Exploring Key Factors Influencing the Quality of ESG Audits

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Abstract:
Purpose: Corporate social responsibility is a recurring theme within all industries. Nowadays, it is not only the financial side of a company that investors look at, but also the non-financial numbers. Therefore, companies report on environmental, social, and governance (ESG) matters. In order to assure the reliability of those matters, ESG assurance is performed by auditors. The auditing of those reports has its challenges and those challenges can affect the outcome of the audit reports. This is a disadvantage for both the organization and its stakeholders, because reports will entail the wrong or incorrect information. Therefore, the purpose of this thesis is to investigate what the key factors are that influence the quality of ESG audits. **Design/methodology/approach:** Through the literature review, several key challenges have been defined that are perceived when auditing ESG reports. Those key challenges are seen as the independent variables in the study and were tested against the dependent variable 'Performance'. For the correlationmatrix the dependent variable was split into several dimensions. Moreover, multiple independent linear regression models were made to test the hypotheses and explore the possible relationships between the variables. **Findings:** The findings of the study showed that the key challenges and the several dimensions of 'Performance' are indeed correlated. Furthermore, the linear regression models showed that three independent variables could predict or explain the value of the dependent variable. **Research limitations:** Because of the small sample size, the findings can be seen as inaccurate and unreliable. Moreover, the research was performed at one company in the Netherlands, which can be a poor representation of the whole population.

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1. INTRODUCTION

The introduction of this paper will start with the situation and complication of ESG reporting. It becomes clear why ESG-reporting is popular nowadays, shortly explains what the role of auditors are in this concept and what the main research objectives are. Moreover, it will state the knowledge gap that is missing on this topic and why it is relevant to identify this gap.

1.1 Situation & complication

The United Nations had launched the Sustainable Development Goals in 2015, which are aimed to achieve global sustainability by 2030. (United Nations, 2015) These goals are set as macro level goals for countries, nevertheless businesses are considered as central actors in the achievement of those goals. (Delgado-Ceballos et al., 2022) That's why corporate social responsibility has received unmatched attention from academic study over the last years. (Ananzeh et al., 2022) Corporate social responsibility (CSR) entails considering how a company's operations affect society and bearing responsibility for the welfare of diverse stakeholders, beyond the primary objective of maximizing profits. (Redlein & Zobl, 2014) Environmental, social, and governance (ESG) factors are used to evaluate the sustainability of a company, and they are seen as key factors for investor decision. (Delgado-Ceballos et al., 2022) Therefore, there is a growing demand for ESG assurance (Seidenstein, 2021), especially since there is a lack of consistency and a big variety of ESG data, measures, and reporting structures. (Kotsantonis & Serafeim, 2019)

ESG disclosure is an important element of communication between the company and its stakeholders. (Szczepankiewicz et al., 2022) Therefore, auditors play a crucial role in disclosing on ESG data. They provide unbiased assurance to enhance the transparency, accuracy, and reliability of ESG disclosure. This assurance can enhance the reliability of ESG information that companies present to investors and other stakeholders. (Tysiac, 2020) Moreover, according to Asante-Appiah and Lambert (2022), auditors can provide ESG risk management knowledge and assurance because of their comprehensive awareness of their clients' ESG-related reputation risk and assurance reporting competence.

In conclusion, there is a growing demand for ESG assurance, and therefore a growing demand for auditors who give the assurance. Kotsantonis & Serafeim (2019) state a number of challenges for organizations that influence the outcome of the reports. However, these challenges also have an influence on the quality of the ESG audits. For example, if the data quality of the ESG reports of organizations are already questionable, it is challenging for auditors to make a thorough and objective control. Moreover, because of the lack of standardization in ESG frameworks, auditors can face challenges when comparing the ESG data across companies and industries, which can compromise audit consistency and comparability.

All in all, the complications perceived in ESG reporting have an influence on both the quality of ESG reports of organizations and the quality of ESG audits.

1.2 Theoretical gap & research objective

In existing literature on ESG, valuable insights into the importance and benefits of reporting and disclosing, are discussed. For example, reporting on ESG shows that an organization is engaged in sustainable business practices. Moreover, showing this means that it can attract investors for the organization, which helps the organization with growing. In order to ensure that ESG data is accurate and reliable, organizations use auditors, both internal and external, to verify the information.

Nevertheless, literature emphasizes that there are challenges associated with the reporting and disclosing of ESG, in terms of data quality, lack of standardization and expertise on ESG. If auditors are presented with information that is already complex and unorganized, they may experience problems in verifying this data. This is not good for the organization itself, because their ESG reporting is not reliable. Moreover, investors are provided with information that is not necessarily true in practice and can therefore make mistakes in their investments.

In conclusion, due to challenges, like data quality, organizations run the risk that their ESG reporting isn't accurate and reliable, because auditors can't properly verify the ESG data of companies.

It is not known which challenges have the biggest impact on the quality of the audits and if they even have an impact. Therefore, this research aims to clearly state what the challenges, that are identified by previous literature, are and how they influence the quality of the audits that are made on ESG reports. The research question of this paper is as follows: *'What are the key factors that influence the quality of ESG audits?'* Several hypotheses are developed in order to answer the research question and are discussed and explained in the 'Literature review & hypotheses' chapter.

1.3 Academical relevance

The academical relevance of this study extends across multiple fields, like accounting and sustainability.

In terms of accounting, understanding the factors that will influence the quality of ESG audits will help with the development of specific accounting standards and frameworks for ESG disclosure. Moreover, this research will give insights on were in the reporting process improvement is necessary.

Research performed in the sustainability field will gain knowledge into the determinants of accurate and comprehensive ESG reporting, which will give an understanding to organizations on how to effectively integrate sustainability practices.

1.4 Practical relevance

In this study it will become clear what and how certain factors influence the quality of ESG audits. Since the relevance of ESG factors is being recognized by businesses more and more, accurate and trustworthy ESG reporting is essential. This paper will be important to accountancy firms, other companies, and its stakeholders since it gives an understanding of the factors that influence the quality of ESG reporting and audits. By identifying and addressing these factors, organizations may improve the credibility, openness, and validity of their ESG reporting. Moreover, investors and other stakeholders will be able to make more informed decisions through the more reliable ESG information.

1.5 Outline of the paper

After the introduction, several theoretical aspects are discussed. It will explain theories that are important in order to understand the following literature review and the research performed in this paper. As follows, the literature chapter will discuss related research and will be the basis of the research performed in this paper. Moreover, the hypotheses for this research are formulated. In the methodology chapter is explained how the data of the research will be collected, who the participants are and how the data will be analyzed. After analyzing the data, the results will be summarized in the results chapter. These results will be discussed after, in a separate chapter. The conclusions that are drawn out of the results and discussion will be summarized in the conclusion chapter.

2. THEORETICAL ASPECTS

This chapter will explain different key theories in order to understand the importance of ESG reporting. First, main concepts like corporate social responsibility and ESG will be explained by the use of different scientific sources. Furthermore, key disclosure theories, like the institutional theory, stakeholder theory, and legitimacy theory are discussed which will provide background information about the importance and development of ESG reporting and disclosure.

2.1 Corporate social responsibility

According to Shi et al. (2023), corporate social responsibility (CSR) refers to a firm's responsibilities towards the community and environment in which it operates. A framework that serves as a foundational framework for CSR is the stakeholder theory. This framework suggests that businesses have responsibilities not only towards their shareholders but also towards a wide range of stakeholders, including employees, customers, suppliers, and the environment. (González-De-La-Rosa et al. ,2023) Later, this theory will be further elaborated. CSR encompasses a company's responsibility to go beyond legal requirements and actively contributing to sustainable development and societal well-being. This is more important than ever since the world faces challenges such as climate change, social inequality, and human right abuses. By adopting CSR practices, companies can contribute to mitigating environmental impact, promoting social progress, and working towards a more sustainable future. Another motivator to practice business responsible and report about it, is the pressure from financial investors towards companies. (Frecautan & Danila, 2022) Investors rather invest in companies who are in it for the long run. Sustainability reporting can enhance the companies brand reputation, attract, and retain talent, and also build a stronger relationship with its stakeholders.

2.2 ESG reporting

Reporting on environmental, social and governance (ESG) matters is a way of reporting that is transparent and discusses information about a business that is not related to its finances. For example, reporting information about diversity and inclusion, how a company manages risks like CO2-emmision, and the structure of the board. It is a specific practice of disclosing and reporting on a company's non-financial performance. ESG reporting includes both qualitative and quantitative measures to assess a company's performance in relation to ESG risks, opportunities, and strategies. (Lim & Fernandez, 2022)

As mentioned before, the demand for ESG - reporting has been growing rapidly over the last few years, especially since the adoption of global initiatives. (Benvenuto et al., 2023) In November of 2022, the European Commission introduced a new non-financial reporting mechanism: Corporate Sustainability Reporting Directive (CSRD). As a result, all major enterprises and small and medium-sized listed companies are required to adhere to the new, binding, EU rules for sustainability reporting. (BDO, n.d.)

According to Villanueva (2022), there are three ESG reporting frameworks that are popular these days and the use of it depends on the specific industry the company is operating in.

According to Wang et al. (2023), from an industry specific perspective, the Sustainability Accounting Standards Board (SASB) are recognized as the most favorable framework for a company's ESG disclosure. It provides guidelines to companies for the purpose of reporting on non-financial matters and fulfills its mission by providing social and environmental metrics that are useful for progress illustration and management decision making. (Villanueva, 2022)

While SASB is focused on broader guidelines, the Task Force on Climate-related Financial Disclosures (TCFD) from 2017 pays specifically attention towards climate issues. (Villanueva, 2022) The aim of the TCFD *is* "to improve the transparency of climate-related financial reporting."(Eccles & Krzus, 2017)

The last framework mentioned in this paper is the Global Reporting Initiative (GRI). These standards are globally accepted standards for sustainability reporting on several areas, such as strategy, governance, and environment. (Raghupathi et al., 2020) The GRI helps mulitple stakeholders to better understand and analyze the participation of the organization in sustainability reporting. (Khan et al., 2023)

2.3 Institutional theory

Within the field of CSR and ESG there are a few key theories that are important to understand and discuss. Starting with the institutional theory. It is important to understand this theory since it helps to explain why CSR practices and ESG reporting have

gained significant attention over the last few years. ((Ananzeh et al., 2022) (Seidenstein, 2021)),

The paper of Scott states that organizations aren't self-contained entities, but they are rather shaped by norms, constraints, structures, and social expectations from relevant stakeholders. Organizations are more likely to receive support, funding, and approval from stakeholders if they conform to the established institutional norms. (Scott, 2005) As being socially responsible and sustainable is becoming more important and popular these days, organizations face pressure from outside to conform to these norms. Therefore, ESG reporting is a way of expressing for an organization that they value sustainable business practices. Since investors are more invested in organizations who value these type of business practices, reporting on ESG matters, is also a way to attract investors.

2.4 Stakeholder theory

Another theory that helps to understand the importance of ESG reporting is the stakeholder theory, which was proposed by R. Edward Freeman

in 1984. The theory argues that a firm should not only create value for shareholders, but must include all stakeholders, like employees, customers, and other who have a stake in the organization. (Freeman, 2010) Therefore, managers should always take account of the interest of all stakeholders in a firm when deciding. (Jensen, 2001) This means that the success and long-term sustainability of the company depends on preserving goodwill and meeting the demands and expectations of all stakeholders. All in all, this can lead to a more sustainable and responsible business practice.

Nevertheless, critics of the theory raise concerns regarding potential conflicts and trade-offs between various stakeholders' interests. They claim that giving some stakeholder's interests priority over those of other stakeholders may result in in efficiencies and jeopardize the company's capacity to compete and produce returns for other stakeholders. (Afieroho, 2023) Moreover, there is much debate about the theory, because many scholars believe that the core concept of it is unclear and lacks viability. (Xiao, 2023)

2.5 Legitimacy theory

This theory is defined by Suchman (1995) as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions." In other words, legitimacy is a socially construcuted concept, where organizations are seen as legitimate if their actions are in line with social values and expectations. The legitimacy theory expresses a broad view of disclosure, as companies are the ones that take the initiatvive to disclose the information for legitimizing it. (Amosh & Khatib, 2022)

As ESG reporting is gaining prominence and becoming more important to stakeholders and society, organizations recognize the need to addrese these concerns. (Seidenstein, 2021) Thus, by disclosing ESG data, companies demonstrate their commitment to responsible and sustainable practices, increasing their legitimacy and social acceptance.

3. LITERATURE REVIEW & HYPOTHESES

This chapter serves as the foundation for the study by synthesizing and evaluating existing knowledge and identifying gaps. Moreover, the literature review is written to gain a deeper understanding of the current situation in ESG disclosure and reporting, and what the role of auditors are in ESG reporting. Furthermore, it will discuss several challenges of auditing ESG reports.

3.1 Research on the role of the auditor in ESG reporting

The main goal of an audit is obtaining reasonable assurance that the financial statements are free from material misstatements due to fraud or error. (Ostrikov & Zhu, 2022) Auditors are responsible for assessing the potential of the company's continuity and for detecting errors and frauds that occur in the routine audit. (Mohammed & Waheeb, 2022)

With the increasing importance of ESG reporting, comes the increasing involvement of internal and external audit to ensure credibility, trust and reliability of ESG data. (Lim & Fernandez, 2022)

In his article, Raghavan (2022) states that "auditors will be playing a greater role in the future in assuring the validity and accuracy of external ESG information provided to investors and other stakeholders." Therefore, the job of an auditor is not only confined to a company's internal control, but also to the dependability of sustainability reporting, and reviewing and assessing the presentation of sustainability reports. (Auliani et al., 2023)

Because of the complexity of ESG, auditors might serve as useful players, given their thorough expertise of company-specific processes. (Eulerich et al., 2022)

Research performed by of Asante-Appiah and Lambert (2022), shows a positive association between tainted reputation and audit-related and other nonaudit services, based on a sample of all U.S. publicly traded companies. Which implies that auditors play a significant role in proving assurance on ESG-related disclosures. Yet, the external auditor and public accountants are still defining their role in ESG risk control and reporting. (Asante-Appiah & Lambert, 2022)

3.2 Research on the perceived challenges of ESG reporting and audits

The following paragraph discusses research on the perceived challenges of ESG audits. It explores several difficulties and obstacles faced by companies and auditors when disclosing ESG performance. The different obstacles summarized in this paragraph are defined through studies of Rana et al. (2021), Alvarez-Foronda et al. (2023) and Markert et al. (2022)

3.2.1 Data quality

High-quality and reliable data is the most important aspect of ESG reporting since poor data can lead to a misunderstanding of the performance of a business and negatively affect investment decisions. In the 2021 Financial Education and Research Foundation (FERF) responded financial professionals to a

survey, and they found that the biggest challenge of ESG reporting are issues related to data collection, processing, etc. (Financial Education & Research Foundation [FERF], 2021) In the research of Cruz and Matos is stated that data standardization has long been a challenge in ESG reporting.

3.3.2 Data availability

The study of Earley (2015), defined that data availability is a challenge to the implementation of data analytics on audits. Since, auditors rely on the data and information that is provided by the organizations. When companies don't provide sufficient information or evidence, auditors can't guarantee the reliability of the financial and nonfinancial statements.

Furthermore, if certain projects are outsourced or third-parties are involved, auditors may encounter challenges in obtaining the needed data from these entities. Moreover, all companies have different types of systems where data is stored. Thus, it may be difficult for auditors to access or extract data due to the system limitations.

Furthermore, companies may restrict the auditing companies to access private data. Therefore, only limited data will be available for the auditors to complete the auditing report. Research performed by Deloitte in 2022 showed that cost and complexity of data privacy was perceived as one of the key challenges around data management, according to leaders of the technological industry. (Silverglate & Jarvis, 2022)

3.3.3 Lack of standardized ESG frameworks

There are increasing activities to harmonize ESG reporting standards by developing one set of global standards for ESG disclosure. (Zaid & Issa, 2023) According to Zenkina (2023), standardized frameworks are important because it allows for the harmonization of approaches to report preparation and presentation, the creation of credible techniques to reporting verification, and the achievement of goals. Further, Frecautan and Danila (2022b) show 'the importance of internalizing sustainability into the overall corporate performance communication process, by discussing several initiatives taken by organizations as the ISFR Foundation.

Nowadays there is still a lack of standardization between frameworks. Cruz and Matos (2023) argue that diversity among ESG frameworks sometimes causes conflicts in reporting about sustainability. Moreover, they state that what is valued in each framework is a challenge for sustainability reporting, since all frameworks value something different and not all ESG topics are handled equally. Hence, sustainability reporting is only complete if you use several frameworks.

Furthermore, given the multitude of frameworks and standards (Frecautan & Nita, 2022), it becomes extremely difficult for auditors to evaluate and compare companies consistently.

3.3.4 Complexity of ESG frameworks

In addition to the previous paragraph, another challenge of ESG reporting is the complexity of ESG frameworks. Most frameworks provide a combination of quantitative and qualitative metrics, which makes it challenging to establish clear and objective criteria for evaluation on the qualitative part. (Frecautan & Nita, 2022)

Moreover, research done by Senadheera et al. (2022) shows that it differs per ESG issue how the metrics are defined. They conclude that the metrics of the governance pillar are less well-specified than the environmental and social pillar, which makes the frameworks even more complex.

Busco et al. (2020) state that companies should consider if the frameworks are consistent with its own list of ESG related issues and should still establish a process for the continuos improvement of the reporting. Therefore, the complexity is increased by keeping up with new sustainability challenges and improving best practices.

Furthermore, research from Quilice et al. (2018), showed that companies who use the standards, found them too complex, flexible, and ambiguous. Therefore, it undermined both the standardization of the reports and the ability.

3.3.5 Expertise & skill of the auditor

The study of Asante-Appiah and Lambert (2022) shows that auditors have a great opportunity to develop ESG-related expertise, because of their understanding of ESG risk and leadership in developing ERM processes and theory. Moreover, auditors must use their own expertise and relevant tools in order to carefully review the financial and non-financial audit in order to add value to the audit process. (Sanoran & Ruangprapun, 2023)

However, according to the findings of Eulerich et al. (2022), internal auditors need to devote resources to ESG training and professional development in order to improve the ESG maturity level and so contribute to the company's support of ESG disclosure.

In terms of experience, the less experienced auditor relies more on ESG information to make an audit opinion decision than the more experienced auditors, according to the research of X. Wang et al. (2023), performed within Chinese listed companies.

3.4 ESG audit performance

According to the Financial Reporting Council (FRC) in the UK, there are nineteen key aspects that makes for a good audit. (Deloitte United Kingdom, 2021) Accounting firms, like Deloitte, recognize these aspects as well in order to make a good audit. For this study, there several key aspects combined or taken as a whole in order to define the five dimensions for the dependent variable '*Performance'*.

First of all, in order to guarantee quality and up-to-date audits to investors and stakeholders, the audit must be accurate and reliable. Accuracy is the "extent to which data are correct, reliable, and certified."(Tang et al., 2022) Inaccurate data might provide unreliable audit findings and incorrect conclusions. The integrity of the whole audit process may be jeopardized if the underlying data is incorrect.

Establishing trust and confidence in the audit process and the data it produces depends on the reliability. Investors and stakeholders rely on audit reports to make informed decisions. If the audits are not trustworthy, those parties may lose interest.

Furthermore, the timeliness of the data is the degree to which the data's age is suitable for the task at hand. (Tang et al., 2022) This means that in order to draw accurate and relevant conclusions the data must be up-to-date. Moreover, most of the audits are required by law to be conducted within a specific period of time. Therefore, another dimension of the dependent variable is compliance with regulatory agreements. As stated before, specific companies need to comply to the new CSRD. If companies comply to these new standards, it ensure the integrity and accuracy of the ESG information

Lastly, the dimension attitude towards ESG reporting will be measured in order to complete the dependent variable. Auditing of ESG reports is relatively new and not every auditor has performed or been involved in one. However, the attitude of an auditor towards ESG reporting may impact their objectivity in assessing the ESG practices of an organization. Moreover, it can affect the depth of the analysis during the audit and their attitude affects the way of aligning with the regulatory standards. Therefore, a positive attitude improves to the overall performance of the ESG audit.

3.5 Hypotheses formulation

Based on the developed independent and dependent variables, several hypotheses will be tested. In the 'Results' chapter, all the hypotheses are described individually, and tests are performed to see the correlation and regression of the variables.

The first independent variable that will be tested on the dependent variable is 'Data Quality'. When the data quality of the ESG data is high, it is expected that the ESG audits are also of high performance. When data is of high-quality, the auditors can be more accurate and will deliver more reliable audits than when the data quality is low. Therefore, the first hypothesis will be:

- H_1: There is a positive relation between data quality and the performance of ESG audits.

The second variable that will be tested in this study is 'Data Availability'. As well as data quality, it will be expected that when the data availability high, the ESG audits are more accurate and reliable. So, the following hypothesis is stated:

- H_2: There is a positive relation between data availability and the performance of ESG audits.

In this chapter is became clear that there is a lack of standardization in ESG frameworks. Several reasons of why standardization is a must, are mentioned in this paper. Therefore, it can be said that there is still not enough harmonization between frameworks these days, and that it will have an effect on how ESG data is reported and audited. Since the lack of standardization will have a negative impact on the performance of ESG audits the following hypothesis is developed:

- H_3: There is a negative relation between the lack of standardized ESG frameworks and the performance of ESG audits.

The complexity of ESG reporting frameworks is another challenge faced by auditors. All have its own standards and sometimes they are found to be too complex. Therefore, too complex frameworks can lead to difficulties in reporting on ESG and giving out the wrong information to investors and other stakeholders. The following hypothesis will be tested:

- H_4: There is a negative relation between the complexity of ESG frameworks and the performance of ESG audits.

Lastly, since study shows that auditors have a great opportunity to develop ESG-related expertise, the performance of ESG audits will be also higher. The more an auditor knows about ESG, the more accurate and reliable ESG audits are. Therefore, the last hypothesis is as follows:

- H_5: There is a positive relation between the expertise and skills of auditors and the performance of ESG audits.

Furthermore, for all the hypotheses, H_0 is 'There is no relation between the independent and the dependent variable.'

3.6 Research gap

As stated in this chapter, existing literature has primarly focused on ESG reporting and the role of auditors verifying the reported information during the auditprocess. It becomes clear that with the increasing importance of ESG reporting, the auditor will be more involved in this process to ensure the credibility, trust, and reliability of ESG data. Moreover, this means that their job will not only involves auditing the financial side of the company, but also reviewing and assessing the presentation of sustainability reports.

However, auditors will face several challenges that could impact the quality of the audited reports. This chapter discussed the five biggest challenges according to literature. Yet, here is no empirical research done on the challenges and the influence of them on ESG audits. Therefore, this study aims to address this by analyzing the five challenges against several dimensions of the quality of ESG audits. During the data analysis several hypotheses are tested to ensure a detailed answer to the research question *'What are the key factors that influence the quality of ESG audits?'.*

4. METHODOLOGY

In this chapter, will entail how the data for the research was collected and analyzed, what variables are used, and how the hypotheses were tested.

4.1 Data collection

To obtain the needed information, a structured questionnaire was developed based on the research objective. The questionnaire contained basic demographic information about the participants and had questions that are formulated using a five-point Likert scale. The Likert scale is developed to measure attitudes and opinions, by social psychologist Renis Likert in 1932. (Yamashita & Millar, 2021) Since then, it is one of the most fundamental and popular assessment techniques in social science research. (Joshi et al., 2015)

The questionnaire was made through Qualtrics and send out via email to the participants. Furthermore, an introductory message explaining the study and relevant concepts, ensuring confidentiality, and a consent form was included. Moreover, after three days a reminder was sent to encourage the participation and maximize the response rate. The whole questionnaire can be found in appendix *12.1 Questionnaire*.

4.2 Participants

The participants were auditors from one of the Big4 firms based in the Netherlands. The questionnaire was sent out to 75 employees who are specialized in ESG and have performed ESG audits themselves. In total the questionnaire was filled in by twenty employees.

4.3 Data analysis

The data analysis started with the analysis of the demographic variables. This gives a more specific view of the participants.
Secondly the descriptive values of the variables are analysed and summarized. Knowing these values is important for gaining a clear understanding of the characteristics and distribution of the data. The summary consists of the mean, the standard deviation, the variance, and MIN and MAX of the values.
Moreover, a correlation matrix was set up and analysed. This provides a systematic way to examine all the relationships between the variables. The correlations were made between all pairs of variables. Thereafter, there was determined whether the variables are positively or negatively related, together with the strength of those variables.
In order to test the hypotheses and explore possible relationships, a linear regression was performed. This provides a statistical framework about the relationship between the variables. More specific: between the independent variable and the continuous dependent variable. Per hypothesis a single linear regression formula was set in up in R studio and goes as follows:
lm(formula = Dependent variable ~ Independent variable, data = performance.data).

4.5 Variable definition

In order to get answers to the research question, several independent and dependent variables were developed. In the following paragraphs it will become clear why these variables where chosen and how they are measured.

4.5.1 Independent variables

The research question is *'What are the key factors that influence the quality of ESG audits?'*
Therefore, several factors need to be measured in order to give answers to the research question.These factors are based on the perceived challenges in ESG reporting and auditing and will be tested as independent variables to the dependent variables in order to see how and to what extent they may impact the different levels of performance. In appendix *12.2 Independent variables* is an overview given of the independent variables and their dimensions

4.5.2 Dependent variables

In this research the overall dependent variable is 'Performance' of ESG reporting. This dependent variable is being measured to understand the relationship with several independent variables and how auditors can improve on ESG audits. As mentioned in paragraph 4.1, the dependent variable is measured by questions based on the Likert scale and answered by specialists. The research question only has one dependent variable, but in order to measure all its dimensions several dependent variables are defined. In appendix *12.3 Dependent variables* is a given overview of the dependent variables and their dimensions.

5. RESULTS

5.1 Demographic analysis

The survey was filled in by twenty participants. Of those participants sixty-five percent was male, and thirty-five was female. Moreover, the participants needed to fill in their age and work level. In terms of age, sixty-five percent of the participant fell in the age category *25 - 34 Years,* and twenty-five percent fell in to the *35 - 44 Years.* The remainder fell in the category *18 -24 Years.*
The working level and for how long they have worked for the company was overall very scattered. Nevertheless, half of the participants belonged to the category *Manager*. The remainders were divided between *Partner, Director, Consultant, Staff and Intern/workingstudent.*
In terms of how long they have worked at the company, most of the participants have worked there between *four to ten years*. The others were scattered between the *less than one year, one to three, and ten-to-fifteen-year* category. Only one person had worked there for around fifteen to twenty-five years.

5.2 Descriptive analysis

As mentioned in chapter three, the descriptive values are important for understanding the characteristics and distribution of the data. The data was collected via a questionnaire and had Likert scale questions, ranging from one being 'strongly disagree' to five, being strongly agree. The questionnaire was filled in by twenty participants who all have conducted or have been a part of an ESG audit. Therefore, the *N* is in all cases twenty.
In table 1 a summary of the statistics for each variable is presented, including the mean, standard deviation, variance, min, and max of the variables.

Variable	***Mean***	***Std.***	***Variance***	***Min***	***Max***
Independent					
Data Quality	2.39	0.923	0.852	1.00	4.25
Data Availability	2.53	0.964	0.929	1.00	4.00
Lack of standardization in ESG frameworks	3.02	1.01	1.02	1.00	4.67
Complexity of ESG frameworks	3.16	0.718	0.516	1.00	4.00
Expertise & skill of auditor	3.22	0.818	0.669	2.20	5.00
Dependent					

Accurateness	3.24	0.796	0.634	1.60	5.00
Reliability	3.10	0.845	0.715	1.67	5.00
Compliance with regulatory standards	3.35	0.964	0.930	1.33	5.00
Speed of reporting	2.47	0.438	0.192	1.67	3.67
Attitude towards ESG reporting	3.96	0.685	0.470	2.60	5.00

Table 1: Summary of descriptive analysis

The mean represents the average of the variable and is calculated by summing all the values and dividing it by the total number of observations. In this research, how higher the mean is to five, how more positive the variable is. For example, the variable *Attitude towards ESG reporting* has the highest mean of all, namely 3.96, which means that most of the participants filled in that they agreed with the statements in the questionnaire. On the other hand, the variable *Data Quality,* is relatively low, namely 2.39. Which means that the average of participants didn't agree with the statements in the questionnaire.

The standard deviation (Std.) indicates the average amount of variation around the mean. This means that the difference between each data point to the mean is calculated. A larger standard deviation means that there is a greater spread of values. Thus, the data points are more scattered. In terms of reliability, how smaller the standard deviation how more reliable and consistent the measurements are. *Speed of reporting* has a relatively low standard deviation, 0.438, which means that the answers of the participants don't lie far apart. On the contrary, *Lack of standardization in ESG frameworks* has a standard deviation of 1.01, which indicates that there is a large spread of answers.

Variance of a variable is the average squared standard deviation. A larger variance indicates a larger spread of values. This implies a higher variability in the data. For example, *Lack of standardization in ESG frameworks* has a high variance of the variable, namely 1.02. On the other hand, *Speed of reporting* had a low variance of the variable and therefore a lower variability.

The minimum (Min.) value shows the lowest given answer, while the maximum value show what the highest given answer was. *Lack of standardization in ESG frameworks* has a big difference between the minimum and the maximum. While *Speed of reporting* only has a difference of 2.00 between the minimum and maximum, which is relatively low.

5.3 Correlation matrix

As mentioned in chapter three, the correlation matrix was set up to examine all the relationships between the variables and to examine whether these relationships were positively or negatively related. It is relevant to examine this, because with this research will become clear how several independent variables have an impact on the dependent variable 'Performance'. In appendix… the correlation matrix is presented. The correlation matrix must be interpreted as follows: If the correlation coefficient is clos the +1, it indicates a strong positive linear relationship. On the other hand, when the correlation coefficient is close to -1, it indicates a strong negative linear relationship. Furthermore, when the coefficient is close to 0 is suggest a weak or even no linear relationship at all between the variables. In terms of significance, the correlation coefficient is statistically significant when the p-value is lower than 0.05. Statistically significant means that the observed relationship in the data set is not due to chance or random variation. Below the correlations and significance are discussed per dependent variable.

5.3.1 Accuracy of ESG audits

In terms of correlation, Accurateness has a positive relationship with Data Quality, Data Availability, and Expertise & skill. Nevertheless, these positive relationships are only moderate since they aren't higher then 0.5. Moreover, two of the three positive relationships are statistically significant since they have a p-value lower than 0.05. For the other, Data Quality, there is no significance because the p-value is 0.118.

Accurateness has a negative correlation with Lack of standardization in ESG frameworks and Complexity of ESG frameworks. Lack of standardization in ESG frameworks has only a moderate relationship since the correlation coefficient is -0.450, but it is statistically significant since the p-value is lower than 0.05, namely 0.046. On the other hand, Complexity of ESG frameworks has a correlation coefficient of -0.653, which suggest a stronger negative relation. Furthermore, the outcome is statistically significant because of the 0.002 p-value. In figure 1 the scatterplot of this correlation is presented.

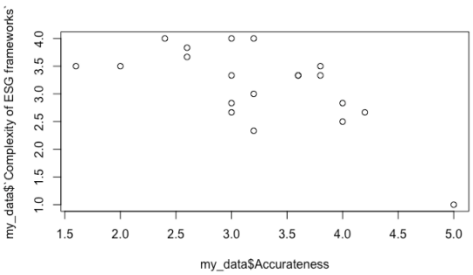

Figure 1. Scatterplot of Accurateness and Complexity of ESG frameworks

5.3.2 Reliability of ESG audits

Reliability has also a positive relationship with Data Quality, Data Availability, and Expertise & skill. However, these relationships are only moderate since their correlation coefficient lies between 0.3 and 0.5. Moreover, only Data Availability is statistically significant because it's p-value is 0.040, and thus lower than 0.05.

Lack of standardization in ESG frameworks and Complexity of ESG frameworks are negatively correlated with Reliability. Lack of standardization in ESG frameworks has a weak relationship since the correlation coefficient is only -0.221. Moreover, the

correlation is not statistically significant because of the p-value that is lower than 0.05. On the other hand, Complexity of ESG frameworks has a correlation coefficient of -0.591, which shows a strong negative relationship and is statistically significant because the p-value is 0.006.

5.3.3 Compliance with regulatory standards

There is a positive relationship between Compliance with regulatory standards and the variables Data Quality, Data Availability, and Expertise & skill. Data Quality and Data Availability have a strong positive relationship because of their high correlation coefficient. Moreover, the p-value of both relationships is lower than 0.05, which makes it statistically significant. Expertise & skill, however, only has a correlation coefficient of 0.151 and a high p-value, which makes the correlation not statistically significant.

Again, Lack of standardization in ESG frameworks and Complexity of ESG frameworks are negatively correlated with the dependent variable. Lack of standardization in ESG frameworks has a weak relationship since the correlation coefficient is only -0.265. Moreover, the correlation is not statistically significant because of the p-value that is lower than 0.05. On the other hand, Complexity of ESG frameworks has a correlation coefficient of -0.490, which shows a moderate negative relationship and is statistically significant because the p-value is 0.028.

5.3.4 Speed of reporting

There is a negative relationship between *Speed of reporting* and the variables *Data Quality*, *Data Availability*, and *Expertise & skill*. However, these relationships are weak because they are not higher dan -0.3, especially the correlation with Data Quality because the coefficient lies very close to 0.

For this correlation, *Lack of standardization in ESG frameworks* and Complexity of ESG frameworks are this time positively correlated. However, the correlations are still not strong.

We can quickly say that none of the correlations are statistically significant since all of the p-values are higher than 0.05.

5.3.5 Attitude towards ESG reporting

All of the variables are weakly and sometimes negatively correlated with the dependent variable, expect for the Expertise & skill variable. Here, the variables are positively and strongly correlated because the coefficient is 0.828. Moreover, the correlation is statistically significant because the p-value is lower than 0.001. In figure 2 the scatterplot is presented.

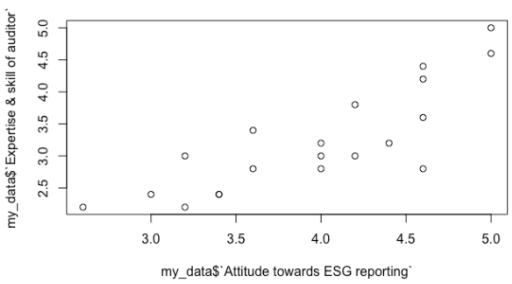

Figure 2. Scatterplot of Attitude towards ESG reporting and Expertise & skill of auditor

5.4 Linear regression models

The purpose of the linear regression is to test the developed hypotheses and explore the possible relationships between the variables. As stated in the formula, five independent variables were used in this linear regression. For all independent variables, different linear regression models were made. The outcomes of the models can be found in appendix 12.4. The dependent variable exists of multiple variables, because of the different dimensions of performance, and is summarized into one variable *'Performance'*.

In this chapter, each independent variable is discussed and is stated what impact it has on the dependent variable. Moreover, it will explain whether it is statistically significant.

5.4.1 Data quality and performance of ESG audits

For the independent variable *Quality*, the estimated value is 0.23030. This means that if one unit of *Quality* increases, the dependent variable *Performance* will also increase with this number. The standard error indicates the average amount of variation in the estimated value, which means that a smaller number indicates greater precision, and a larger number indicates more uncertainty. For this estimated value, the standard error is 0.09433. A high standard error means that the sample means are widely spread, which entails that the sample may not closely represent the population. The standard error for this model is relatively low

The t-value and the p-value assess whether the coefficient is statistically significant. Since the t-value is positive, namely 2.441, it indicates that the relationship between the independent and dependent variable is positive. Since the t-value is far from zero and the p-value is smaller than the significance level of 0.05, namely 0.0252, there is sufficient evidence to conclude that the independent variable has a significant effect on the dependent variable.

Furhtermore, the multiple R-squared shows that 24.9% of the variance in the performance is predicted by the quality of data.

5.4.2 Data availability and performance of ESG audits

The estimated value of *Availability* is according to the single linear regression 0.2814. Therefore, the dependent value will increase with 0.2814 when one unit of the independent variable goes up. The standard error is 0.0804, which is relatively low. Therefore, can be concluded that there is uncertainty of the precision. The t-value is presented positive, which indicates that the relationship between the independent and dependent variable is positive. Moreover, the p-value is lower than the significance level of 0.05, so the coefficient is statistically significant according to the t- and p-value.

Moreover, the multiple R-squared shows that 24.9% of the variance in the performance is predicted by the quality of data.

5.4.3 Lack of standardization of ESG frameworks and performance of ESG audits

The estimated value of *Lack of standardization* is -0.12928. Therefore, the dependent value will decrease with -0.12928 when one unit of the independent variable goes up. The calculated standard error is 0.09464, which is relatively low, thus indicates greater precision. Furthermore, the t-value is not close to zero and negative, -1.366. Moreover, the p-value is higher than 0.05, namely 0.189, which means that the coefficient isn't statistically significant. As well, the multiple R-squared value is really low. Only nine percent of the variance can be explained by this variable.

5.4.4 Complexity of ESG frameworks and performance of ESG audits

The estimated value of *Complexity* is -0.3992, which indicates that the dependent variable will decrease with that number every time the independent variable goes up one unit. Moreover, the standard error is relatively high, namely 0.1035, which indicates that there is uncertainty of the precision. The t-value presented negative which indicates the negative relationship. For this variable the t-value is very far from zero, namely -3.858. Furthermore, the p-value has a very low value, namely 0.0015, which indicates that the coefficient is statistically significant.

Moreover, the multiple R-squared has a percentage of 45.3, which is really high for business studies.

5.4.5 Expertise & skill and performance of ESG audits

The estimated value of *Expertise & skill* is 0.1801. Therefore, the dependent value will increase with 0.1801 when one unit of the independent variable goes up. Furthermore, the calculated standard error is 0.1152, which is relatively high and thus indicates a lower precision. The t-value in this case is presented positive and far from zero. Nevertheless, the coefficients aren't statistically significant since the p-value is higher than 0.05, namely 0.1355. Moreover, the multiple R-squared give a percentage of twelve, which means that only twelve percent of the variance in the performance is predicted by the expertise and skill of the auditor.

6. DISCUSSION

The main research question of this thesis is *'What are the key factors that influence the quality of ESG audits?'.* In order to answer this research question, several factors were defined and tested with the help of hypotheses.

In this chapter, the hypothesis will be discussed and accepted or rejected through the results of the data analysis.

According to the results of the research can be concluded that data quality has a positive effect on the quality of ESG audits. In other words, if the data provided through the ESG reports of organizations, are of high quality, it can be expected that the quality of the ESG audits are also of high quality. Therefore, it is important that big accountancy firms motivate and guide organizations to provide ESG reports of high quality. Further research can be done on what the definition of a high quality ESG report is and how to improve this.

In terms of data availability, high availability of ESG data means that auditors can also provide a ESG audit of better quality. This means that companies need to be more transparent towards accountancy companies who audit their reports. In order to do this in a way that their privacy is not violated, further research needs to be done, as this is one of the key challenges according to the leaders of the technological industry.

The lack of standardization in ESG frameworks doesn't greatly influences the quality of ESG audits. Therefore, this research doesn't comply with research done by Frecautan and Danila (2022), and Cruz and Matos (2023). They argue that the lack of standardization causes implications in sustainability reporting. However, this research was performed on a relatively small population of auditors, so further research must be done with a larger sample size to guarantee that the lack of standardization in fact doesn't influence the quality of ESG audits. Moreover, since existing literature does recognize the impact of the lack of standardization, it is important that initiatives like the GRI and SASB, need to come up with standardized frameworks that guarantees high ESG reporting quality. It needs to be explored whether to provide standardized frameworks per for example, industry or ESG category.

In accordance with Quilice et al. (2018), the participants of this study find that the ESG frameworks are too complex. The findings of this research show that this has a big impact on the accurateness and reliability of the reporting, and the compliance with regulatory standards. It can also be argued that perhaps the regulatory standards for auditing practices need to be changed to cope with the complexity of the frameworks. Since this research shows that the complexity of the ESG frameworks has the biggest negative impact on the audit quality, other research could perhaps focus on how to make ESG frameworks less complex or what makes a framework complex.

It is important to note that expertise and skill don't have a great influence on the quality of the audits, while in theory you would have expected so. However, this research shows that if the *Expertise & skill* variable is high, the *Attitude towards ESG reporting* variable is also high. Nevertheless, this can be explained by the fact that all of the participants were auditors who are specialist in ESG audits and have according to the questionnaire all a great affinity with ESG. Other research can focus on why certain auditors have a great affinity with ESG and what characteristic such an auditor has. In that way those auditors can be placed on specific ESG audits.

7. CONCLUSION

The main research objective was to investigate factors that have an impact on the quality of ESG audits. Therefore, the research question 'What are the key factors that influence the quality of ESG audits' was developed. In order to answer the research question systematically, five hypotheses were developed and tested throughout the study:

- H_1: There is a positive relation between data quality and the performance of ESG audits.
- H_2: There is a positive relation between data availability and the performance of ESG audits.
- H_3: There is a negative relation between the lack of standardized ESG frameworks and the performance of ESG audits.

- H_4: There is a negative relation between the complexity of ESG frameworks and the performance of ESG audits.
- H_5: There is a positive relation between the expertise and skills of auditors and the performance of ESG audits.

The correlation matrix provides a comprehensive overview of the strength and the direction of several linear relationships. This means that it shows a broad overview of the association between variables.

According to the linear regression models it can be concluded that all the hypotheses, except for H_3 and H_5, can be accepted since the coefficients of these independent variables were statistically significant. The model focuses on predicting the dependent variable '*Performance*' using the multiple independent variables.

All in all, data quality, data availability, and the complexity of ESG frameworks have a significant effect on the quality of ESG audits. Data quality and availability have in fact a positive effect on the quality of the audits, while the complexity of the frameworks has a negative influence on the outcome of the ESG audits. Therefore, to answer the research question, those three key factors have a significant influence on the quality of ESG audits.

From a theoretical perspective, further research can be done on what high data quality for ESG reports entails and how to provide those data. Moreover, it needs to be explored how data can become highly available for accountancy firms without violating the privacy of an organization. Furthermore, other research can be done on how to improve the complex ESG frameworks.

From a practical perspective, big accountancy firms need to motivate and guide organizations in the development of ESG reports since those firms are the ones that will verify the reports in the end. Also, it is important to motivate auditors to gain knowledge on ESG matters. Since ESG is such a popular and important topic nowadays for big organizations, and later for also for smaller organizations, every auditor will be confronted with it. Furthermore, initiatives that evolve around ESG reporting need to develop standardized frameworks. Moreover, since existing literature does recognize the impact of the lack of standardization, it is important that initiatives like the GRI and SASB, need to come up with standardized frameworks that guarantees high ESG reporting quality.

8. LIMITATIONS

There are multiple limitations acknowledged when performing the research.

First of all, the reliability of the data was impacted by the fact that the sample size was very small. This means that the data could not give a reliable representation of the population. As auditors who are specialized in ESG are a rare find, the questionnaire was only send out to a small target group and had a response rate of twenty-seven percent. This could introduce a non-response bias because individuals who opted out can have different characteristics or perspectives from those who did respond to the questionnaire.

Moreover, the sample might not have been fully representative of the target population. Only auditors who are specialized in ESG audits participated in the study. Therefore, the auditors who have little experience in ESG audits are being overlooked.

Furthermore, self-reported data was used in the study, which means that biases, like the recall bias, could have had an impact in the results. Also, the dependability of the results may have been impacted by this, which may have affected the accuracy and completeness of the data.

9. RECOMMENDATIONS

The research objective of the thesis was to investigate what key factors will influence the quality of ESG audits. The thesis shows that there are several correlations between the factors and the quality of the audits. However, only five factors are mentioned in this research, thus other factors could be explored in further research.

Moreover, this research only had a sample size of twenty. Therefore, in order to guarantee a more reliable and accurate view of the overall population, the same kind of research can be performed on a larger sample size.

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11. REFERENCES

1. Afieroho, U. E. (2023). It Takes a Village to Deliver a Sustainable Infrastructure; a Conceptual Paper on Refocusing the. . . *ResearchGate*. https://www.researchgate.net/publication/371139143_It_Takes_a_Village_to_Deliver_a_Sustainable_Infrastructure_a_Conceptual_Paper_on_Refocusing_the_Stakeholder_Theory_on_the_Community?enrichId=rgreq-d04f07e3297e80e0496d58257f6da828-XXX&enrichSource=Y292ZXJQYWdlOzM3MTEzOTE0MztBUzoxMTQzMTI4MTE2Mjc5Mjk0NUAxNjg1NDM2Mjc2MzEx&el=1_x_2&_esc=publicationCoverPdf
2. Álvarez-Foronda, R., De-Pablos-Heredero, C., & Rodríguez-Sánchez, J. (2023). Implementation model of data analytics as a tool for improving internal audit processes. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1140972
3. Amosh, H. A., & Khatib, S. F. A. (2022). Theories of corporate disclosure: A literature review. *Corporate Governance and Sustainability Review*, *6*(1), 46–59. https://doi.org/10.22495/cgsrv6i1p5
4. Ananzeh, H., Shbail, M. O. A., Amosh, H. A., Khatib, S. F. A., & Abualoush, S. H. (2022). Political connection, ownership concentration, and corporate social responsibility disclosure quality (CSRD): empirical evidence from Jordan. *International Journal*

of Disclosure and Governance, *20*(1), 83–98. https://doi.org/10.1057/s41310-022-00167-z

5. Asante-Appiah, B., & Lambert, T. A. (2022). The role of the external auditor in managing environmental, social, and governance (ESG) reputation risk. *Review of Accounting Studies*. https://doi.org/10.1007/s11142-022-09706-z
6. Auliani, A., Pramesti, D., & Yunita, L. (2023). The Role of Auditor in Sustainability Reporting. *SINOMICS JOURNAL*, *1*(6), 825–830. https://doi.org/10.54443/sj.v1i6.94
7. BDO. (n.d.). *CSRD*. https://www.bdo.nl/nl-nl/thema-s/sustainability/csrd
8. Busco, C., Consolandi, C., Eccles, R. G., & Sofra, E. (2020). A Preliminary Analysis of SASB Reporting: Disclosure Topics, Financial Relevance, and the Financial Intensity of ESG Materiality. *Journal of Applied Corporate Finance*, *32*(2), 117–125. https://doi.org/10.1111/jacf.12411
9. Cruz, C. A., & Matos, F. (2023). ESG Maturity: A Software Framework for the Challenges of ESG Data in Investment. *Sustainability*, *15*(3), 2610. https://doi.org/10.3390/su15032610
10. Delgado-Ceballos, J., Ortiz-De-Mandojana, N., Antolin-Lopez, R., & Montiel, I. (2022). Connecting the Sustainable Development Goals to firm-level sustainability and ESG factors: The need for double materiality. *BRQ Business Research Quarterly*, *26*(1), 2–10. https://doi.org/10.1177/23409444221140919
11. Deloitte United Kingdom. (2021, November 21). *Newsflash – What makes a good audit? – new FRC publication.* https://www2.deloitte.com/uk/en/pages/audit/articles/what-makes-a-good-audit.html
12. Earley, C. E. (2015). Data analytics in auditing: Opportunities and challenges. *Business Horizons*, *58*(5), 493–500. https://doi.org/10.1016/j.bushor.2015.05.002
13. Eccles, R. G., & Krzus, M. P. (2017). An Analysis of Oil & Gas Company Disclosures from the Perspective of the Task Force on Climate-Related Financial Disclosures. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3091232
14. Eulerich, M., Bonrath, A., & Kasper, V. I. L. (2022). Internal auditor's role in ESG disclosure and assurance: An analysis of practical insights. *Corporate Ownership and Control*, *20*(1), 78–86. https://doi.org/10.22495/cocv20i1art7
15. Financial Education & Research Foundation [FERF]. (2021). *Bringing the ESG Ecosystem to Life*. Retrieved June 3, 2023, from https://www.financialexecutives.org/Research/Publications/2021/Bringing-the-ESG-Ecosystem-to-Life.aspx
16. Frecautan, I., & Danila, A. C. N. (2022). EXPLORATORY STUDY ON THE DIFFERENCES BETWEEN CORPORATE ESG REPORTING AND THE NEED FOR ESG HARMONIZATION. *ResearchGate*. https://www.researchgate.net/publication/366408596_EXPLORATORY_STUDY_ON_THE_DIFFERENCES_BETWEEN_CORPORATE_ESG_REPORTING_AND_THE_NEED_FOR_ESG_HARMONIZATION?enrichId=rgreq-8a0c22e880992ca43641e6b85070468b-XXX&enrichSource=Y292ZXJQYWdlOzM2NjQwODU5NjtBUzoxMTQzMTI4MTEwODMzNDI4NkAxNjcxNDY0MTc5NTAy&el=1_x_2&_esc=publicationCoverPdf
17. Frecautan, I., & Nita, A. (2022). WHO IS GOING TO WIN: THE EU ESG REGULATION OR THE REST OF THE WORLD? – A CRITICAL REVIEW. *The Annals of the University of Oradea. Economic Sciences*, *31*(volume 31), 109–120. https://doi.org/10.47535/1991auoes31(2)011
18. Freeman, R. E. (2010). *Strategic Management: A Stakeholder Approach*. Cambridge University Press.
19. Gutterman, A. S. (2023). Stakeholder Theory. *ResearchGate*. https://www.researchgate.net/publication/369194606_Stakeholder_Theory
20. Jensen, M. C. (2001). Value Maximisation, Stakeholder Theory, and the Corporate Objective Function. *European Financial Management*, *7*(3), 297–317. https://doi.org/10.1111/1468-036x.00158
21. Joshi, A., Kale, S., Chandel, S., & Pal, D. (2015). Likert Scale: Explored and Explained. *British Journal of Applied Science and Technology*, *7*(4), 396–403. https://doi.org/10.9734/bjast/2015/14975
22. Khan, I., Fujimoto, Y., Uddin, M. J., & Afridi, M. A. (2023). Evaluating sustainability reporting on GRI standards in developing countries: a case of Pakistan. *International Journal of Law and Management*. https://doi.org/10.1108/ijlma-01-2022-0016
23. Kotsantonis, S., & Serafeim, G. (2019). Four Things No One Will Tell You About ESG Data. *Journal of Applied Corporate Finance*, *31*(2), 50–58. https://doi.org/10.1111/jacf.12346
24. Lim, A., & Fernandez, R. T. (2022). THE EVOLVING ROLE OF ACCOUNTANT AND THE FUTURE OF ACCOUNTING PROFESSION. *ResearchGate*. https://www.researchgate.net/publication/357793735_THE_EVOLVING_ROLE_OF_ACCOUNTANT_AND_THE_FUTURE_OF_ACCOUNTING_PROFESSION
25. Markert, T., Langer, F., & Danos, V. (2022). *GAFAI: Proposal of a Generalized Audit Framework for AI*. GI-DL. Retrieved June 15, 2023, from https://dx.doi.org/10.18420/inf2022_107
26. Mohammed, I. S., & Waheeb, N. M. (2022). AUDITOR RESPONSIBILITY RELATED TO FRAUD AND ASSESSMENT OF THE RISKS OF MATERIAL MISSTATEMENT. *ResearchGate*. https://www.researchgate.net/publication/362269895_AUDITOR_RESPONSIBILITY_RELATED_TO_FRAUD_AND_ASSESSMENT_OF_THE_RISKS_OF_MATERIAL_MISSTATEMENT?enrichId=rgreq-

080fb29f86f37d85e1ccfc743230315b-XXX&enrichSource=Y292ZXJQYWdlOzM2MjI2OTg5NTtBUzoxMTgyMTY0MjA0OTU3NzAzQDE2NTg4NjEzMTg4OTk%3D&el=1_x_2&_esc=publicationCoverPdf

27. Ostrikov, K., & Zhu, W. (2022). Intelligent Financial Auditing Model Based on Deep Learning. *Computational Intelligence and Neuroscience*, *2022*, 1–5. https://doi.org/10.1155/2022/8282854
28. Quilice, T. F., Cezarino, L. O., Alves, M. F. R., Liboni, L. B., & Caldana, A. C. F. (2018). Positive and negative aspects of GRI reporting as perceived by Brazilian organizations. *Environmental Quality Management*, *27*(3), 19–30. https://doi.org/10.1002/tqem.21543
29. Quist, Z. (2023, March 14). *CSRD - Guide: What to report & How to comply*. Ecochain - LCA Software Company. https://ecochain.com/knowledge/complying-with-the-csrd-frequently-asked-questions/
30. Raghavan, K. (2022). ESG Reporting Impact on Accounting, Finance. *Journal of Global Awareness*, *3*(1), 1–16. https://doi.org/10.24073/jga/3/01/09
31. Raghupathi, V., Ren, J., & Raghupathi, W. (2020). Identifying Corporate Sustainability Issues by Analyzing Shareholder Resolutions: A Machine-Learning Text Analytics Approach. *Sustainability*, *12*(11), 4753. https://doi.org/10.3390/su12114753
32. Rana, N. P., Chatterjee, S., Dwivedi, Y. K., & Akter, S. (2021). Understanding dark side of artificial intelligence (AI) integrated business analytics: assessing firm's operational inefficiency and competitiveness. *European Journal of Information Systems*, *31*(3), 364–387. https://doi.org/10.1080/0960085x.2021.1955628
33. Redlein, A., & Zobl, M. (2014). Contribution of Facility Management to Sustainability and Coporate Social Responsibility. *ResearchGate*. https://www.researchgate.net/publication/327239435_Contribution_of_Facility_Management_to_Sustainability_and_Coporate_Social_Responsibility
34. Sanoran, K. L., & Ruangprapun, J. (2023). Initial Implementation of Data Analytics and Audit Process Management. *Sustainability*, *15*(3), 1766. https://doi.org/10.3390/su15031766
35. Scott, W. R. (2005). Institutional Theory: Contributing to a Theoretical Research Program. *ResearchGate*. https://www.researchgate.net/publication/265348080_Institutional_Theory_Contributing_to_a_Theoretical_Research_Program
36. Seidenstein, T. (2021). *The Demand for Assurance Engagements on Sustainability and ESG Reporting Is High. Here is How the IAASB Is Responding.* IAASB. https://www.iaasb.org/news-events/2021-12/demand-assurance-engagements-sustainability-and-esg-reporting-high-here-how-iaasb-responding
37. Senadheera, S. S., Gregory, R., Rinklebe, J., Farrukh, M., Rhee, J. H., & Kim, K. (2022). The development of research on environmental, social, and governance (ESG): A bibliometric analysis. *Sustainable Environment*, *8*(1). https://doi.org/10.1080/27658511.2022.2125869
38. Silverglate, P. H., & Jarvis, D. (2022). Data: A double-edged sword. *Deloitte Insights*. https://www2.deloitte.com/us/en/insights/industry/technology/challenges-in-data-management.html
39. Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Review*, *20*(3), 571–610. https://doi.org/10.5465/amr.1995.9508080331
40. Szczepankiewicz, E. I., Błażyńska, J., Zaleska, B., Ullah, F., & Loopesko, W. (2022). Compliance with Corporate Governance Principles by Energy Companies Compared with All Companies Listed on the Warsaw Stock Exchange. *Energies*, *15*(17), 6481. https://doi.org/10.3390/en15176481
41. Tang, H., Yang, L., Zhou, R., & Luo, Z. (2022). A Data Quality Assessment Framework for AI-enabled Wireless Communication. *ResearchGate*. https://doi.org/10.13140/RG.2.2.28085.76000
42. TCFD. (2020). *Status Report: Task Force on Climate-related Financial Disclosures*. FSB. Retrieved June 3, 2023, from https://www.fsb.org/wp-content/uploads/P291020-1.pdf
43. Tysiac, B. K. (2020, July 1). Auditors can play key role in ESG information assurance. *Journal of Accountancy*. https://www.journalofaccountancy.com/news/2020/jul/auditors-role-in-environmental-social-governance-information-assurance.html
44. United Nations. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs*. Retrieved May 31, 2023, from https://sdgs.un.org/2030agenda
45. Urquiza, F. B., Navarro, M. C. D., Trombetta, M., & Lara, J. M. G. (2010). Disclosure theories and disclosure measures. *Revista EspañOla De FinanciacióN Y Contabilidad*, *39*(147), 393–420. https://doi.org/10.1080/02102412.2010.10779686
46. Villanueva, E. (2022, June 3). *ESG Audit Checklist and Best Practices for 2022*. AuditBoard. https://www.auditboard.com/blog/esg-audit-checklist/
47. Wang, J., Wang, G., & Ou, C. (2023). The Key Factors for Sustainability Reporting Adoption in the Semiconductor Industry Using the Hybrid FRST-PSO Technique and Fuzzy DEMATEL Approach. *Sustainability*, *15*(3), 1929. https://doi.org/10.3390/su15031929
48. Wang, X., Song, X., & Sun, M. (2023). How Does a Company's ESG Performance Affect the Issuance of an Audit Opinion? The Moderating Role of Auditor Experience. *International Journal of Environmental Research and Public Health*, *20*(5), 3878. https://doi.org/10.3390/ijerph20053878
49. Xiao, C. (2023). Why Stakeholder Theory is "Non-exploitative." *Academic Journal of Management and*

Social Sciences, *2*(3), 26–30. https://doi.org/10.54097/ajmss.v2i3.7973
50. Yamashita, T., & Millar, R. J. (2021). Likert Scale. In *Springer eBooks* (pp. 2938–2941). https://doi.org/10.1007/978-3-030-22009-9_559
51. Zaid, M. A., & Issa, A. (2023). A roadmap for triggering the convergence of global ESG disclosure standards: lessons from the IFRS foundation and stakeholder engagement. *Corporate Governance*. https://doi.org/10.1108/cg-09-2022-0399
52. Zenkina, I. (2023). Ensuring the transparency of ESG reporting based on the development of its standardization. *E3S Web of Conferences*, *371*, 05077. https://doi.org/10.1051/e3sconf/202337105077

12. APPENDIX

12.1 Questionnaire

Question number	Question/Statement	Answer option
1	I give consent to use the information that I provide in this survey	1. Yes 2. No
2	How do you identify yourself?	1. Male, 2. Female, 3. No-binary/third gender, 4. Perfer not to say
3	What age category applies to you?	1. Under 18, 2. 18 -24, 3 -7: categories of 10 years. 8. 85 or older
4	For how long have you worked at the company?	1. Less than 1 year, 2. 1 – 3 years, 3. 4 – 10 Years, 4. 10 -15 Years, 5. 15 – 25 Years, 6. Longer than 25 years
5	I am familiar with the concept ESG reporting	1. Yes, 2. No
6	I have conducted/been part of an ESG audit	1. Yes, 2. No
7	If you have conducted/been part of an ESG audit in which sector or industry did you perform this?	Open question
8	I can access data needed for ESG reporting relatively fast	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
9	I find the data that is provided for ESG reporting is always accurate	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
10	I find the data that is provided for ESG reporting is always consistent	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
11	I find the data that is provided for ESG reporting is always up-to-date	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
12	I can access data needed for ESG reporting relatively fast	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
13	I find the data that is provided for ESG reporting is always up-to-date	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
14	I find the data that is provided for ESG reporting is always transparent	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
15	There is too much variability in ESG reporting frameworks	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
16	There are too many indicators and metrics used in ESG reporting frameworks (examples of indicators are: greenhouse gas emission, employee diversity, board composition)	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
17	I have difficulties interpreting terminology of ESG data	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
18	I have difficulties interpreting definitions of ESG topics	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
19	There is a lack of global standards in ESG reporting	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
20	There is a lack of clear guidelines in ESG reporting	Five point Likert scale: 1.

		Strongly disagree till, 5. Strongly agree
21	I don't find the ESG frameworks formatted in a logical manner. (No clear structure/flow)	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
22	I don't find the scope of the ESG frameworks clear	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
23	I have experienced difficulties with the technological part of the ESG frameworks (for example: complexity of measurement methodologies)	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
24	I have experienced that my colleague interprets the content of the ESG frameworks differently	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
25	I find that the existing ESG frameworks aren't flexible enough to use in every industry	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
26	I find that auditors will have issues with interpreting the existing ESG frameworks	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
27	How would you rate your level of expertise in ESG reporting?	Five point Likert scale: 1. Far below average, 5. Far above average
28	How would you rate your level of knowledge on ESG reporting standards/frameworks? (GRI, SASB, TCFD)	Five point Likert scale: 1. Far below average, 5. Far above average
29	How would you rate your understanding of ESG performance indicators?	Five point Likert scale: 1. Far below average, 5. Far above average
30	How familiar are you with ESG reporting tools?	Five point Likert scale: 1. Not familiar at all, 5. Extremely familiar

31	How would you rate your knowledge of ESG reporting tools?	Five point Likert scale: 1. Far below average, 5. Far above average
32	Did you follow any special training on ESG reporting?	1. Yes, 2. No
33	Did the training improve your understanding of ESG reporting?	1. Yes, 2. No
34	I find that the ESG reports that I/my organization audits have full documentation (workpapers, audit programs, supporting evidence etc.)	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
35	I find that the ESG reports that I/my organization audits include all significant findings, conclusions, and recommendations	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
36	I find that the ESG reports that I/my organization audits always alignwith the used ESG frameworks	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
37	I find that the ESG reports that I/my organization audits are thoroughly verified	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
38	I find that the ESG reports that I/my organization audits are transparent	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
39	I find that data gaps, inconsistencies, or potential errors in ESG data/reports are addressed to the stakeholders	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
40	I find that data validation and reconciliation procedures are used to ensure reliability of the ESG data/report	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
41	I find that there are internal controls or checks within the company to ensure the reliability of ESG data and reporting	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
43	I believe organizations overall adhere well to the regulatory frameworks governing ESG reporting	Five point Likert scale: 1. Strongly

		disagree till, 5. Strongly agree
44	I believe my organization adheres well to the regulatory frameworks governing ESG reporting	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
45	I believe my organization ensures compliance with relevant legal obligations related to ESG reporting	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
46	I often encounter time constraints when preparing/working on ESG reports	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
47	I am more distracted during an ESG audit than a financial audit (for example, because of difficulties with interpreting data)	Five point Likert scale: 1. Strongly disagree till, 5. Strongly agree
48	I have experienced challenges in meeting reporting deadlines for ESG disclosure	1. Yes, 2. Maybe, 3. No
49	What kind of challenges did you experience?	Open questions
50	How highly informed do you consider yourself regarding key concepts and principles of ESG reporting?	Five point Likert scale: 1. Far below average, 5. Far above average
51	How confident are you in your ability to apply reporting frameworks and guidelines effectively?	Five point Likert scale: 1. Extremely not confident, 5. Extremely confident
52	How interested are you in ESG reporting?	Five point Likert scale: 1. Extremely uninterested, 5. Extremely interested
53	How interested are you in staying updated with the latest developments and trends in ESG reporting?	Five point Likert scale: 1. Extremely uninterested, 5. Extremely interested
54	How engaged are you with company management and stakeholders to gather ESG-related information and insights?	Five point Likert scale: 1. Extremely unengaged, 5. Extremely engaged

12.2 Independent variables

Data quality	○ Accessibility ○ Accuracy ○ Consistency ○ Timeliness
Data availability	○ Accessibility ○ Timeliness ○ Transparency
Lack of standardized ESG frameworks	○ Variability ○ Measurements ○ Terminology ○ Definitions ○ Formats
Complexity of ESG frameworks	○ Structure ○ Scope ○ Technical complexity ○ Interpretation ○ Flexibility
Expertise & skills	○ Experience ○ Knowledge ○ Training

12.3 Dependent variables

Accuracy	○ Completeness ○ Alignment ○ Verification ○ Transparency
Reliability	○ Reliability ○ Verification
Compliance with regulatory requirements	○ Adherence ○ Legal compliance
Speed of reporting	○ Time ○ Distraction ○ Deadlines
Attitude towards ESG reporting	○ Cognitive ○ Affective ○ Behavioural

12.4 Linear regression models

12.4.1 Data quality vs. Performance

```
Call:
lm(formula = Performance ~ Quality, data = performance.data)

Residuals:
     Min       1Q   Median       3Q      Max 
-0.56418 -0.24297 -0.05433  0.19824  0.76824 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept)  1.88116    0.24068   7.816 3.41e-07 ***
Quality      0.23030    0.09433   2.441   0.0252 *  
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.3795 on 18 degrees of freedom
Multiple R-squared:  0.2488,	Adjusted R-squared:  0.207 
F-statistic:  5.96 on 1 and 18 DF,  p-value: 0.02519
```

12.4.2 Data availability vs. Performance

```
Call:
lm(formula = Performance ~ Availability, data = performance.data)

Residuals:
     Min       1Q   Median       3Q      Max 
-0.51082 -0.23409 -0.06444  0.25913  0.64199 

Coefficients:
             Estimate Std. Error t value Pr(>|t|)    
(Intercept)    1.7181     0.2172   7.909 2.89e-07 ***
Availability   0.2814     0.0804   3.500  0.00256 ** 
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.3377 on 18 degrees of freedom
Multiple R-squared:  0.405,	Adjusted R-squared:  0.3719 
F-statistic: 12.25 on 1 and 18 DF,  p-value: 0.002556
```

12.4.3 Lack of standardization in ESG frameworks vs. Performance

```
Call:
lm(formula = Performance ~ LackofStandardization, data = performance.data)

Residuals:
     Min       1Q   Median       3Q      Max 
-0.96170 -0.25483  0.02356  0.17971  0.73028 

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)    
(Intercept)         2.82098    0.30032   9.393 2.32e-08 ***
LackofStandardization -0.12928    0.09464  -1.366    0.189    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4168 on 18 degrees of freedom
Multiple R-squared:  0.09393,	Adjusted R-squared:  0.04359 
F-statistic: 1.866 on 1 and 18 DF,  p-value: 0.1888
```

12.4.4. Complexity of ESG frameworks vs. Performance

```
Call:
lm(formula = Performance ~ Complexity, data = performance.data)

Residuals:
     Min       1Q   Median       3Q      Max 
-0.57429 -0.18839  0.04679  0.16786  0.53571 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept)   3.6914     0.3347  11.030 1.93e-09 ***
Complexity   -0.3992     0.1035  -3.858  0.00115 ** 
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.324 on 18 degrees of freedom
Multiple R-squared:  0.4526,	Adjusted R-squared:  0.4222 
F-statistic: 14.88 on 1 and 18 DF,  p-value: 0.001153
```

12.4.5. Expertise & skill vs. Performance

```
Call:
lm(formula = Performance ~ Expertise, data = performance.data)

Residuals:
     Min       1Q   Median       3Q      Max 
-0.67138 -0.23686 -0.06848  0.24610  0.97260 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept)   1.8510     0.3823   4.842 0.000131 ***
Expertise     0.1801     0.1152   1.563 0.135456    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4109 on 18 degrees of freedom
Multiple R-squared:  0.1195,	Adjusted R-squared:  0.07059 
F-statistic: 2.443 on 1 and 18 DF,  p-value: 0.1355
```

12.5 Correlation matrix

	Data Quality	*Data Availability*	*Lack of standardization in ESG frameworks*	*Complexity of ESG frameworks*	*Expertise & skill of auditor*	*Accurateness*	*Reliability*	*Compliance with regulatory standards*	*Speed of reporting*	*Attitude towards ESG reporting*
Data Quality										
Data Availability	0.796 *(<.001)*									
Lack of standardization in ESG frameworks	-0.450 *(.047)*	-0.496 *(.026)*								
Complexity of ESG frameworks	-0.729 *(<.001)*	-0.728 *(<.001)*	0.530 *(.016)*							
Expertise & skill of auditor	0.045 *(.851)*	0.199 *(.399)*	-0.003 *(.991)*	-0.230 *(.330)*						
Accurateness	0.361 *(.118)*	0.487 *(.029)*	-0.450 *(.046)*	-0.653 *(.002)*	0.516 *(.020)*					
Reliability	0.336 *(.148)*	0.462 *(.040)*	-0.221 *(.349)*	-0.591 *(.006)*	0.362 *(.116)*	0.911 *(<.001)*				
Compliance with regulatory standards	0.549 *(.012)*	0.720 *(<.001)*	-0.265 *(.260)*	-0.490 *(.028)*	0.151 *(.526)*	0.484 *(.031)*	0.558 *(.011)*			
Speed of reporting	-0.091 *(.702)*	-0.274 *(.242)*	0.338 *(.144)*	0.134 *(.574)*	-0.292 *(.212)*	-0.378 *(.100)*	-0.243 *(.301)*	-0.449 *(.047)*		
Attitude towards ESG reporting	-0.290 *(.214)*	-0.131 *(.583)*	-0.047 *(.844)*	-0.022 *(.926)*	0.828 *(<.001)*	0.335 *(.149)*	0.165 *(.488)*	-0.164 *(.491)*	-0.180 *(.448)*	

Computed correlation used pearson-method with listwise-deletion.