00	1.00															
3 AEM_RS	0.99	0.99	1.00														
4 REM_CFO	-0.50	-0.50	-0.50	1													
5 REM_PROD	0.06	0.06	0.07	-0.37	1.00												
6 REM_SGA	-0.09	-0.09	-0.09	0.19	-0.73	1.00											
7 REM_all	-0.34	-0.34	-0.34	0.33	0.51	0.02	1.00										
8 D	0.10	0.10	0.09	-0.29	0.10	-0.06	-0.12	1.00									
9 G	-0.04	-0.04	-0.03	0.03	0.09	-0.03	0.11	-0.17	1.00								
10 I	0.17	0.17	0.19	-0.34	0.11	-0.03	-0.10	-0.10	-0.14	1.00							
11 M	-0.17	-0.17	-0.16	0.38	-0.20	0.12	0.09	-0.32	-0.45	-0.27	1.00						
12 SO	0.06	0.06	0.05	-0.05	0.01	-0.05	-0.07	-0.15	-0.22	-0.13	-0.41	1.00					
13 Size	-0.01	-0.01	-0.01	0.21	-0.02	-0.11	0.01	-0.05	-0.01	-0.11	0.22	-0.17	1.00				
14 lev	-0.09	-0.08	-0.01	-0.14	0.14	-0.07	0.05	-0.08	0.09	0.12	-0.07	-0.03	0.02	1.00			
15 ITax	-0.02	-0.02	-0.02	0.15	-0.09	0.00	-0.03	-0.03	-0.09	-0.03	0.13	-0.03	0.25	-0.04	1.00		
16 ROA	0.22	0.22	0.22	0.05	-0.05	0.02	-0.03	-0.03	0.01	-0.02	0.01	0.01	0.04	-0.04	0.03	1.00	
17 Aud	0.05	0.05	0.05	0.18	-0.16	-0.03	-0.14	0.03	-0.11	-0.08	0.13	-0.02	0.56	0.04	0.12	0.09	1.00

Source: Authors' processing, 2023

The results of the regression analysis are presented in Table no. 5.

**Table no. 5. Regression analysis results**

	AEM_HC FE	AEM_KW FE	AEM_RS FE	REM_CFO FE	REM_PROD FE	REM_SGA RE	REM_all RE
I	0.0685***	0.0685***	0.0703***	-0.0860***	0.0159	0.0163	-0.0474**
G	-0.0593***	-0.0593***	-0.0578***	0.0456***	0.0030	-0.0015	0.0481***
M	-0.0705***	-0.0703***	-0.0697***	0.0551***	-0.0201	0.0033	0.0357***
D	0.0317	0.0319	0.0309	-0.0809***	0.0034	0.0140	-0.0560***
Size	0.0015	0.0015	-0.0034	-0.0119	0.0412**	-0.0193***	0.0014
Lev	-0.0301*	-0.0300*	-0.0155	0.0002	0.0032	0.0002	0.0053
ITax	-0.0023	-0.0024	-0.0033	0.0063	0.0085	-0.0017	0.0069
ROA	0.0870	0.0874	0.0876	0.0112**	-0.0138	-0.0003	-0.0039
Aud	0.0320*	0.0319*	0.0304*	0.0118	-0.0018	-0.0055	-0.0212
Const	0.0050	0.0051	0.1339	0.1007	-1.0153	0.4384	-0.1698
R-squared	0.1212	0.1209	0.1039	0.1998	0.0340	0.0278	0.0537
F test/Wald	7.81***	7.82***	8.16***	14.4***	2.48**	19.7**	60.11***
No of obs.	923	923	923	923	850	923	850

Source: Authors' processing, 2023

The relationship between CLC stages and the level of AEM practices is positive and statistically significant in all three models (AEM\_HC, AEM\_KW, AEM\_RS) for firms in the introduction stage (I) and negative in the growth and maturity stages (G and M), confirming the findings of Khuong et al. (2022). The positive association with AEM proxies in the initial stage indicates the propensity of managers to report higher earnings through opportunistic accounting choices to attract foreign capital at more favorable costs (Durana et al., 2021), given the high informational asymmetry. Recent research (Hamideh & Mehdi, 2017; Jaggi et al., 2022) report similar findings, indicating that the poor performance typically associated with the early stage of a firm's life cycle incentivizes managers to employ profit smoothing strategies to project positive signals to investors regarding the firm's future profit generation capabilities. These findings are corroborated by the descriptive statistics presented in **Table no. 3**, confirming a higher level of discretionary accruals during this stage, affording managers greater discretion over earnings (Hussain et al., 2020). This behaviour could be attributed to firms' expectations of generating substantial profits in subsequent financial periods, based on products currently under development, prompting them to "borrow" a portion of anticipated earnings from the future (Jaggi et al., 2022). Furthermore, it is worth noting that the lack of pressure to achieve specific profit targets, in conjunction with an underdeveloped internal control system characteristic of the early stage of firm development, explains their preference for AEM techniques (Hamideh & Mehdi, 2017; Xie et al., 2022).

The results in **Table no. 5** illustrate a negative association with the AEM in the growth and maturity stages, which confirms the evidence of Durana et al. (2021) and Khuong et al. (2022) and refutes that of Hussain et al. (2020). Therefore, there is a reduction in AEM techniques because, as the firm grows and matures, information asymmetry decreases, analyst attention increases, the ability to access credit at lower interest rates increases, and the quality of financial reporting gets higher (Can, 2020). Mature firms exhibit a higher capacity to generate internal financial resources and rely less on external financing (Huian & Mironiuc, 2023), thus maintaining a sustainable market position. As a consequence, AEM techniques are less appealing to managers in these firms, who have fewer future profit growth cycles to offset any potential negative consequences of earnings management in the market. While the behaviour of the three analyzed

stages aligns with expectations, the lack of statistical significance in the positive relationship between discretionary accruals and the decline stage (also observed in Comporek's study, 2023) is surprising, particularly given the significant levels of discretionary accruals reported in **Table no. 3**. Expectations were to find consistent attempts at AEM, given the high pressure exerted by stakeholders, more and more difficult to meet as the business erodes and the revenues decline (Hussain et al., 2020). However, the result becomes explainable upon examining the REM models.

The control variables Lev and Aud prove to be significant ( $p < 0.1$ ) in the AEM models. An inverse relationship is observed between the leverage ratio (Lev) and AEM techniques, confirming that monitoring by capital providers disciplines managers of the analyzed firms, who are compelled to meet the requirements for financial reporting quality (Chhillar & Lellapalli, 2022). Contrary to expectations (Jaggi et al., 2022), the results show a direct link between the type of auditor and AEM techniques, suggesting that international auditors fail to counteract managers' tendency to smooth earnings in the case of listed firms in Romania. A plausible explanation stems from the pressures exerted on auditors by managers and other stakeholders, widely documented in the literature (Haislip et al., 2017; Hamid et al., 2012). In such situations, non-compliance may result in termination of the financial audit engagement with the client (Haislip et al., 2017; Lohwasser & Zhou, 2023). The link between the level of profit taxation and AEM practices is found to be negative but lacks statistical significance.

**Table no. 5** reveals a statistically significant negative connection between CLC stages and the level of REM\_CFO practices for companies in the introduction (I) and decline (D) stages, and a positive connection for those in the growth and maturity stages - G and M (Khuong et al., 2022; Nagar & Radhakrishnan, 2015). Introduction and decline firms are less likely to resort to REM (through operational cash flow manipulations) because their managers are not under significant pressure to meet specific profit targets and have limited discretion over period costs that could be reduced, given their operation with limited capital and high financing requirements (Srivastava, 2019).

Mature and growing companies face greater pressure from the capital market, which encourages their involvement in REM techniques (Krishnan et al., 2021; Roma et al., 2021). These companies have

established market reputations and access to diverse investment opportunities, affording them flexibility and fostering an environment conducive to REM techniques (Hamideh & Mehdi, 2017). The other two REM methods (reduction of production costs and reduction of SGA expenses) are not used by Romanian managers, regardless of the life cycle stage (Hussain et al., 2020). This is confirmed by the descriptive statistics showing negative average values for REM\_PROD and positive values for REM\_SGA, indicating the absence of earnings manipulation to meet benchmark earnings criteria. Nevertheless, this does not imply the exclusion of other earnings management techniques (those based on accruals) to smooth earnings.

Other control variables (Size and ROA) besides those in the AEM models exhibit significant relationships with the dependent variables depending on the REM methods used: more profitable firms are inclined to manipulate operating cash flows. Regarding firm size (Size), a statistically significant relationship, but with opposite effects (+/-), is observed in two REM models (REM\_PROD and REM\_SGA), confirming the propensity of larger firms for earnings management techniques (Jaggi et al., 2022).

### Robustness check

In this regard, the variable *Lev* was replaced with *Sfr* as a proxy for the self-financing ratio in all models in **Table no. 5**, calculated as the ratio of operating cash flows to fixed assets (Hussain et al., 2020).

	AEM_HC FE	AEM_KW FE	AEM_RS FE	REM_CFO FE	REM_PROD FE	REM_SGA RE	REM_all RE
I	0.0660***	0.0660***	0.0689***	-0.0860***	0.0167	0.0163	-0.0462**
G	-0.0606***	-0.0607***	-0.0584***	0.0457***	0.0026	-0.0016	0.0480***
M	-0.0681***	-0.0680***	-0.0683***	0.0553***	-0.0212	0.0031	0.0345***
D	0.0291	0.0293	0.0292	-0.0814***	0.0062	0.0144	-0.0534
Size	-0.0006	-0.0006	-0.0045	-0.0119	0.0414***	-0.0193***	0.0015
Sfr	-0.0115	-0.0115	-0.0107	-0.0063	0.0292*	0.0042	0.0301
ITax	-0.0025	-0.0025	-0.0034	0.0063	0.0087	-0.0017	0.0071
ROA	0.0883	0.0886	0.0882	0.0112**	-0.0138	-0.0002	-0.0040
Aud	0.0249	0.0248	0.0268	0.0119	-0.0012	-0.0055	-0.0202
Const	0.1665	0.1663	0.2485	0.1416	-1.2166	0.4107	-0.3789
R-squared	0.1126	0.1125	0.1045	0.2004	0.005	0.0083	0.0536
F test/Wald	7.61***	7.62***	7.72***	13.80***	3.31***	19.89**	62.51***
No of observ	923	923	923	923	850	923	850

Source: Authors' processing, 2023

The results, presented in **Table no. 6**, largely show coefficients with unchanged signs and statistical significance compared to the baseline model.

## Conclusions

The paper analyzes the patterns of AEM/ REM use by the managers of Romanian listed companies in different CLC stages. The results indicate the presence of significant informational asymmetry that allows managers to engage in discretionary-based manipulation practices, especially during the introduction stage, but also a reduction in the propensity to use AEM techniques in the growth and maturity stages. The findings also reveal different connections between the level of REM and CLC,

contingent on the specific REM method used. The method involving accelerated sales through early revenue recognition or lenient commercial credit terms is preferred by managers of growing and mature firms, while cost-cutting methods like overproduction and reduction of discretionary costs (e.g., selling, general, and administrative expenses) are not employed, as managers have limited discretion over these costs, which are fundamental for the firm's future evolution.

The findings may have significant implications for stakeholders such as creditors, investors, and financial analysts, as well as regulatory and supervisory authorities. They should carefully scrutinize the financial reporting quality of firms in their early life cycle stages and be aware of the potential use of these techniques to conceal poor

economic performance, particularly during certain stages of the organizational life cycle.

The limitations of the study pertain to the small sample size, which is a common characteristic in emerging capital markets, where the analysis predominantly

focuses on larger and well-established companies in the capital market. Replicating the models for small and medium-sized firms, for comparative analysis, is a future research direction that the authors hope to pursue.

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# The Non-Financial Information Contribution to Value Creation for Companies

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## Abstract

Non-financial information plays an increasingly important role in creating value for companies and has become an essential factor in modern business strategies. While financial information provides insight into a company's past financial performance, non-financial information provides a more comprehensive and contextualized view of how the company interacts with its environment, employees, customers, society and other stakeholders. The objective of the paper is to identify the contribution of non-financial information to the value creation for companies. The studied population represents the companies listed on the Bucharest Stock Exchange that were evaluated from the point of view of the transparency of non-financial reporting for the financial year 2021. The indicators used are represented by: evaluation scores made by two specialized entities, the communication indicator - Vektor, the inclusion of companies in the BET index, return on equity, return on assets, profitability and the number of employees for the period of 2021. The results of the study showed that the analyzed companies were evaluated with acceptable scores by the evaluation entities and positive and negative correlations were found between the evaluation scores and the profitability indicators. In general, non-financial information provides critical insights to understand the social, environmental and economic impact of companies' activities and can significantly contribute to value creation, especially in the long term for companies and society as a whole.

**Key words:** non-financial information; value creation; transparency; ESG;

**JEL Classification:** M40, Q56

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## Introduction

Non-financial reporting has become increasingly important in recent years as companies have recognized that their performance cannot be measured solely through financial data. According to Yongkui (2013), there are two major limitations of financial statements, namely: they only reflect the result of value creation, and not the process, and the focus is mostly on tangible assets and on the tangible elements than on the intangible ones.

These reports provide transparency and accountability, allowing stakeholders to better understand a company's impact on the environment and society and make informed decisions about it. Sustainability can be defined as the ability to create long-term value, both for society, the environment and the economy (Ben-Amar et al., 2017). This concept assumes that the needs of the present are met in such a way that future generations are not affected in meeting their own needs.

The importance of non-financial reporting on investor confidence is extremely significant for several reasons:

**1) Transparency and accountability.** Investors are interested not only in a company's financial performance, but also in how it manages its social and environmental impact. By providing non-financial reporting, companies demonstrate transparency and accountability in addressing these issues, which helps to increase investor confidence.

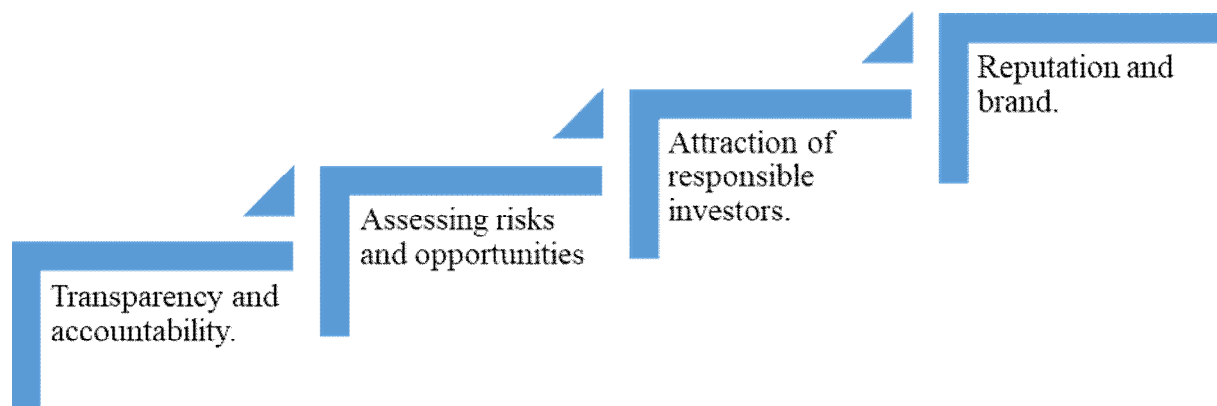
**2) Assessing risks and opportunities.** Non-financial reporting allows investors to assess the risks and opportunities associated with a company's sustainability and social responsibility practices. This includes risk analysis related to changing regulations, climate change, changing consumer preferences and other relevant factors. Investors can consider this information to adjust their investment strategies and avoid potential losses or to identify sustainable and profitable investment opportunities.

**3) Attraction of responsible investors.** Many institutional investors and investment funds have committed to allocating capital only to companies that responsibly manage their impact on the environment and society. Non-financial reporting provides these investors with the information they need to assess whether a company complies with their responsible investment principles and criteria. Thus, non-financial reporting can increase a company's attractiveness to such investors and generate an increase in sustainable capital flows.

**4) Reputation and brand.** Companies with a positive social and environmental responsibility image can benefit from a stronger reputation and brand. Non-financial reporting provides a platform through which these companies can communicate their commitment to sustainability and social responsibility to the public and investors. This can strengthen investor confidence and increase customer and employee loyalty.

The previously mentioned aspects are illustrated in *Figure no. 1*.

**Figure 1. The importance of non-financial reporting on investor confidence**



Source: own representation

The objective of the paper is to identify the contribution of non-financial information to the creation of value for companies. Therefore, the proposed objective is based on the following research questions:

- 1) What is the degree of transparency of non-financial information in the reports of companies listed on the Bucharest Stock Exchange (BVB)?
- 2) Does the reporting of non-financial information contribute to the creation of value for companies?

In order to answer these research questions, the companies listed on the BVB were studied, which were evaluated by indicators in the field of Economic, Social and Governance (ESG), by a series of specialized entities, being analyzed the last available indicators, which in the most of it relates to the reporting of non-financial information in 2021. Also, in order to identify the companies' value creation, a series of financial performance indicators will be analyzed for the year 2021.

The paper is structured as follows: in the first section the literature is reviewed in order to identify the conceptual basis of the studied topic. Next, the methodology used and details regarding the chosen sample will be presented. In the third section, the obtained results will be described. At the end of the paper, the conclusions of the study and its managerial implications, as well as limitations and future research directions, will be drawn.

## 1. Literature review

In the knowledge economy, material wealth is no longer sufficient to calculate the value of companies, so that new sources of value creation called immaterial or intangible are difficult to estimate based on old accounting methods (Cheikh and Noubbig, 2019). Therefore, financial statements in their form do not represent the entire value of a company and do not provide information about its value creation potential (Gibassier et al., 2016).

There are several theoretical approaches to the concept of value creation within a company.

Shareholder Value Theory claims that the main objective of a company is to maximize the value of its shareholders. According to this theory, value creation consists of generating profits and cash flows that provide an attractive return to shareholders. Emphasis is placed on operational efficiency and maximizing short-term profits (Rappaport, 1986).

Customer Value Theory argues that entities that adopt this perspective focus their efforts on understanding and satisfying customers' needs and wants by offering superior, innovative, and personalized products and services. Value creation consists in the ability to offer customers a competitive advantage and a special experience (Levitt, 1965).

Stakeholder Value Theory argues that entities should create value not only for shareholders, but also for other stakeholders such as employees, customers, local communities, suppliers and the environment. Value creation consists of balancing and satisfying the needs and expectations of all stakeholders, with a focus on sustainability and social responsibility (Chang and Lee, 2022).

Network Value Theory focuses on value creation within business networks and ecosystems. Companies recognize that interactions and collaborations with other entities in the network can generate added value. Value creation consists in optimizing relationships and interconnectivity with partners, suppliers and customers within the network (Moore, 1991).

Innovation and Creativity Theory emphasizes the importance of innovation and creativity in value creation. Companies that adopt this perspective focus on generating new ideas, developing innovative products and services, and finding unconventional solutions to meet customer needs and gain competitive advantage (McInnes, 1995).

These approaches are not necessarily exclusive and can be integrated to varying degrees into companies' strategies and practices. There are also other theories and concepts associated with value creation, and their application may vary depending on the specifics of the industry, business strategies and the context in which a company operates.

Overall, non-financial reporting can significantly contribute to creating value for companies by strengthening relationships with stakeholders, improving reputation, identifying and managing risks and opportunities, and attracting investment and talent. By addressing and reporting on ESG issues, companies can promote sustainable development and gain a long-term competitive advantage.

The notion of value has been oversimplified and reduced to focus on economic returns, but can be defined as

"anything that has the potential to be useful to stakeholders" (Harrison and Wicks, 2013). Also, the concept of value creation is complex and multifaceted (Laursen and Svejvig, 2015), thus, value creation is "the process that results in increases, decreases or transformations of capital caused by the activities and business results of the organization".

Although there is no absolute consensus on the direct relationship between ESG factors and financial performance, there are studies and research that suggest that companies that manage ESG factors well can benefit from better financial performance in the long term. More and more investors are integrating ESG considerations into their investment decision-making process, as it is believed that companies with better ESG performance can achieve a higher financial return and are less exposed to risk.

Studies on company ESG values are fewer in number than individual E (environmental), S (social) and G (governance) studies, but have recently been conducted by more researchers. The concept of ESG and its consequences have been extensively researched in the sustainability and business ethics literature. Previous studies have provided strong evidence on the positive link between ESG factors and financial value of companies. Eccles et al. (2014) analyzed 180 companies and found that those with a strategic and integrated approach to sustainability achieved better financial results than those that did not give the same importance to ESG factors. El Ghoul et al. (2018) analyzed the relationship between environmental responsibility and the cost of equity capital in the case of over 2,000 companies from 30 countries at an international level, between 2002 and 2011. The results obtained showed that companies with a high level of responsibility had a higher cost of capital reduced.

In another study, Khan et al. (2016) analyzed the link between ESG reporting and financial performance of companies. Those companies with superior performance in ESG aspects were found to have a higher market value as well as better long-term financial performance. In addition, Friede et al. (2015) conducted a meta-analysis of 2,200 research papers in which they studied the relationship between ESG indicators and corporate financial performance indicators published after 1970. As a result of the study, almost half of the analyzed papers highlighted that the relationship between ESG and the financial performance was positive, almost a quarter of the papers identified a neutral relationship and in over 10% of the papers a negative relationship resulted.

Deng et al. (2015) found that ESG indices have a positive effect on earnings per share (EPS) as an indicator of stock market performance, in the case of Chinese companies. It was also verified that the impact was remarkable in the case of private companies compared to state companies. For the implementation of sustainable development policies, it would be necessary to provide subsidies and fiscal incentives to entrepreneurs by the government. Xie et al. Yu et al. (2019) used a large sample of companies worldwide and found a positive relationship between ESG and financial performance. Kaspereit and Lopatta (2016) conducted a study that analyzed 600 large companies in Europe from 2001 to 2011 and found a positive relationship between corporate sustainability and market value. Weber's (2014) study found a positive effect of ESG on the financial performance of large Chinese companies and a significant impact of ESG performance on the market value of post-merger company acquisitions.

These researches and reports provide a solid evidence base supporting the positive impact of ESG factors on the financial value of companies. Investors and stakeholders are increasingly aware of this relationship and are integrating ESG factors into their investment and business decisions, recognizing that a sustainable approach can bring competitive advantage and long-term value.

However, it is important to note that there are also studies that provide negative or neutral results regarding the relationship between ESG factors and investment performance.

Previous research (Hamilton et al., 1993; Humphrey and Tan 2014; Revelli and Viviani, 2015) has shown that there are different perspectives and methods for assessing the impact of ESG on financial performance. Below are some important points to consider.

- **Differences in research methodology.** Studies differ in the design and methods used to assess the impact of ESG on financial performance. Variations in the definition and measurement of ESG factors, as well as financial performance, may contribute to different results.
- **Time period and investment horizon.** ESG impact can be seen over the long term and may require a long-term investment horizon to be fully assessed. Thus, the results of short-term studies or studies that look at limited time periods may provide different results than long-term ones.

- **Market conditions and context.** Financial performance can be influenced by a variety of factors, including general market conditions, business cycles and other industry or company-specific events. These can impact study results and generate variability in the ESG-financial performance relationship.
- **Financial performance measurement.** There are multiple ways to measure financial performance such as stock return, revenue, net profit, etc. Results may vary depending on the measure used and the reference period. It is important to critically evaluate and interpret the results of ESG studies, taking all these aspects into account and recognizing that there is variability in the results and conclusions of the studies. Overall, however, much of the research points to a positive link between ESG factors and long-term financial performance.

Recent years have seen a significant increase in ESG investments and responsible investment funds. Companies that can demonstrate that they take ESG into account can have easier access to finance and benefit from lower costs of borrowing and bond issues. Also, a better ESG rating can facilitate access to capital markets and increase the value of the company in the eyes of investors (Naem et al., 2022).

Corporate ESG activities for environmentally friendly management have become a crucial tool for ensuring business competitiveness in a global business environment. However, there is still much disagreement about whether ESG activities can improve a company's financial performance (Duque-Grisales & Aguilera-Caracuel, 2021).

Research studies and a growing number of reports show that companies with strong ESG performance tend to achieve superior long-term financial results. Investors and stakeholders are increasingly turning their attention to companies' ESG performance in their investment and business decision-making. Integrating ESG factors into a company's strategies and operations can bring significant long-term financial benefits, in addition to positive impacts on the environment, society and governance.

It is important to note that each company has its own particularities and specific context, and the relationship between ESG factors and financial performance can be affected by several factors, including the business strategy adopted, the size and structure of the company, energy demand, government policy, market conditions, etc.

Therefore, it is recommended to analyze each company in detail to understand how ESG factors can influence their financial performance.

In practice, there are a number of institutions that evaluate companies from various points of view, the major differences being given by the methodology for evaluating non-financial information (Dow Jones sustainability index, MSCI ESG, Refinitiv ESG scores, Carbon Disclosure Project-CDP, Global Initiative for Sustainability Ratings-GISR etc.).

## 2. Research methodology

The case study is based on the research of the relationship between non-financial indicators and financial performance of companies. The methodology used is qualitative, based on the description of information taken from public sources, but also quantitative through statistical data analysis.

The population consists of companies listed on the Bucharest Stock Exchange (BVB), which have been assigned ESG scores by specialized entities in this type of assessment. The analyzed period mainly refers to the latest available data on ESG indicators, namely the financial year 2021, which is why the financial performance indicators studied also refer to the same period.

The data used in the analysis were collected from the information posted on the websites of the companies and the evaluating entities, as well as from the annual financial statements of the companies. Thus, for the ESG indicators, two entities were chosen that published ESG scores, respectively BVB, through the BVB Research Hub platform, and Cometis AG, a company from Germany, through the Global ESG Monitor research project.

The methodologies used by the two entities are different, but both pursue the same goal, i.e. assigning an ESG score to companies listed on stock exchanges. Thus, the BVB methodology is based on the methodology developed independently by Sustainalytics as an information provider. The following are the indicators used in the case study. The ESG Risk Score "measures the extent of unmanaged ESG risks by the company, thus a lower score is considered to signify a more limited extent of unmanaged ESG risks". The Management indicator "evaluates to what extent the identified ESG risks are managed by the company's management, based on publicly available programs, practices and policies. A higher score indicates a better management performance

in managing the identified ESG risks". Momentum Score "indicates the evolution of the ESG Risk Rating parameter compared to the previous period analyzed, thus a negative score represents an improvement in the level of unmanaged ESG risks, the indicator is not available if the issuer was included in the project in the last year or if the report type has changed compared to the previous year". The GEM methodology takes into account six interdependent dimensions related to the transparency of non-financial reporting, namely, mention of positive or negative impact, comparability, accuracy, timeliness, existence of assurance through the auditor's report and relevance. In the methodology, 145 aspects were identified that were scored with 0.5 or 1, so that the maximum score is 100 points, and the other scores are weighted accordingly.

Given that the reporting of non-financial information is part of informing investors, the score assigned to companies regarding communication with investors was also taken into account, this score being also included in previous research (Hațegan, 2020). Starting from 2019, the Romanian Investor Relations Association (ARIR) created the Vektor indicator, which

assigns a score to each company, based on a methodology that is revised annually. So that the methodology applied in 2022 related to the analyzed period refers to 12 criteria that were scored with 0.5 or 1, the maximum score being 10 points. The last of the 12 criteria concerns the publication of non-financial reports for which companies are awarded 1 point if the company publishes a separate report. Among the financial indicators, the financial performance indicators most used in the literature were chosen (Coram et al., 2021), namely return on equity (ROE) and return on assets (ROA). For an overview of the companies, information on the field of activity, the financial result (profit or loss) and the number of employees were included in the analysis.

The ESG score assigned to each can be influenced by several factors, but considering the small number of companies analyzed, as well as the limited period of analysis, the data do not allow the validation of an econometric model, so only a descriptive analysis of the data and a correlation matrix.

The indicators used in the analysis are described in **Table no. 1**.

<b>Table no. 1. Description of indicators</b>		
	<b>Indicator</b>	<b>Mode of representation</b>
1.	BVB indicators	
a.	ESG Risk Score	According to the methodology carried out independently by Sustainalytics
b.	Management	According to the methodology carried out independently by Sustainalytics
c.	Momentum	According to the methodology carried out independently by Sustainalytics
2.	Scor GEM	0 to 100 according to the GEM methodology
3.	Vektor (V)	0 to 10 according to the ARIR methodology
4.	BET index 2021/ 2022	1 – if the company is included in the Bucharest Exchange Trading (BET) index 0 – if the company is not included in the BET index
5.	Return on equity (ROE)	The ratio between net profit and total equity
6.	Return on assets (ROA)	The ratio between net profit and total assets
7.	Profitability (P)	The net result (profit or loss) reported in the annual financial statements
8.	Number of employees (S)	Average number of employees reported in the annual financial statements

Source: Own processing, 2023

### 3. Results

In the first stage, the ESG indicators attributed to the companies by the two mentioned entities will

be analyzed. Thus, Table no. 2 shows the situation of the companies according to the ESG score published by the BVB, on the BVB Research Hub platform.

**Table 2. ESG scores according to information published by BVB**

No.	Name	NACE code	Industry	Report date	ESG Risk Score	Management	Momentum	Evolution Risk Rating Score
1	Alro SA	2442	Aluminum metallurgy	01.09.2022	29.4	49.4	-5.7	positive
2	Antibiotice SA	2110	Manufacture of basic pharmaceutical products	02.09.2022	24.5	53.3	-0.9	positive
3	AQUILA PART PROD COM	4690	Non-specialized wholesale trade	13.04.2023	22.4	37.2	n/a	
4	Banca Transilvania	6419	Other monetary intermediation activities	20.06.2022	17	56.4	n/a	
5	BRD - Groupe Societe Generale	6419	Other monetary intermediation activities	14.12.2022	15.4	66.8	-3.8	positive
6	Bursa de Valori Bucuresti SA	6611	Administration of financial markets	08.11.2022	23.1	28.4	6.1	negative
7	Electromagnetica SA	2651	Manufacture of instruments and devices for measurement, verification, control, navigation	01.09.2022	18.1	23	0.3	negative
8	Farmaceutica Remedia SA	4773	Retail trade of pharmaceutical products in specialized stores	22.12.2021	16.7	28.9	-1.6	positive
9	IMPACT DEVELOPER & CONTRACTOR	4110	Real estate development (promotion).	10.10.2022	18.7	39.3	-2.7	positive
10	Norofert SA	4675	Wholesale trade of chemical products	08.05.2022	35.8	44.2	n/a	
11	NUCLEARELECTRICA SA	3511	Electricity production	02.11.2022	23	63.9	3.6	negative
12	OMV Petrom SA	0610	Crude oil extraction	23.11.2022	22.5	78.6	n/a	
13	One United Properties SA	6420	Activities of holding companies	24.09.2022	20	36.7	n/a	
14	Romcarbon SA	2222	Manufacture of plastic packaging articles	01.09.2022	17.6	44.6	-5	positive
15	Rompetroil Well Services SA	0910	Service activities incidental to the extraction of crude oil and natural gas	01.09.2022	19.2	57.8	-22.6	positive
16	SNTGN Transgaz SA	4950	Pipeline transport	22.12.2021	27.3	43.5	-11.7	positive
17	Societatea Energetica Electrica SA	7022	Business and management consulting activities	02.11.2022	29.9	48.9	-3	positive
18	Sphera Franchise Group SA	7010	Activities of the directorates (headquarters), centralized administrative offices	26.10.2022	18.7	55.2	-10.7	positive
19	TERAPLAST SA	2221	Manufacture of plates, foils, tubes and profiles from plastic material	15.12.2022	22.7	46.6	0.7	negative
20	Transport Trade Services (TTS)	5229	Other activities related to transport	13.04.2023	24.8	33.8	-3.5	positive

Source: Own processing, 2023



**Table no. 2** includes all BVB listed companies on the main market for which ESG scores have been published. On 1.07.2023, 21 companies were presented on the website in the ESG Scores section, from which a company that only issued bonds on the BVB was eliminated. For a better picture of the companies, information on the companies' field of activity and the date of publication of the evaluation reports was included in the table.

Regarding the ESG Risk Score indicator, we can say that it provides an overview of the ESG risks that a company may present. The ESG Risk score considers issues such as environmental impact, natural resource management, social policies, employee health and safety, corporate governance issues and more. The lower the ESG Risk score, the better prepared the company is to face ESG risks and manage ESG issues in a sustainable and responsible manner. The ESG Management indicator refers to the actions and strategies a company implements to integrate ESG practices into its operations and manage its social and environmental impact. Effective ESG management means that a company takes ESG concerns seriously and acts accordingly. This may include implementing sustainability policies and practices, transparency in ESG reporting, employee and stakeholder engagement, and more. **Table no. 2** shows that in more than half of the number of companies, the ESG risk score has improved compared to the previous period, which shows a growing concern of companies regarding ESG

activities and their reporting. Thus, as can be seen, the most prepared company to face ESG risks and manage ESG aspects in a sustainable and responsible way is BRD - Groupe Societe Generale with a score of 15.4, followed by Farmaceutica Remedia which has a score of 16.7 and Banca Transilvania which has a score of 17. At the opposite pole is Norofert with a score of 33.8 which denotes the fact that it is less prepared to face ESG risks, having a higher risk.

For 20% of the number of companies ESG indicators did not improve compared to the previous period, and for a quarter of the number of companies no previous reference base for comparison was reported. Investors use the ESG Risk Score indicator to assess the risk associated with investing in a particular company, taking into account not only financial performance, but also ESG factors. Companies with well-developed ESG management can benefit from competitive advantages, greater attractiveness to investors and a positive image in the eyes of consumers and employees. Both indicators are essential in assessing a company's sustainability and corporate social responsibility and provide valuable information for investors and other decision-making stakeholders.

**Table no. 3** shows the GEM score developed by the Cometic AG company, assigned to the companies included in the BET index, which are ordered alphabetically.

Table no. 3. GEM scores					
No.	Name	NACE code	GEM score	Ranking	It has a BVB score
1	Alro SA	2442	73	2	Yes
2	AQUILA PART PROD COM	4690	43	9	Yes
3	Banca Transilvania	6419	66	4	Yes
4	BRD	6419	67	3	Yes
5	Bursa de Valori Bucuresti SA	6611	24	16	Yes
6	Conpet SA	4950	32	12	No
7	DIGI communication N.V.	6110	20	18	No
8	FONDUL PROPRIETATEA	6430	13	20	No
9	MedLife SA	8622	16	19	No
10	NUCLEARELECTRICA SA	3511	45	8	Yes
11	OMV Petrom SA	0610	75	1	Yes
12	One United Properties SA	6420	57	6	Yes
13	Purcari Wineries Public Company	1102	34	11	No
14	S.N.G.N. ROMGAZ S.A.	0620	60	5	No
15	SNTGN Transgaz SA	4950	30	14	Yes
16	Societatea Energetica Electrica SA	7022	37	10	Yes
17	Sphera Franchise Group SA	7010	46	7	Yes
18	TERAPLAST SA	2221	29	15	Yes
19	TRANSELECTRICA	3512	31	13	No
20	Transport Trade Services (TTS)	5229	21	17	Yes

Source: Own processing, 2023

The report compiled by GEM refers to all the companies included in the BET index at the BVB. From the data presented, it follows that OMV Petrom was evaluated with the highest score of 75, but compared to other profile companies from other countries, the score is relatively low. The ranking is followed by ALRO, as well as by the two credit institutions. On the last places are DIGI communication, Medlife SA and Fondul Proprietatea, the reasons for these companies can be various, DIGI is an international company, Medlife has not been long since it was listed on the BVB, and Fondul Proprietatea is a financial institution. The companies at the bottom of the ranking have not yet been included in the evaluation on the BVB Research Hub platform.

From the report published by GEM (2022) it follows that 30% of the companies included in the BET index presented reliable and clear data, also in a proportion of 30% of the non-financial reports were audited. The most used reporting standards were the Global Reporting Initiative-GRI standards (60%), followed by the requirements of the United Nations Sustainable

Development Goals (45%), but the fulfillment of these goals was described in less than 50 percent %. Also, 60% of the number of companies presented the sustainability objectives that are part of the sustainability strategy. The study carried out by GEM compares the situation of the companies included in the BET index with that of the companies included in the Euro Stoxx European stock index, and unfortunately there are significant gaps in a number of analyzed indicators.

In order to compare the non-financial and financial information in **Table no. 4**, only companies with a non-financial field of activity and listed on the BVB main market were included. Thus, from the 20 companies presented in **Table no. 2**, a number of 4 companies were eliminated (3 from the financial field and 1 company listed on the secondary market), and from the 20 companies presented in **Table no. 3**, there were 6 companies eliminated (4 financial companies and 2 companies listed in the international category). Therefore, only 10 companies were evaluated with both ESG risk score and GEM score, to which are added 4 companies evaluated with ESG risk score and 6 companies with GEM score only.

**Table no. 4. Non-financial and financial indicators of BVB listed companies**

No.	Name	ESG risk score	GEM score	BET index 2021/ 2022	Vektor 2022	ROE	ROA	Profit (lei)	No. employees 2021
1	Alro SA	29.40	73.00	1	9.00	2.35	0.91	35209984	2479
2	Antibiotice SA	24.50		0	10.00	4.95	3.34	29939404	1410
3	AQUILA PART PROD COM	22.40	43.00	1	10.00	14.64	8.51	63308307	2631
4	Electromagnetica SA	18.10		0	7.50	-4.13	-3.35	-16113467	385
5	Farmaceutica Remedia SA	16.70		0	10.00	10.60	2.88	859155	54
6	IMPACT DEVELOPER & CONTRACTOR SA	18.70		0	10.00	10.99	6.54	64849401	66
7	NUCLEARELECTRICA SA	23.00	45.00	1	10.00	12.39	10.76	1036261626	2002
8	OMV Petrom SA	22.50	75.00	1	10.00	8.37	5.73	2688416594	8271
9	One United Properties SA	20.00	57.00	1	10.00	23.76	13.99	40714517	20
10	Romcarbon SA	17.60		0	8.50	-1.29	-0.59	-1447458	807
11	Rompetrol Well Services SA	19.20		0	5.50	1.17	1.06	2449517	151
12	SNTGN Transgaz SA	27.30	30.00	1	9.50	4.46	2.21	186941472	4097
13	Societatea Energetica Electrica SA	29.90	37.00	1	10.00	7.80	7.47	321819884	104
14	Sphera Franchise Group SA	18.70	46.00	1	10.00	14.13	2.54	29798823	139
15	TERAPLAST SA	22.70	29.00	1	10.00	7.15	4.81	323510441	483
16	Transport Trade Services SA	24.80	21.00	1	8.00	44.03	36.33	81189859	44
17	Medlife SA		16.00	1	10.00	21.37	6.79	55484430	1689
18	Conpet SA		32.00	1	6.00	7.77	6.73	51928770	1511
19	ROMGAZ		60.00	1	10.00	21.32	16.96	1962509237	5340
20	TRANSELECTRICA		31.00	1	7.00	0.04	0.02	449891	2015

Source: Own processing, 2023

Descriptive statistics of the data are presented in Table no. 5.

Indicator	Observations	Min	Max	Media	Standard error	Standard Deviation
ESG	16	16,70	29,90	22,22	1,0343	4,1373
GEM	14	16	75	42,5	4,8593	18,1818
BET	20	0	1	0,7	0,1051	0,4702
V	20	5,5	10	9,05	0,3283	1,4681
ROE	20	-4,13	44,03	10,59	2,4511	10,616
ROA	20	-3,35	36,33	6,68	1,91112	8,5492
Profit (th. lei)	20	-16113	2688416	347904	162228	725506
No. employees	20	20	8271	1685	476,5218	2131,0705

Source: Own processing, 2023

Table no. 5 shows that the ESG score was on average 22.22, so the range of scores awarded is not very large, from a minimum of 16.70 to a maximum of 29.90. In the case of the GEM score, it is found that the average value is 42.5, below the score of 50 which is considered an acceptable minimum value, which shows that some companies in the BET index have not published reports that satisfy the requirements of the normative acts of information of users. Of all the non-financial companies analyzed, 70% were included in the BET index. Regarding the Vektor indicator, an average score of 9.05 is found, which can be considered a very good score, from a minimum of 5.5 (to a single company) to a maximum of 10 (attributed to 12 companies) which shows that the communication of the companies has improved at the overall level, and less so in some cases regarding the communication of non-financial information. The profitability indicators are influenced by the result obtained

by the companies, respectively by the loss in the case of 2 companies, so the average value of the ROE is 10.59%, a good result, considering that it was above the average bank interest rates since 2021, and the average value of assets was 6.68%, up to a maximum of 36.33%. The number of employees of the analyzed companies was on average 1685 people, from a minimum of 20 to a maximum of 8271 in the case of OMV Petrom. It should be noted that the company with the largest number of employees was evaluated with the highest GEM score.

When establishing the correlations between the indicators, the two indicators in absolute value (profit and number of employees) were eliminated because ROE and ROA are calculated on the basis of profit/loss, and the number of employees was eliminated because it takes place over a too large interval between the minimum and maximum.

The obtained correlations are presented in Table no. 6.

Indicator	ESG	GEM	BET	V	ROE	ROA
ESG	1					
GEM	-0,3255	1				
BET	0,5966	x	1			
V	0,1988	0,3072	0,2135	1		
ROE	0,0866	-0,2384	0,4215	0,2761	1	
ROA	0,2215	-0,1884	0,0009	0,1249	0,9303	1

Source: Own processing, 2023

The ESG risk score indicator records the best correlation with ROA and the lowest with ROE. The GEM score is positively correlated with the Vektor indicator (0.31) and negatively correlated with ROE (-0.24) and ROA (-0.19). Among the other indicators, there is a stronger positive correlation between the inclusion of companies in the BET index and ROE. The Vektor indicator is positively correlated with ROE (0.28) and ROA (0.12). The fact that the ESG indicator is positively correlated with ROE and ROA, and the GEM score is negatively correlated can be

explained by the different methodology for evaluating the scores, a situation that shows that in the case of the analyzed companies there is no direct statistical link between the scores and the performance indicators profitability that contributes to the value of a company.

The purpose of this study was to identify the level of transparency of non-financial information reported by companies and the existence of a relationship between it and their financial performance that leads to the value creation. The answer to the first research question shows that more than half

of the companies evaluated by the BVB Research Hub improved their ESG risk score indicator compared to the previous period. If we take the GEM score as a reference, only 30% of companies were evaluated with a score of over 50 points (out of 100 points), which shows that Romanian commercial companies still need to pay more attention to improving corporate governance, promoting ESG activities and their more detailed reporting. If we refer to the Vektor indicator, we can consider that there is a contradiction between the results, because more than half of the companies were rated with the maximum rating, which shows a concern for the quality of relations with investors, a rating in which aspects regarding non-financial reporting are also included. As previously mentioned, but also based on the literature, it can be appreciated that the existence of differences is mainly based on different evaluation methodologies of each evaluation entity.

Based on the research carried out, in response to the second research question, we can underline that a constant and growing concern of companies to carry out ESG activities contributes to a better financial performance, but we cannot confirm that this is a rule, because in the analyzed sample also included companies that achieved losses but were evaluated with an acceptable ESG score.

Previous studies have shown that more and more large companies in Romania support the development of sustainability processes, most of them publishing more detailed information from one year to the next regarding sustainability and environmental performance (Panait et al., 2022).

## 4. Conclusions

The subject related to non-financial information is a subject in a continuous debate, the users of this information, along with the financial ones, being interested in future investments being made in socially and environmentally responsible companies. A future integrated reporting of all information about a company's activity can contribute to increasing stakeholders' confidence in their activity.

The objective of the research was to identify the link between non-financial information and the financial performance of companies. To achieve the proposed objective, the literature on the topic was reviewed, from which it emerged that there are studies that show a close connection between the two concepts, but also studies that did not confirm this connection or even revealed a negative relationship. Most studies have shown that there are differences between the various evaluation scores of the degree of reporting of non-financial information, differences based on evaluation methodologies that do not take into account the same parameters, a situation that is also confirmed by the case of the present research.

The results of the study showed that BVB-listed companies were rated with acceptable scores by the BVB Research Hub, but relatively low scores by GEM monitoring. A positive correlation was found between the BVB ESG indicator and profitability indicators and a negative correlation between the latter and the GEM indicator.

The paper may have managerial implications through the comparative study carried out, in which the evaluation differences were identified. Also, the paper can be useful to researchers in the field through the analysis presented based on the latest published information, which can be a source of reference in future research.

The limits of the study are given by the limited size of the studied population, as well as by the limited period for which there is information of the kind analyzed. Another limitation is the fact that the data were collected manually, with the possibility of errors, although the data were checked in other alternative sources. The research can be continued by expanding the sample both by increasing the number of companies and the analyzed period, but also by expanding the analysis with other ESG indicators calculated by other entities specialized in this field. Considerably more data would be warranted to test with an econometric model the factors that influence the various ESG scores assigned to companies, especially those listed on stock exchanges.

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