ESG risks: New Challenge for Auditors in Light of the Report on Key Audit Matters

Rabab Hamdy Abdalhamid,

Assistant Professor, Department of Accounting, College of Business Administration in Hawtat Bani Tamim, Prince Sattam bin. Abdulaziz University, Saudi Arabia. ORCID ID: 0009-0004-8216-307X R.abdalhamid@psau.edu.sa.

Abstract:

The main aim of this paper is to investigate the corporate social performance (CSP) operationalized by environmental, social, and governance factors as a challenge that faces auditors while preparing key audit matters (KAMs). Results show that ESG disclosure decrease the risk associated with the financial statements leading to improvement in the firm's financial performance, so enterprise risk management (ERM) and green growth (GG) and higher profitability have a positive association; increasing the three auditor qualifications (the professional qualifications, auditor size and auditor experience) lead to decrease in the ESG risk and increasing the key audit matters lead to decrease in the ESG risk.

Key words: ESG risks, Key Audit Matters, Professional Qualifications, Auditor Size , Auditor Experience

1. Research Idea:

The abbreviation ESG represents Environmental, Social, and Governance. As a result of being held responsible for their effects on the environment and society, companies and institutions are increasingly exhibiting ESG behaviour (Agarwal et al. ,2023 ; Jin & Kim .,2022).

The purpose of ESG metrics is to assess a company's performance in these areas in order to improve sustainability practices and lower risk associated with climate change, sustainability, and the ESG transition. Measures including pollution, wastewater disposal, greenhouse gas (GHG) emissions, and renewable energy are all included in the Environmental pillar (E). Employee treatment, human rights, and equitable employment opportunities are examined under the Social pillar (S). Last but not least, the Governance pillar looks at the company's corporate governance structure(G), which has an impact on the long-term strategy and value of the business (Mihail et al., 2021). According to (De Giuli .,2024), these three pillars ought to be able to provide details regarding the "sustainability" of the asset allocation and business processes.

Recently, there has a great attention from stakeholders towards non-financial performance and corporate social responsibility (CSR). Hence, (CSP) is evaluated by a triple-bottom-line approach consisting of environmental, social, and

governance factors (ESG factors) (Shah et al., 2024). However, the integration of these factors into the organizations' strategy enlarges the overall risk governance.

However, the audit report has been criticized for being uninformative and auditors' audit reports become constant with each other and do not provide firm-specific information (Fera et al., 2022). In response to this criticism, (IAASB) developed the Key Audit Matters (KAMs) section in the audit report to provide stakeholders with more information. Hence, according to ISA701 are "those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements". Thus, auditors should include ESG information in the audit report to enhance their informative value.

Consequently, the researcher examines whether while auditing financial information auditors must consider ESG matters as new risks that need to be included in Key Audit Matters.

2. Literature Review& Theoretical Study:

Giese et al. (2019) investigate the relationship between environmental, social, and governance (ESG) qualities and business financial performance. The findings show that a company's ESG qualities are an important financial indicator. Furthermore, the firm's ESG information influenced its value and

performance, resulting in lower capital costs, higher valuations, increased profitability, and decreased risk.

Furthermore, Fera et al. (2022) investigate the relationship between the quality of internal corporate governance processes and KAMs disclosed by external auditors in their study on the implementation of sustainable corporate governance. The sample consists of 118 non-financial enterprises registered on the Italian stock exchange. The findings reveal that enterprises with high-quality sustainability corporate governance disclose fewer KAMs in their audit reports.

The study's sample (Zahid et al.,2022) comprises 6195 firm-year observations from 2010 to 2019 and 620 nonfinancial listed businesses with their headquarters located in Western Europe. The revenue and return on assets (ROA) measure financial performance, whereas the ESG overall score and its subcomponents are employed as independent variables. The Big4 × ESG interaction term is employed as a moderator for audit quality. This is the foundation of our analysis. Eikon ratings from Thomson-ESG, which additionally include data on the application of auditing methods for non-financial data.

Control variables such business size, financial leverage, dividends paid, and the price-to-book ratio are also included in the study. The findings support the trade-off theory or conventional view that ESG raises costs and lowers profitability by demonstrating that ESG has a detrimental effect on historical

financial performance as measured by ROA (Galant & Cadez, 2017; Saygili et al., 2022; Zahid et al.,2022).

Further, the study of Hoang et al. (2023) examines the impact of the combination of the disclosed risk in KAMs on the investors' assessment in financial and non-financial contexts. The study is based on an experiment that included two cases: a financial case and a non-financial case. The results show investors react the same in both contexts for the high-risk items, while they react differently in the two contexts for low-risk items. Investors evaluate investment riskiness greater (lower) when a KAM is linked to the revealed financial (non-financial) low-risk item than when it is not.

In a more comprehensive setting, Rahaman et al. (2023) examine the effects of three sets of variables, including company characteristics, auditor traits, and industry aspects, for 447 firm-year observations listed on the Dhaka Stock Exchange between 2018 and 2020. The results indicate that while environmentally conscious enterprises offer thorough KAMs, highly regulated firms reveal more KAMs. Furthermore, the number of KAMs reported is significantly impacted by firm age and size taken together. In addition, Big 4 auditors do not reveal more KAMs than non-Big 4 auditors.

But according to Fu et al. (2024), from 2009 to 2021, ESG ratings significantly affect the financial risks of mining

industry businesses. Additionally, by improving risk control, reducing financing limitations, and mitigating agency issues, ESG performance lowers financial risks for mining businesses.

By providing a thorough examination of total, systematic, and idiosyncratic risks, the study (Khorilov & Kim, 2024) explores the complex interaction between ESG factors and corporate risk profiles. Based on 7834 firm-year observations in the Korean market from 2011 to 2022, the results show that ESG participation successfully lowers idiosyncratic, systematic, and overall risks. It is particularly remarkable that when looking at the total risk, the reduction in systematic risk—a finding linked to ESG participation in medium-sized firms—remains hidden. ESG was still useful in reducing overall and idiosyncratic risks during the COVID-19 pandemic, but in other situations, it strangely raised systematic risk.

Based on the previous studies, ESG disclosure decrease the risk associated with the financial statements leading to improvement in the firm's financial performance, and higher profitability. However, the main role of KAMs is to report and highlight the risky items from the auditors' point of view, firms with high-quality sustainable corporate governance have fewer KAMs disclosed in the audit report. Also, the study of Shah et al. (2024) reveals a positive association between enterprise risk management (ERM) and green growth (GG)

Financial research has shown a great deal of interest in the connection between business risk and ESG characteristics. Important research has examined several facets of this relationship, offering insightful viewpoints on how it might affect risk management and corporate social responsibility. An investigation into how corporate environmental responsibility affects firm risk found a possible correlation between risk management techniques and environmental performance. the impact of social performance factors on business risk, with a focus on how social measurements are used to evaluate and control financial risks. The results of this long-term study of the relationship between corporate social performance and financial risk and utility provide insight into the long-term effects of social performance on the risk profiles and utilities of businesses. The German capital market was the subject of a study (Korinth & Lueg, 2022) that investigated u-shaped connections between risk and disaggregated ESG rating ratings.

The previous research emphasized the need for nuanced approaches to ESG integration by highlighting the complexity of the interaction between risk management and corporate sustainability. CSR programs have been linked to possible benefits in lowering risk (Khorilov & Kim, 2024).

2.1 ESG risks:

An Environmental, Social, and Governance (ESG) framework can be used to standardize and publish ESG metrics. The lack of a common standard for such a framework is one of the main issues with current ESG reporting. Additionally, the growing demand from investors and other stakeholders for companies to provide more sustainability-related information demonstrates the growing significance of ESG reporting. Each ESG framework has its own set of rules and focus, despite the fact that several have been created by trade associations, nonprofits, and others.

Environmental issues, such climatic change, affect operations, while social factors affect reputation. Governance, which includes the makeup of the board, lowers risks. Incorporating ESG into business strategy enhances risk management and resilience. Since social responsibility is becoming more and more important in the economy, a large body of literature has been written about it. Numerous studies support the idea that CSR initiatives can reduce the total risk that businesses experience. However, other studies have also demonstrated that CSR has either positive or neutral effects on corporate risk.
(Khorilov & Kim, 2024).

The global climate change and environmental decline boost stakeholders' attention towards organizational activities that enhance EGS risks (Sharma and Kumar, 2024). Therefore, in order to address these risks and overcome new obstacles, management focuses more on them and uses enterprise risk management (ERM) frameworks. ERM is "the culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, preserving, and realizing value," according to the Committee of Sponsoring Organizations of the Tread way Commission (COSO, 2013).

As to the European Banking Authority (2020), ESG risks are defined as "the risks of any negative financial effect to the company a stemming from the current or prospective impacts of ESG factors on its counterparts" (p. 28). The influence of ESG risk factors on the financial and non-financial performance of organisations was aided by the World Economic Forum's Global Risk Report (2022). Natural disasters, water scarcity, climate change, labor-management issues, demographic risks, and financial instability are among the ESG risks that the survey found are continuously growing and are expected to persist until 2030.

These hazards are linked to both monetary and non-monetary costs for the organization (Shah et al., 2024). In order to mitigate ESG risks, ERM will be implemented. In addition,

ESG risks encompass "depletion of strategic resources, employment-livelihood crisis, prolonged economic stagnation, debt crisis, and human-made environmental damage" (GRR, 2022).

Moreover, ESG rating is a way by which stakeholders identify the organizations' financial health and risk exposure (Liang and Renneboog, 2020). The ESG scores and ratings should contain information about the organization's risk (Bax et al., 2023). Hence, ESG rating comprises the organizational performance within the three different ESG dimensions. This means two organizations with the same overall ESG rating do not mean that they face similar firm risk due to the diversity in the subscore in each dimension. According to Fu et al. (2024), a high ESG rating mitigates environmental effects, improves community engagement, and maintains sound governance procedures. Financial hazards, environmental liabilities, non-compliance with regulations, conflicts within the community, harm to one's reputation, and legal actions are all reduced as a result (Zhang and Zhu, 2019). On the other hand, a low ESG rating indicates financial risks brought on by poor governance, bad social interactions, and insufficient environmental management (Fu et al., 2024). Investor confidence and the organization's reputation are negatively impacted by these threats. Therefore, in order to reduce financial risks and

encourage long-term value development, organizations must give sustainable practices and ESG issues top priority.

Moreover, stakeholders have different assessments for the three ESG dimensions leading to various market reactions towards them. This is because organizations with strong EGS have a competitive advantage over other organizations with efficient resource usage, good human capital quality, better innovation, abnormal returns, higher dividends, and higher profitability. Additionally, it reflects better development for long-term plans (Giese et al., 2019). Thus, this stimulates a high demand for high-quality information about ESG risk exposures and how organizations manage those risks.

According to Bolibok (2024) the factors that impact ESG-related risks. Firstly, the organization's size and the extent of its operations cause a complex interaction with stakeholders and the environment. Therefore, large organizations are highly engaged in ESG-related initiatives, and heavily monitored by stakeholders leading to assistance on sustainability performance, ESG risk management, and the information disclosure quality. Secondly, greenwashing where ESG activities are mainly driven to serve management's benefits rather than stakeholders. This will cause damage to the organizations' market value, reputation, and financial performance, therefore, leading to high ESG risk exposures.

2.2 KAMs and ESG Risks:

Auditors need to think about and comprehend how ESG issues can impact their work and processes. To ascertain whether ESG issues represent a substantial risk to the business and how these issues ought to be handled, reduced, tracked, and reported, they should so consult with management and corporate governance. Auditors must also take into account the accounting estimates made, particularly the assumptions used to determine fair value and potential losses or provisions, in order to determine if these substantial risks are appropriately reflected in the company's financial statements. (Castillo-Narváez et al., 2024).

The contents and trends of critical audit matters (CAMs) in relation to ESG matters (ECAMs) are examined in a study (Abdel-Rahim et al., 2024). According to an analysis of how ESG issues are described in ECAMs, most ECAMs include measurement problems related to environmental liabilities and loss contingencies. Auditing procedures must regularly engage an environmental specialist to evaluate managerial assumptions in order to address ECAMs. According to our descriptive research, companies who receive ECAMs are more likely to have a Big 4 auditor, be more profitable, and be at higher risk of lawsuit. Analysis as a whole indicates that the issue of ECAMs is a significant source for determining some organizations' ESG ratings.

Corporate reporting and auditing innovation may be spurred by the incorporation of ESG concerns into KAMs. As businesses are under more and more pressure to handle ESG risks and opportunities, taking these concerns into account in KAMs is encouraging the creation of new reporting frameworks, assurance procedures, and stakeholder engagement tactics. New goods, services, and procedures that address ESG issues can be introduced as a result of this integration, which can also encourage innovation in sustainable business models (Geissdoerfer et al., 2018).

Given the close relationship between ESG issues and business financial results, auditors must take into account the possibility that ESG risk factors could undermine the accuracy of financial statements and result in serious misstatement risk.To assist auditors in properly identifying ESG-related financial reporting risks, regulatory authorities have put forward practice standards. For instance, AICPA & CIAM included certain climate-related risk concerns that auditors should take into account when conducting a financial statement audit in their practitioner assistance, Considerations of ESG-related matters in an audit of financial statements. Among these are the following (Applebaum et al., 2024):

1. Physical harm caused by extreme weather occurrences, like floods and wildfires, to buildings or inventory.

2. Modifications to the local political and legal landscape in which businesses operate (for example, local governments may impose stringent environmental laws and impose large levies on enterprises with high emissions).
3. Hazards related to the change to a low-carbon economy (e.g., companies might not be able to influence consumer preferences in favour of environmentally friendly options produced using recently purchased machinery and technologies).

Not only do the climate issues have a direct financial impact on the organizations, but also there are other environmental issues such as biodiversity loss and health and social issues. Thus, management must provide ESG information and the role of auditors is to enhance stakeholders' confidence in the unfinancial information. As a result, the addition of ESG-related risks and opportunities increases the transparency and quality of information. In this context, the main goal of KAMs is to inform stakeholders of the most risky, significant material misstatements during the audit process. Despite of that stakeholders react differentially with the financial and non-financial. In the non-financial context, KAMs are voluntary because their assurance is risky, challengeable, non-routine, and subjective. Also, stakeholders are more familiar with financial information rather than non-financial information during making

investment decisions. This created a need to include ESG dimensions risks in the KAMs (Narváez-Castillo et al., 2024).

The benefits of EG integration into KAMs, auditors provide comprehensive and forward-looking information, and drive innovation into worthy information. Also, this highlights the relevancy of ESG, increases communication between organizations and their stakeholder concerning sustainability issues, and is a good indicator of the organization's reputation. Additionally, KAMs are required to control the form of manipulation called "Greenwashing," which is "communication that deceives people by disclosing positive information about an organization, service, or item while concealing negative environmental performance or impacts," according to (Tateishi .,2017)., However, due to the difficulties with integrations, auditors are not equipped with the necessary abilities and expertise to recognize ESG concerns.

(De Moraes Abrahão et al., 2024). However, those challenges can be solved by providing the necessary education and training to the auditors. Furthermore, Regulators should set guidelines for ESG inclusion and set minimum requirements.

The qualifications of the external auditor indicate his ability to give a fair opinion on the financial statements. The external auditor who is highly qualified to practice the profession is more able to give the most transparent opinion for the external

user of the financial statements (level of professional qualification ,auditor size ,auditor experience)

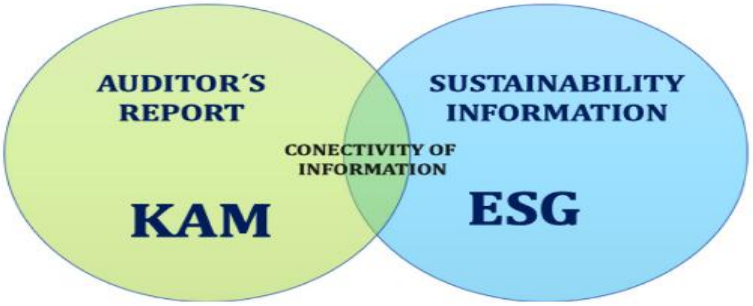
D'Angelo asserts that large audit firms require and desire more extensive and high-quality audits than smaller ones when competing with other significant audit firms. Larger and more powerful auditing firms routinely perform better audits than their smaller and less powerful rivals, according to earlier research (Mohaisen et al., 2024). According to research, owners of major audit firms, for example, typically have higher profit quality, reduced fraud probability, low financial statement re-presentation, high activity continuity, and more in-depth analyst analysis (Shan et al., 2019). More is required of large auditing firms than of smaller ones.

Experienced auditors are very good at finding significant misstatements in the financial reports of audited entities, lowering the likelihood of financial statement fraud, and encouraging effective business investments and audit efficiency. When the auditor has more relevant experience and expertise, the quality of the audit is higher.Additionally, a company's financial reporting integrity is improved by auditors who audit it repeatedly. Long-tenured and highly experienced auditors have a reduced audit risk than those who switch auditors since they know the client well enough. However, a prolonged auditor

tenure can lower the audit quality for clients who pay their auditors abnormally high compensation (Jadiyappa, et al., 2021).

According the study (Wang, et al.,2023) From the standpoint of auditor experience, novice auditors typically depend more on external ESG rating data while gathering audit evidence about ESG performance. On the other hand, an experienced auditor will depend less on ESG rating data and more on audit skills when issuing audit judgements.

Figure (1): the relationship between KAMs and ESG



Source: Narváez-Castillo et al., 2024

Based on figure (1), auditors must understand how ESG has an impact on the audit process to determine whether ESG has a significant risk to the organizations and how they are managed, estimated including potential losses and fair value, and reported. This figure shows the relationship between KAMs and ESG through sharing interconnected information. Based on the above, the researcher can be formulated the hypotheses as following:

H1, the auditor professional qualifications have no effected on the ESG risk.

H2, the key audit matters have no effected on the ESG risk.

3. Research Design:

All listed companies in the Egyptian Stock Market are included in the study population, which is related to the data for listed enterprises in the current study. In light of this, it was discovered that 234 companies were listed on the Egyptian Stock Market in the fiscal year that concluded in 2023.

Due to the difficulty of a comprehensive examination of all the components of the study population, the statistical sampling method will be adopted from the comprehensive population of the study, where a representative sample of the population is chosen for the purpose of generalizing the results to the population. Therefore, the researcher relied in the current study on the intentional control sample that is consistent with the study variables for the purpose of generalizing the results, based on the following conditions:

- To be one of the listed firms interested in issuing sustainability reports in accordance with the decisions of the Egyptian Capital Market Authority during the fiscal year

ending 2023, provided that the data of those firms is referred to for the years of the study time series.

- To be one of the most traded firms and listed in the EGX 100, because these firms is the most committed firms by disclosure according to ESG Index in the Egyptian stock market.
- Excluding all banks and financial firms for maintaining the sample homogeneity, and because of its special nature for the accounting treatment for the majority of its transactions.
- The time series data of the firms included in the study sample will be relied upon during the period from 2021 to 2023. The time series was initially chosen for avoiding the effects of COVID -19 on the sample observations, beside these firms have become largely obligated to disclose about their risks based on the decisions of the Financial Regulatory Authority No. (107) & (108) to comply with the requirements of ESG Index in the Egyptian stock market.

By using the content analysis method for listed firms on the Egyptian Stock Exchange for the time period under study and following the aforementioned conditions, the researcher finds that the number of listed firms in the study sample and included in the sustainability reports of the Capital Market Authority and EGX 100 index at the end of the fiscal year ending in 2023 is 69 firms. In light of the available data, these firms recorded 207 observations (69 firms × 3 years). By excluding 8 observations

related to abnormal and extreme values, and 11 observations with missing values, the final sample becomes 188 observations. The researcher can explain the procedures for determining the sample as follows:

Table No.1: Sampling Procedures

Procedure	Number of firms	Observations
Firms Initial Sample	**69**	**207**
(-) Missing Values Observations	**---**	**11**
(-) Outliers Observations	**---**	**8**
Final Sample	**69**	**188**

The researcher can show the distribution of these companies across the stock exchange sectors and study years based on the number of observations, according to the following table:

Table No. (2): Distribution of the study sample across study sectors and years

Sector	Firms	Observations			
		2021	2022	2023	Total
Tobacco Food, Beverage and	8	8	8	6	22
Real Estate	7	7	5	5	17
Basic Resources	10	8	7	10	25
automotive products and services Industrial and	10	10	9	9	28
medicine Health care and	6	6	5	6	17
contracting and construction Engineering	9	9	8	9	26
goods Textiles and durable	10	9	9	10	28
Building materials	9	9	7	9	25
Total	**69**	**66**	**58**	**64**	**188**

3.1 Variables Measurement:

This study aims to examine the impact of auditors' qualifications and key audit matters report on the ESG risks reports with empirical evidence from the most traded Egyptian firms in the EGX 100 other than banks and financial firms. So the current study can define the measurement tools as follow:

(1)Auditor's qualifications:

Current study can depend on some auditor qualifications represented in his level of professional qualification depends on whether he has obtained one of the professional certificates or not. Moreover, the auditor size can be good sign of its professional qualification. Finally, the auditor experience can be considered as one of the most important determinants of the auditor qualifications that can be measured by its professional age in the capital markets.

(2) Key Audit Matters:

Key audit matters are picked from matters submitted to those responsible with governance. In this regard, the auditor opinion about key audit matters limited to 11 types of financial statements items, represented in property investment, impairment, acquisition, investment valuation, inventory

valuation, accounts receivable, provision, litigation and regulation, revenue recognition, taxation, and other.

(3) ESG Risks:

The ESG index, which integrates ESG indicators and is used to score a company's disclosure procedures (i.e., transparency and disclosure), was introduced by the Egyptian Stock Exchange. corporate governance indicators in one and environmental and social indicators in the other (S&P/EGX ESG Index Methodology, March, 2024, Egyptian Capital Market).

According to the discussion above, the degree of disclosure of the detrimental effects of environmental, social, and governance events on financial performance determines how ESG risks are measured. A company receives a score of one if it discloses a relevant ESG public negative indicator; if it does not, it receives a score of zero. Consequently, the overall ESG risk score is expressed by the % aggregated score of negative effects disclosure.

(4) Control variables:

ESG Risk controlled by many other factors according to the previous studies(Otaify, 2021, Kitiwong& Sarapaivanich,2020), so the previous studies discussed that ESG risk related to the financial performance and the firm characteristics that are related by size, Return on assets, and financial leverage may affect the

ESG Risk. In another vein of the operational side for the firm, ESG risk can be affected by green products index and social & environmental compensations.

3.2: Empirical Model:

This study aims to test the effect of the auditor qualifications and key audit matters on the ESG risk in the Egyptian environment, in this regard, this study divided hypotheses according to the variety of independent variables into two hypotheses. The first one of them predicts the effect of auditor qualifications on the ESG risk in the Egyptian environment, so I can estimate the following regression model as follow:

$$\text{ESG Risk} = \alpha + \beta1\ (PQ) + \beta2\ (\text{Big N}) + \beta3\ (Exp) + \beta4\ (Size) + \beta5\ (ROA) + \beta6\ (LEV) + \beta7\ (GI) + \beta8\ (SEC) + \varepsilon. \quad (1)$$

Moreover, the previous model can be separated into three sub models according to the subdivisions of the ESG risk index (i.e. environmental, social and governance) as follow:

$$\text{ESG Risk (Env.)} = \alpha + \beta1\ (PQ) + \beta2\ (\text{Big N}) + \beta3\ (Exp) + \beta4\ (Size) + \beta5\ (ROA) + \beta6\ (LEV) + \beta7\ (GI) + \beta8\ (SEC) + \varepsilon. \quad (1\text{-}1)$$

$$\text{ESG Risk (Soc.)} = \alpha + \beta1\ (PQ) + \beta2\ (\text{Big N}) + \beta3\ (Exp) + \beta4\ (Size) + \beta5\ (ROA) + \beta6\ (LEV) + \beta7\ (GI) + \beta8\ (SEC) + \varepsilon. \quad (1\text{-}2)$$

$$\text{ESG Risk (Gov.)} = \alpha + \beta1\ (PQ) + \beta2\ (\text{Big N}) + \beta3\ (Exp) + \beta4\ (Size) + \beta5\ (ROA) + \beta6\ (LEV) + \beta7\ (GI) + \beta8\ (SEC) + \varepsilon. \quad (1\text{-}3)$$

Where, ESG risk represents the total percentage of ESG risk disclosure, ESG Risk (Env.) stand for the environmental issue of the ESG risk index, ESG Risk (Soc.) stand for the social issue of the ESG risk index, ESG Risk (Gov.) stand for the governance issue of the ESG risk index; PQ represents the Professional side of auditor qualification and can be measured by indicator which is taking (1) in case of auditor has a professional certificates and (0) otherwise; Big N stand for the auditor size and related to his quality in the profession and can be measured by dummy variable taking (1) in case of the auditor is on the big 4 and (0) otherwise; Exp cover the auditor performance through the profession level and can be measured by the auditor age in doing its profession; Size is one of the control variables that can be measured by the natural logarithm of total assets; Lev stand for the financial leverage that can be measured by total liabilities divided by the total assets; GI related to the green products index which can be take value (1) in case of producing green products

and zero otherwise; Finally SEC related to natural logarithm for the paid social and environmental compensations.

The second hypothesis predicts the effect of key audit matters on the ESG risk, so the researcher can estimate the following regression model as follow:

$$\text{ESG Risk} = \alpha + \beta1\ (\text{KAM}) + \beta2\ (\text{Size}) + \beta3\ (\text{ROA}) + \beta4\ (\text{LEV}) + \beta5\ (\text{GI}) + \beta6\ (\text{SEC}) + \varepsilon. \quad (2)$$

Moreover, the previous model can be separated into three sub models according to the subdivisions of the ESG risk index (i.e. environmental, social and governance) as follow:

$$\text{ESG Risk (Env.)} = \alpha + \beta1\ (\text{KAM}) + \beta2\ (\text{Size}) + \beta3\ (\text{ROA}) + \beta4\ (\text{LEV}) + \beta5\ (\text{GI}) + \beta6\ (\text{SEC}) + \varepsilon. \quad (2\text{-}1)$$

$$\text{ESG Risk (Soc.)} = \alpha + \beta1\ (\text{KAM}) + \beta2\ (\text{Size}) + \beta3\ (\text{ROA}) + \beta4\ (\text{LEV}) + \beta5\ (\text{GI}) + \beta6\ (\text{SEC}) + \varepsilon. \quad (2\text{-}2)$$

$$\text{ESG Risk (Gov.)} = \alpha + \beta1\ (\text{KAM}) + \beta2\ (\text{Size}) + \beta3\ (\text{ROA}) + \beta4\ (\text{LEV}) + \beta5\ (\text{GI}) + \beta6\ (\text{SEC}) + \varepsilon. \quad (2\text{-}3)$$

Where, KAM represents the key audit matters in the auditor report and can be measured by the number of covered matters in the audit report form the total 11 matters that are stated previously; and the other variables are defined previously.

4. Results:

4.1: Descriptive Statistics:

Descriptive statistics aim to verify the convergence of the current study sample with the corresponding samples in previous studies. Therefore, the study relied on the use of statistical measures represented by the arithmetic mean, standard deviation, and the minimum and maximum limits of the sample, in order to compare the current sample with its counterparts in an attempt to generalize the results. The results of the statistical analysis resulted in the following table:

Table No.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ESG Risk	188	0.118	0.378	0.291	0.055
ESG Risk (Env.)	188	0.110	0.251	0.178	0.047
ESG Risk (Soc.)	188	0.095	0.321	0.266	0.052
ESG Risk (Gov.)	188	0.125	0.388	0.275	0.057
PQ	188	0.000	1.000	0.670	0.109
Big N	188	0.000	1.000	0.394	0.098
Exp	188	5.000	26.000	18.115	4.611
KAM	188	0.000	11.000	4.311	1.190
Size	188	4.569	8.761	5.463	1.369
ROA	188	-0.059	0.287	0.247	0.066
LEV	188	0.297	0.481	0.396	0.107
GI	188	0.000	1.000	0.378	0.099
SEC	188	1.511	3.671	2.055	0.527
Valid N (listwise)	188				

According to the above results, ESG risk mean is 29.1% that measured by the disclosure levels of negative effects on the environmental and social dimensions, this result mean that the ESG risk disclosure is so low, which mean that ESG risk is so low in the firms listed in my sample, consequently the ESG dimensions taking into consideration by most traded firms in the Egyptian stock market.

Besides, PQ that related to the certification index is equal to 67% which mean that 126 auditors for the observations certified by the professional bodies and have many certifications from theses bodies, this result indicate that the auditors tend to get certifications before going to practice the profession.

Moreover, Big N mean is equal 39.4% mean that 74 auditors for the observations from the big N audit firms, so the sample auditors considered high quality professionals.

From the side of experience of auditors, it is obvious that sample auditors have more experience where the mean equal to 18.115 and this value close to the maximum value of my sample, therefore the sample auditors must be considered highly experienced.

Finally, KAM mean equal to 4.311 which close to the other in the previous studies, but indicate that KAM is so low in my

sample and ensure that listed firms in my sample is so committed by the legislations and seek to protect the outsider stakeholders.

4.2: Correlation matrix:

Correlation coefficients reflect the type of correlation between the study's independent variables and the dependent variable. They also indicate the direction of the association, whether it is positive or negative, which acts as a precursor to the shape of the relationship between the variables until the final result is obtained by regression analysis.

In this context the correlation matrix results including the variance inflation factors for verification from the existence of multicollinearity between the independent variables and the other control variables. In this regard, the correlation matrix can be showed in the following table as follow:

Table No.2: Correlation Matrix

Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	VIF
(1)	ESG	1										--
(2)	PQ	-0.296***	1									1.323
(3)	BigN	-0.383***	0.067	1								1.564
(4)	Exp	-0.394***	0.087	0.078	1							1.341
(5)	KAM	-0.493***	0.095	0.067	0.090	1						1.022

(6)	**Size**	**-0.071**	**0.079**	**0.082**	**0.100**	**0.064**	**1**					**1.591**
(7)	**ROA**	**-0.093**	**0.082**	**0.085**	**0.061**	**0.077**	**0.057**	**1**				**0.988**
(8)	**LEV**	**0.071**	**0.079**	**0.094**	**0.065**	**0.066**	**0.079**	**0.073**	**1**			**1.012**
(9)	**GI**	**-0.176***	**0.062**	**0.101**	**0.099**	**0.063**	**0.087**	**0.105***	**0.055**	**1**		**1.621**
(10)	**SEC**	**0.263****	**0.071**	**0.086**	**0.097**	**0.066**	**0.057**	**0.076**	**0.103***	**0.094**	**1**	**1.092**

Note: *, ** and * indicate statistical significance at the 10, 5 and 1% levels, respectively**

According to the above results of correlation matrix, it is so clear that there is significant negative relationship between the three auditor qualifications and the ESG risk, where the three auditor qualifications that are related by the professional qualifications, auditor size and auditor experience has a negative effect on the ESG risk, so the increase in the sides of the auditor qualifications lead to decrease in the ESG risk.

Moreover, the key audit matters contribute to minimization in the ESG risk, where there is significant negative relationship between them. Besides, it turns out that existence of green products lead to minimization for the ESG risk and more environmental and social compensation lead to more ESG risk.

Finally, the coefficients among the independent variables that are three auditor qualifications and key audit matters and the other control variables is lower than 0.8 in all cases and the VIF value also lower than 10, so the multicollinearity problems are not found.

4.3: Regression analysis results:

Generally, regression analysis aims to test the effect of the independent variables that are related to key audit matters and the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience on the ESG risk. Consequently, the regression analysis results can be shown as follow:

4.3.1: The Effect of auditor qualifications on the ESG Risk (H1):

The first hypothesis tests the relationship between the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience on the ESG risk based on the model no (1). Consequently, running model no (1) lead to the results stated in table no. 3, as follow:

Table No.3: The effect of auditor qualifications on the ESG Risk (H1)

	Pred.	Dep: ESG Risk			Dep: ESG Risk_Env.			Dep: ESG Risk_Soc.			Dep: ESG Risk_Gov.		
		Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|
PQ	-	-0.19	-3.48	< 0.01	-0.19	-3.33	< 0.01	-0.15	-3.80	< 0.01	-0.19	-3.84	< 0.01
Big N	-	-0.14	-2.85	< 0.05	-0.13	-2.46	< 0.05	-0.18	-2.22	< 0.05	-0.22	-2.12	< 0.05
Exp	-	-3.25	-2.79	< 0.05	-3.80	-2.27	< 0.05	-3.95	-2.22	< 0.05	-3.17	-2.64	< 0.05

Size	**-**	**1.60**	**1.04**	**0.33**	**1.85**	**1.08**	**0.37**	**1.24**	**1.02**	**0.43**	**2.00**	**0.82**	**0.26**
ROA	**-**	**0.09**	**1.48**	**0.40**	**0.07**	**1.24**	**0.21**	**0.06**	**1.25**	**0.08**	**0.06**	**1.16**	**0.43**
LEV	**+**	**0.06**	**1.07**	**0.17**	**0.11**	**1.48**	**0.33**	**0.09**	**1.72**	**0.43**	**0.12**	**1.60**	**0.10**
GI	**-**	**-0.10**	**-2.81**	**< 0.05**	**-0.07**	**-2.08**	**< 0.05**	**-0.08**	**-2.68**	**< 0.05**	**-0.08**	**-2.45**	**< 0.05**
SEC	**+**	**0.07**	**0.85**	**0.37**	**0.10**	**1.52**	**0.16**	**0.10**	**0.95**	**0.27**	**0.07**	**1.05**	**0.13**
Intercept		**0.09**	**0.89**	**0.22**	**0.11**	**0.89**	**0.37**	**0.11**	**1.70**	**0.22**	**0.06**	**1.17**	**0.14**
N		**188**			**188**			**188**			**188**		
F		**14.521**			**13.286**			**12.451**			**13.121**		
Adj. R2		**39.70%**			**36.70%**			**35.20%**			**36.60%**		

Depending on the above results It is obvious that R^2 for the models equal 39.70%, 36.7%, 35.2% and 36.6% respectively, which means that the independent variables of the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience & the other control variables can explain 39.70%, 36.7%, 35.2% and 36.6% respectively from the change of ESG risk, the environmental issue of the ESG risk, the social issue of the ESG risk and the governance issue of the ESG risk. Moreover, the F-Value for the models equal 14.521, 13.286, 12.451 and 13.121 all of them are significant at level 1% which means that models explain the relationship efficiently.

Moreover it is obvious that the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience negatively effect on the ESG risk, which means that all the independent variables are significant and negative, where (β = -0.19, -0.14, -3.25; T Stat. = -3.48, -2.85, -2.79 > 2, Sig. < 5%). Besides the three auditor qualifications negatively effect on the environmental issue of ESG risk where (β = -0.19, -0.13, -3.80; T Stat. = -3.33, -2.46, -2.27 > 2, Sig. < 5%), and negatively effect on the social issue of ESG risk where (β = -0.15, -0.18, -3.95; T Stat. = -3.80, -2.22, -2.22 > 2, Sig. < 5%), finally negatively effect on the governance issue of ESG risk where (β = -0.19, -0.22, -3.17; T Stat. = -3.84, -2.12, -2.64 > 2, Sig. < 5%). This result mean that increasing the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience lead to decrease in the ESG risk, and its subdivisions related to the environmental, social and governance issues of ESG risk .

Moreover, the control variable that is related by the green products index negatively effect on the ESG risk and its subdivisions related to the environmental, social and governance issues of ESG risk, which means that all this control variable is significant and negative, where (β = -0.10, -0.07, -0.08, -0.08; T Stat. = -2.81, -2.08, -2.68, -2.45 > 2, Sig. < 5%). This result means that increasing the green products index lead to decrease

in the ESG risk and its subdivisions related to the environmental, social and governance issues of ESG risk.

Based on the above discussion, the first hypothesis of this study can accept on the alternative form as follow: ***H1, the auditor professional qualifications negatively affected on the ESG risk.***

5.3.2: The Effect of Key Audit Matters on the ESG Risk (H2):

The second hypothesis tests the relationship between the Key Audit Matters on the ESG risk based on the model no (2). Consequently, running model no (2) lead to the results stated in table no. 4, as follow:

Table No.4: The effect of Key Audit Matters on the ESG Risk (H2)

	Pred.	Dep: ESG Risk			Dep: ESG Risk_Env.			Dep: ESG Risk_Soc.			Dep: ESG Risk_Gov.		
		Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|	Coef.	*T*	P > |*t*|
KAM	-	-1.37	-2.33	< 0.05	-1.36	-2.50	< 0.05	-1.76	-2.70	< 0.05	-1.80	-2.40	< 0.05
Size	-	2.04	0.86	0.12	1.89	1.60	0.40	2.00	0.84	0.16	1.22	1.43	0.09
ROA	-	-0.06	-0.93	0.20	0.07	0.93	0.25	0.06	1.61	0.14	0.06	0.94	0.11
LEV	+	0.09	1.03	0.18	0.08	0.89	0.39	0.11	1.36	0.28	0.09	1.42	0.29
GI	-	-0.08	-2.10	< 0.05	-0.07	-2.61	< 0.05	-0.06	-2.26	< 0.05	-0.11	-2.16	< 0.05
SEC	+	0.08	0.82	0.14	0.10	0.96	0.25	0.11	0.88	0.08	0.09	1.53	0.42
Intercept		0.11	1.10	0.29	0.11	1.07	0.10	0.11	1.38	0.23	0.11	1.03	0.10
N		188			188			188			188		
F		12.368			11.658			10.255			11.832		
Adj. R2		32.30%			31.60%			30.80%			31.90%		

Depending on the above results It is obvious that R^2 for the models equal 32.30%, 31.6%, 30.8% and 31.9% respectively, which means that the independent variables of the key audit matters & the other control variables can explain 32.30%, 31.6%,

30.8% and 31.9% respectively from the change of ESG risk, the environmental issue of the ESG risk, the social issue of the ESG risk and the governance issue of the ESG risk. Moreover, the F-Value for the models equal 12.368, 11.658, 10.255 and 11.832 all of them are significant at level 1% which means that models explain the relationship efficiently.

Moreover it is obvious that the key audit matters negatively effect on the ESG risk, which means that all the independent variables are significant and negative, where (β = -1.37; T Stat. = -2.50 > 2, Sig. < 5%). Besides the key audit matters negatively effect on the environmental issue of ESG risk where (β = -1.36; T Stat. = -2.50 > 2, Sig. < 5%), and negatively effect on the social issue of ESG risk where (β = -1.76; T Stat. = -2.70 > 2, Sig. < 5%), finally negatively effect on the governance issue of ESG risk where (β = -1.80; T Stat. = -2.40 > 2, Sig. < 5%). This result mean that increasing the key audit matters lead to decrease in the ESG risk, and its subdivisions related to the environmental, social and governance issues of ESG risk .

Moreover, the control variable that is related by the green products index negatively effect on the ESG risk and its subdivisions related to the environmental, social and governance issues of ESG risk, which means that all this control variable is significant and negative, where (β = -0.08, -0.07, -0.06, -0.11; T Stat. = -2.10, -2.61, -2.26, -2.16 > 2, Sig. < 5%). This result

means that increasing the green products index lead to decrease in the ESG risk and its subdivisions related to the environmental, social and governance issues of ESG risk.

Based on the above discussion, the second hypothesis of this study can accept on the alternative form as follow: ***H2, the key audit matters negatively affected on the ESG risk.***

5. Conclusions

The current study aimed to investigate the corporate social performance (CSP) operationalized by environmental, social, and governance factors as a challenge that faces auditors while preparing key audit matters (KAMs).

The study reached several results, the most important of which are: , ESG disclosure decrease the risk associated with the financial statements leading to improvement in the firm's financial performance, so enterprise risk management (ERM) and green growth (GG)and higher profitability have a positive association .

ESG risks have a negative influence on the organizations' reputation and investor confidence. Thus, organizations have to prioritize sustainable practices and ESG concerns to decrease financial risks and promote long-term value creation.

The benefits of EG integration into KAMs, auditors provide comprehensive and forward-looking information, and drive innovation into worthy information. Also, this highlights the relevancy of ESG, increases communication between organizations and their stakeholder concerning sustainability issues, and is a good indicator of the organization's reputation.

Statistical results show the professional qualifications, auditor size and auditor experience negatively effect on the ESG risk, which means that all the independent variables are significant and negative, where (β = -0.185, -0.144, -3.246; T Stat. = -3.484, -2.851, -2.91 > 2, Sig. < 5%). This result mean that increasing the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience lead to decrease in the ESG risk .

KAM negatively effect on the ESG risk, , where (β = -1.37; T Stat. = -2.50 > 2, Sig. < 5%). Besides the key audit matters negatively effect on the environmental issue of ESG risk where (β = -1.36; T Stat. = -2.50 > 2, Sig. < 5%), and negatively effect on the social issue of ESG risk where (β = -1.76; T Stat. = -2.70 > 2, Sig. < 5%), negatively effect on the governance issue of ESG risk where (β = -1.80; T Stat. = -2.40 > 2, Sig. < 5%).

And increasing the key audit matters lead to decrease in the ESG risk, and its subdivisions related to the environmental, social and governance issues of ESG risk .

The professional qualifications, auditor size and auditor experience negatively effect on the ESG risk, (β = -0.19, -0.14, -3.25; T Stat. = -3.48, -2.85, -2.79 > 2, Sig. < 5%). Besides the three auditor qualifications negatively effect on the environmental issue of ESG risk where (β = -0.19, -0.13, -3.80; T Stat. = -3.33, -2.46, -2.27 > 2, Sig. < 5%), and negatively effect on the social issue of ESG risk where (β = -0.15, -0.18, -3.95; T Stat. = -3.80, -2.22, -2.22 > 2, Sig. < 5%), negatively effect on the governance issue of ESG risk where (β = -0.19, -0.22, -3.17; T Stat. = -3.84, -2.12, -2.64 > 2, Sig. < 5%).

And increasing the three auditor qualifications, i.e. the professional qualifications, auditor size and auditor experience lead to decrease in the ESG risk, and its subdivisions related to the environmental, social and governance issues of ESG risk .

References:

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.

Abdel-Rahim, H., Hollie, D., & Yu, S. (2024). Early Evidence on Critical Audit Matters regarding Environmental, Social, and Governance Sustainability: Trends in ESG Reporting. *Journal of Forensic Accounting Research*, 1-28.

Agarwal, B., Gautam, R. S., Jain, P., Rastogi, S., Bhimavarapu, V. M., & Singh, S. (2023). Impact of environmental, social, and governance activities on the financial performance of Indian health care sector firms: Using competition as a moderator. Journal of Risk and Financial Management, 16, 109.

Applebaum, D., Duan, H. K., Hu, H., & Sun, T. (2024). The double materiality audit: Assurance of ESG disclosure. SSRN Electronic Journal.

Bax, K., Sahin, Ö., Czado, C., & Paterlini, S. (2023). ESG, risk, and (tail) dependence. International Review of Financial Analysis, 87, 102513.

Bolibok, P. M. (2024). Does Firm Size Matter for ESG Risk? Cross-Sectional Evidence from the Banking Industry. Sustainability, 16(2), 679.

Coso (2013), "Enterprise risk management, compliance risk management: applying the COSO ERM framework", pp. 1-48, available at: www.coso.org.

De Giuli, M. E., Grechi, D., & Tanda, A. (2024). What do we know about ESG and risk? A systematic and bibliometric review. *Corporate Social Responsibility and Environmental Management*, *31*(2), 1096-1108.

De Moraes Abrahão, V., Vaquero-Diego, M., & Móstoles, R. C. (2024). University social responsibility: The role of teachers. Journal of Innovation & Knowledge, 9(1), 100464.

European Banking Authority (2020). EBA Discussion paper on management and supervision of ESG risks for credit institutions and investment firms. Technical Report October. URL: https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Discussions/2021/Discussion%20Paper%20on%20management%20and%20supervision%20of%20ESG%20risks%20for%20credit%20institutions%20and%20investment%20firms/935496/20201102%20%20ESG%20Discussion%20Paper. accessed on 03-11-2021.

Fera, P., Pizzo, M., Vinciguerra, R., & Ricciardi, G. (2022). Sustainable corporate governance and new auditing issues: preliminary empirical evidence on key audit matters. Corporate Governance: The International Journal of Business in Society, 22(1), 194-211.

Fu, C., Yu, C., Guo, M., & Zhang, L. (2024). ESG rating and financial risk of mining industry companies. Resources Policy, 88, 104308.

Galant, A., & Cadez, S. (2017). Corporate social responsibility and financial performance relationship: A review of measurement approaches. *Economic research-Ekonomska istraživanja*, *30*(1), 676-693.

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. Journal of Cleaner Production, 198, 401–416.

Giese, G., Lee, L. E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG investing: How ESG affects equity valuation, risk, and performance. The Journal of Portfolio Management, 45(5), 69-83.

GRR (2022), "The global risks report 2022", 17th ed.

Hoang, H., Moroney, R., Phang, S. Y., & Xiao, X. (2023). Investor reactions to key audit matters: Financial and non-financial contexts. *Accounting & Finance*, *63*(3), 3325-3349.

Jadiyappa, N., Hickman, L. E., Kakani, R. K., & Abidi, Q. (2021). Auditor tenure and audit quality: an investigation of moderating factors prior to the commencement of mandatory rotations in India. *Managerial Auditing Journal*, *36*(5), 724-743.

Jin, M., & Kim, B. (2022). The effects of ESG activity recognition of corporate employees on job performance: The case of South Korea. Journal of Risk and Financial Management, 15, 316.

Khorilov, T. G., & Kim, J. (2024). ESG and Firm Risk: Evidence in Korea. Sustainability, 16(13), 5388.

Kitiwong, W., & Sarapaivanich, N. 2020. Consequences of the implementation of expanded audit reports with key audit matters (KAMs) on audit quality. *Managerial Auditing Journal*, *35*(8), 1095-1119.

Korinth, F., & Lueg, R. (2022). Corporate sustainability and risk management—The u-shaped relationships of disaggregated esg rating scores and risk in the German capital market. *Sustainability*, *14*(9), 5735.

Liang, H., & Renneboog, L. (2020). Corporate social responsibility and sustainable finance: A review of the literature. European Corporate Governance Institute–Finance Working Paper, (701).

Mihail, B. A., Dumitrescu, D., Serban, D., Micu, C. D., & Lobda, A. (2021).The role of investor relations and good corporate governance on firmperformance in the case of the companies listed on the Bucharest stock exchange. Journal of Risk and Financial Management, 14, 569.

Mohaisen, H. A., Saedi, R., & Ali, K. S. (2024). Effect of industry-specialist auditors, auditor's tenure, and auditor's size on the quality of disclosure in the UAE Stock Exchange. *Heritage and Sustainable Development*, *6*(1), 235-246.

Narváez-Castillo, V. P., García-Benau, M. A., Sierra-García, L., & Gambetta, N. (2024). Are material ESG issues making their way into key audit matters? An analysis of Colombian innovative companies. Journal of Innovation & Knowledge, 9(4), 100574.

Otaify, M. 2021. Environmental, Social, and Governance (ESG) Investing Risk and Return Analysis of Egyptian Sustainable Equity Index. *Journal of Financial and Business Studies*, *31*(1), 1-23.

Rahaman, M. M., Hossain, M. M., & Bhuiyan, M. B. U. (2023). Disclosure of key audit matters (KAMs) in financial reporting: evidence

from an emerging economy. Journal of Accounting in Emerging Economies, 13(3), 666-702.

Saygili, E., Arslan, S., & Birkan, A. O. (2022). ESG practices and corporate financial performance: Evidence from Borsa Istanbul. *Borsa Istanbul Review*, *22*(3), 525-533.

Shah, S. Q. A., Lai, F. W., Shad, M. K., Hamad, S., & Ellili, N. O. D. (2024). Exploring the effect of enterprise risk management for ESG risks towards green growth. International Journal of Productivity and Performance Management.

Shan, Y. G., Troshani, I., & Tarca, A. (2019). Managerial ownership, audit firm size, and audit fees: Australian evidence. *Journal of International Accounting, Auditing and Taxation*, *35*, 18-36.

Sharma, D., & Kumar, P. (2024). Prioritizing the attributes of sustainable banking performance. International Journal of Productivity and Performance Management, 73(6), 1797-1825.

Tateishi, E. 2017. Craving gains and claiming "green" by cutting greens? An exploratory analysis of greenfield housing developments in Iskandar Malaysia. Journal of Urban Affairs, 40(3): 370–393

Zahid, R. A., Khan, M. K., Anwar, W., & Maqsood, U. S. (2022). The role of audit quality in the ESG-corporate financial performance nexus: Empirical evidence from Western European companies. *Borsa Istanbul Review*, *22*, S200-S212.

Zhang, F., Zhu, L., (2019). Enhancing corporate sustainable development: stakeholder pressures, organizational learning, and green innovation. Bus. Strat. Environ. 28 (6), 1012–1026.