



Vocational Training Council
VTC Institutional Repository

Department of Hospitality and Business
Management

Research Repository

2024

Environmental, Social and Governance Awareness and Organisational Risk Perception Amongst Accountants

Joe Pong

Follow this and additional works at: <https://repository.vtc.edu.hk/thei-dhbm-sp>

Article

Environmental, Social and Governance Awareness and Organisational Risk Perception Amongst Accountants

Hok-Ko Pong ^{1,*}  and Chun-Cheong Fong ²

¹ Faculty of Management and Hospitality, Technology and Higher Education Institute of Hong Kong, Hong Kong, China

² Faculty of Business, Macao Polytechnic University, Macau, China

* Correspondence: hkpong@thei.edu.hk

Abstract: The relationships between accountants' environmental, social and governance (ESG) awareness and their perceptions of organisational risk are examined in this study. The emphasis is on the operational, strategic, financial and compliance risks of business organisations. A total of 462 accountants in Hong Kong were included via stratified random sampling and snowball sampling to ensure population diversity. A stratified random approach was used to include factors such as age, gender, income and experience, and snowball sampling amongst professional networks was used to ensure representativeness. A significant positive relationship exists between ESG awareness and risk perception, with environmental and governance factors emerging as the strongest predictors. Accountants with deep ESG awareness, especially in the aforementioned areas, can successfully identify and manage nontraditional risks such as regulatory changes and environmental threats. The findings highlight the need for institutionalising ESG-focused education in accounting and corporate governance to improve risk management capabilities. Increased ESG awareness can ensure responsible and sustainable business behaviour. Future research can expand the sample of accountants to executives and use longitudinal designs to capture the dynamic nature of ESG awareness and risk perception.

Keywords: environmental, social and governance (ESG); ESG awareness; accountants; organisational risk perception



Citation: Pong, Hok-Ko, and Chun-Cheong Fong. 2024. Environmental, Social and Governance Awareness and Organisational Risk Perception Amongst Accountants. *Journal of Risk and Financial Management* 17: 480. <https://doi.org/10.3390/jrfm17110480>

Academic Editors: Shuangzhe Liu and Svetlozar (Zari) Rachev

Received: 26 September 2024

Revised: 20 October 2024

Accepted: 22 October 2024

Published: 24 October 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

An increasing number of publicly listed business organisations have been sharing nonfinancial data about environmental, social and governance (ESG) issues. Some of them have voluntarily disclosed this information, whereas others proceed with their ESG reporting as required by law (Jackson et al. 2020). For example, organisations listed on stock markets in the United Kingdom must report risks related to climate change (Alsaifi et al. 2020). In the United States, the Securities and Exchange Commission has proposed rules to assist business organisations in disclosing climate-related risks, although such disclosure is not yet mandatory (Carattini et al. 2022; South et al. 2021). In Asia, businesses listed on the Singapore Exchange must submit sustainability reports (Nilipour et al. 2020). The Hong Kong Stock Exchange also requires business organisations to share ESG information (Leung and Xiang 2022). Interestingly, report submissions have shifted from solely declaring financial performance to measuring ESG indicators (Eccles et al. 2014). This transformation may be explained by the shift to comprehensively supporting long-term business sustainability.

Accountants are expected to include ESG principles in their work and contribute considerably to improving corporate governance and financial oversight. ESG practices contribute to long-term financial stability and improved organisational performance. Integrating sustainable development goals (e.g., ESG indicators) into accounting practices also

improves transparency (Yu et al. 2018) and reduces information gaps, which are valuable for the effective management of risks (Tsang et al. 2023).

Hence, accountants need to expand their technical expertise beyond merely applying their financial–technical duties. Accountants need to understand how ESG factors affect the risks faced by business organisations. This improved level of understanding can help accountants manage risks and support their organisation’s long-term success.

The literature has provided examples from around the world depicting faulty decision-making processes by large organisations due to the lack of consideration of ESG factors at different levels, which eventually led to their collapse. Failure to consider ESG factors in risk management has severe consequences, including environmental catastrophes, such as dam collapse under the supervision of BHP–Vale Samarco or oil spills caused by BP Deepwater Horizon, which have led to tremendous financial problems and irreparable harm to the environment and the business reputation of organisations (The Guardian 2010, 2018). Businesses should have strong environmental management systems so that they can recognise risks early enough to prevent them from happening via mitigation measures (Kazancoglu et al. 2021).

The labour practice scandal of the Boohoo Group illustrates the consequences of failing to take social responsibility seriously in the ‘social’ terms of ESG reporting; it has damaged both the reputation and financial leverage of the organisation (The Guardian 2021a). Hence, for present-day accountants, these dimensions need to be integrated into their risk evaluation, especially given the increasing correlation between social performance, particularly labour practices, and financial results (Lisi 2018).

Wirecard fraud is undeniably one of many types of governance failure, which emphasises the immediate need to enhance the consciousness of accountants about good governance (BBC News 2022). Accountants who have extensive knowledge of governance principles might be able to successfully avoid similar fraud, thus protecting their organisations from governance-related risks (Sadaf et al. 2018).

The role of accountants is central to recognising and managing risks in various sectors. The relationship between ESG awareness and organisational risk perception is truly relevant for them, given that lapses in governance and strategic risk management have catastrophic results, as seen in the cases of the Boeing 737 Max and the Facebook–Cambridge Analytica data privacy problem (The New York Times 2019; The Guardian 2019). Furthermore, the lapses highlight the need for comprehensive financial and compliance risk management, as evidenced by events such as Greensill Capital’s failure or Wells Fargo’s fake accounts scandal (The Guardian 2021b; BBC News 2017). These examples imply that high levels of ESG awareness enable accountants to detect and reduce risks at opportune times, further suggesting enhanced capabilities in averting potential crises.

2. Significance of the Study

This research, which is the first to investigate the relationship between the ESG awareness of accountants and their risk perceptions, intends to contribute substantially to the extant literature. Although prior studies have discussed improved risk management outcomes with increased ESG awareness, empirical evidence explicitly citing the role of accountants is lacking. Practitioners, business leaders and policymakers can gather invaluable information from such research explorations, thereby providing evidence that increased ESG awareness can help accountants manage risks effectively and efficiently. How to increase ESG awareness, which might lead to improved risk management amongst accounting professionals, is another focus of this study.

3. Problem Statement

Despite the growing recognition of ESG reporting, the understanding of how the ESG awareness of accountants affects their perceptions of organisational risk still remains limited. Accountants contribute considerably to assessing financial stability and risk, but their ability to connect these risks to ESG factors has not yet been fully established. This

gap in the literature is addressed in this research by investigating the relationship between the ESG awareness of accountants and their perceptions of organisational risk.

4. Research Gaps

Although sustainability and responsibility towards the Earth are receiving widespread attention, little is known about how these factors impact individual views, such as how they relate to risk management. Most studies, including those of [Chen et al. \(2023\)](#) and [El Khoury et al. \(2023\)](#), have focused primarily on financial performance at the organisational level, often ignoring how individual accountants perceive and deal with ESG-related risks, including the impact on nonfinancial performance. [Pong and Fong \(2024\)](#) recently underscored the importance of the subjective experiences of accountants in terms of handling ESG responsibilities, but this topic remains largely unexplored; the correlations of these variables are vital determinants of effective risk management. Similarly, recent studies by [Karwowski and Raulinajtys-Grzybek \(2021\)](#) and [Sulkowski and Jebe \(2022\)](#) have shown that despite the increasing corporate integration of ESG factors into business strategies, the role of individual accountants in dealing with such risks is still open to research. In the present study, these research gaps are addressed by investigating the effect of ESG awareness on organisational risk perception amongst accountants, thereby deepening the insights into the role of accountants as risk managers.

5. Research Objectives and Questions

The goal of this research is to explore the correlation between accountants' understanding of ESG and their perception of organisational risk. In particular, the study aims to accomplish the following:

1. Measure the correlation between ESG awareness and the perception of operational risk amongst accountants;
2. Evaluate the impact of ESG awareness on the perception of strategic risk;
3. Determine the extent to which ESG awareness influences financial risk perception;
4. Enhance the empirical understanding of ESG consciousness and its influence on compliance risk perceptions.

Research Questions

1. What are the relationships between the ESG awareness of accountants and their perceptions of certain organisational risks?
2. How does the ESG awareness of accountants predict their perceptions of specific risks within an organisation?

6. Theoretical Framework

The research framework developed for this study is shown in [Figure 1](#). The relationships between the ESG awareness of accountants and their perception of organisational risk are integrated into this theoretical framework. The basis of this framework comprises stakeholder theory, risk management theory, ethical decision-making theory, institutional theory and agency theory. Collectively, these theories can elucidate how accountants might perceive risks in organisations with respect to ESG parameters.

Both stakeholder theory ([Freeman 2010](#); [Freeman et al. 2018](#)) and agency theory ([Jensen and Meckling 1976](#)) emphasise the importance of reducing agency conflicts by aligning the decisions made by accountants with the expectations of their stakeholders. Increasingly, researchers and practitioners argue that ESG awareness allows accountants to better perceive operational and financial risks because their decisions would mirror the interests of a wider range of stakeholders ([Hoang 2018](#); [Lee and Isa 2020](#)). This phenomenon aligns closely with the central premise of stakeholder theory, which advocates for multiple stakeholder interests. [Lee and Isa \(2020\)](#) established that ESG performance is positively related to performance in terms of the overall profitability of an organisation in different

dimensions. However, the link between ESG performance and agency problems still lacks scholarly evidence.

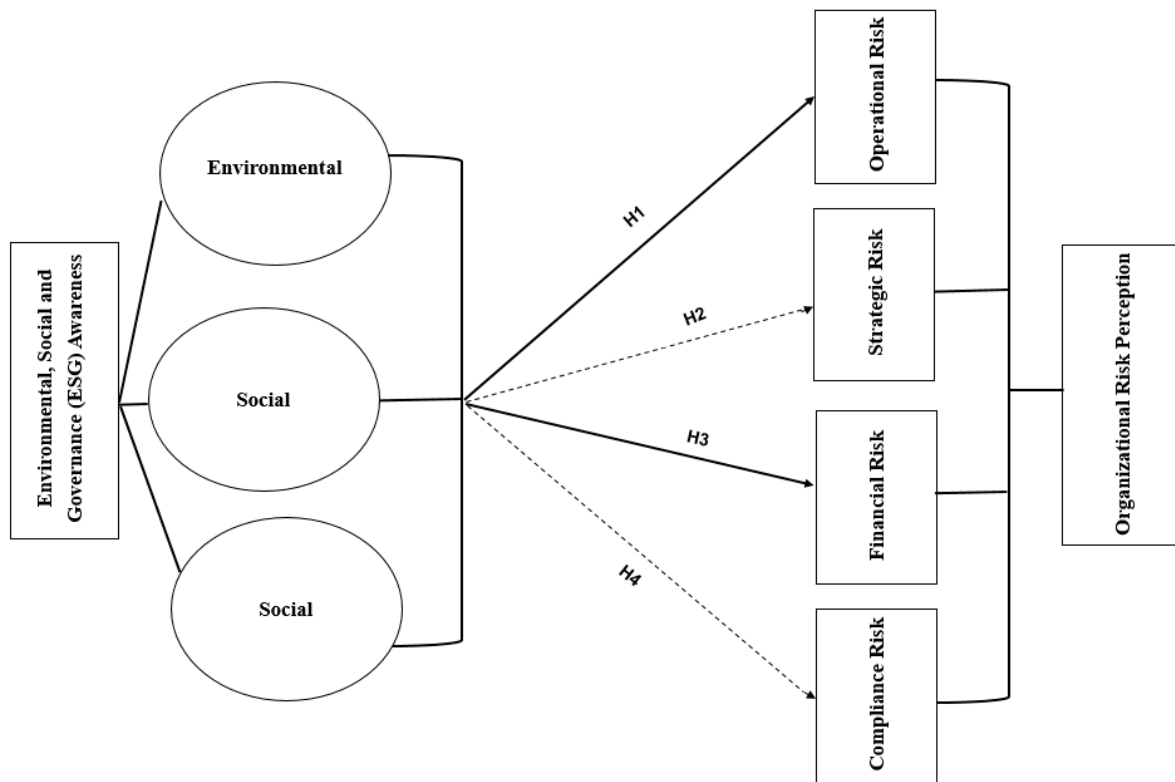


Figure 1. Research model.

Risk management theory offers a framework for incorporating ESG aspects into the identification and mitigation of various hazards or risks (Kaplan and Mikes 2012). By doing so, agents become better at identifying certain kinds of risks that traditional financial analysis would not have recognised, thereby enhancing overall risk management practices (Sassen et al. 2016).

Both ethical decision-making theory (Jones 1991) and institutional theory (DiMaggio and Powell 1983) provide a sound conceptual framework for explaining how the ESG awareness of accountants can influence their perception of risk. As accountants attempt to adapt to changing sustainability challenges, their ethical considerations also guide them in making decisions that are strategically sound and intricately linked with social responsibility. The awareness of accountants concerning compliance risks is typically fostered by social norms (Jejenywa et al. 2024; Schwartz 2016).

The integrated framework proposed in this study not only can deepen the theoretical understanding of the relationship between ESG awareness and risk perception but also provide practical insights into ESG policies in the accounting field.

7. Literature Review

As ESG prioritisation continues to expand, business owners and managers have also begun revisiting their sustainability strategies. Such transformations can affect the decision-making and risk management processes of managers. On this basis, accountants whose role is mainly providing profitability control and governance advice should seriously consider ESG-related implications. This literature review aims to establish whether the ESG awareness of accountants affects their perceptions of operational, strategic, financial and compliance risks. Research gaps that require further investigation are also identified in this study.

7.1. ESG Awareness and Organisational Risk Perception

Stakeholders at various levels are likely involved in ESG reporting, and this situation has likely become one of the major concerns of business organisations in recent decades. Accountants in particular are expected to contribute beyond accounting matters (Pong and Fong 2023). Currently, accountants are also expected to integrate ESG aspects that could affect their respective organisations' operations (Sulkowski and Jebe 2022).

7.2. Definition and Importance of ESG Awareness

Nugroho et al. (2024) describe ESG awareness as the comprehension of ESG issues related to organisational operations and their implementation in everyday actions. Accountants in contemporary society should therefore expand their perspective of ESG rather than merely focusing on financial risk. ESG awareness is currently indispensable in risk management. According to Dechow (2023), accountants who are knowledgeable about ESG reporting are more likely to anticipate and address sustainability challenges effectively than accountants who are unaware of ESG. ESG-related capabilities enhance risk assessment and ethical decision-making processes and fortify resilience and overall corporate character (Liang and Li 2023). Recently, Armstrong (2020) and Asante-Appiah and Lambert (2023) reached similar conclusions—the mindfulness of accountants of ESG matters not only is 'more honest' but also improves their identification, management and mitigation of risks, especially in sectors requiring regulation and control, such as healthcare and financial services.

7.3. Impact of ESG Awareness on Risk Perception

The appraisal and ranking of different types of risk by accountants improve considerably as their level of ESG consciousness increases. Moffitt et al. (2024) recently showed that accountants who are deeply acquainted with ESG parameters are more aware of environmental compliance, social responsibility and governance-related risks. More importantly, such accountants can integrate other pertinent factors into risk assessments, identifying new types of risk that are otherwise disregarded by traditional models. These actions enable accountants to handle complexities in the modern business context (Atan et al. 2016). Shakil (2021) and Atif and Ali (2021) also confirm this view, stating that ESG-aware accountants are more likely to rapidly identify regulatory changes or stakeholder concerns than their ESG-unaware peers are, which further allows them to successfully recognise strategic and compliance risks.

7.4. Challenges in Integrating ESG into Risk Perception

Integrating ESG principles into risk assessments is challenging despite the widespread notion of the importance of ESG principles in the daily operations of organisations. A common challenge is the lack of a clear standard framework, leading to many inconsistencies (Singhania and Saini 2023). Moreover, contradictions arise between short-term financial objectives and long-term sustainability objectives (Caiazza et al. 2021; Zumente and Bistрова 2021). Faccia et al. (2021) suggested that a comprehensive standardised framework must be established to assist accountants in reconciling ESG parameters and economic outcomes.

8. Domains of Organisational Risk Perception

8.1. Operational Risk Perception

Inadequate processes, systems or external events often lead to operational risks that incur a variety of losses (Hubbard 2020). ESG-aware accountants can anticipate operational hazards associated with environmental regulation compliance and employee security. Saari et al. (2021) reported that organisations that are aware of risks early enough can move quickly to protect their operations, hence lessening disruptions. According to the recent studies conducted by Chen et al. (2022) and Yu et al. (2023), firms with accountants who understand ESG do not experience as many operational disruptions as compared to other companies. Overall performance is therefore improved mostly in high-risk sectors like

manufacturing and energy. The present study employs multivariate regression analysis controlled for experience, industry and ESG awareness. The approach enables the examination of the relations between ESG awareness and operational risk perception in detail. ESG awareness further predicts operational risk perception, with environmentally conscious professionals recognising compliance and sustainability risks.

8.2. Strategic Risk Perception

Strategic risk is derived from long-term threats, such as unfavourable decisions, market fluctuations or shifts in corporate strategies (Kim et al. 2021). Accountants who are familiar with ESG factors might be able to identify strategic risks acutely, such as changes in stakeholder preferences, legal liability and loss of reputation. Awareness helps businesses to develop sustainable and adaptable strategies that enable organisations to remain ahead of an increasingly ESG-focused market (Bhandari et al. 2022; Liang et al. 2022). Ziolo et al. (2023) and Ishak and Asmawi (2022) have shown that integrating ESG into strategic planning allows organisations to adjust rapidly to changes in the marketplace or legislation field, thereby avoiding strategic misalignment. The current study used regression analysis to explore the direct impact of ESG awareness on strategic risk perception. Although indirect effects are testable by advanced models, such as structural equation modelling (SEM), the regression results sufficiently identify a clear positive relationship between them. This suggests that ESG-aware accountants are more proactive in identifying long-term strategic risks.

8.3. Financial Risk Perception

Monetary risk encompasses the possibility of losing finances due to market disruptions, credit difficulties or liquidity problems (Liu et al. 2023). ESG-aware accountants might be able to easily detect the financial risks associated with environmental violations or the mishandling of finances when engaging in corporate social responsibility (CSR), such as socially responsible investing (Pong and Fong 2024). Financial decisions need to consider ESG criteria to ensure that the financing strategies of organisations are in consonance with their sustainability targets (Ziolo et al. 2019; Landi et al. 2022). Apergis et al. (2022) recently established that businesses with notably high ESG scores have low capital costs and face less stringent requirements for financing. This situation illustrates how advantageous it is financially to seek ESG options. While propensity score matching (PSM) could offer additional control for selection bias, the current study used traditional covariate adjustments (e.g., experience, education levels, firm size) to mitigate this issue, ensuring that the results remain robust.

8.4. Compliance Risk Perception

Compliance risk refers to problems associated with legal fines, losing money or even ruining organisational reputation because of violations of laws and regulations (Ramos et al. 2024). ESG reporting-compliant accountants tend to actively seek governance and ethical issues (Jejenywa et al. 2024) to assess the risks that business organisations must avoid to prevent legal perils whilst retaining a good reputation. These capabilities help promote a long business lifecycle, especially when changes vary considerably in terms of regulations (Solaimani 2024). Zhao (2022) recently reported that ESG performance has become an important consideration over the years with respect to managing compliance risk. This scenario is evident within the context of regulated industries, such as finance or pharmaceuticals, where regulators continuously observe businesses more intently than before (Lee et al. 2024). The current study utilised logistic regression to analyse the binary outcome of compliance risk perception (compliant vs. non-compliant), showing that accountants with higher ESG awareness are more likely to recognise compliance risks. While further robustness checks (e.g., bootstrapping) could enhance confidence in these results, the current model offers a solid basis for understanding ESG awareness's role in compliance risk perception.

9. Theoretical Frameworks for ESG Awareness and Risk Perception

Several theories can help explain the correlation between the ESG awareness of accountants and how they view risks. These frameworks also help researchers identify the correlations amongst various related factors.

9.1. Stakeholder Theory and Agency Theory

According to stakeholder theory (Freeman 2010; Freeman et al. 2018), businesses should consider all stakeholders' interests. In the context of increased ESG awareness, accountants can make decisions that are aligned with stakeholder interests, thereby mitigating agency conflicts (Jensen and Meckling 1976). This alignment facilitates accountants in understanding the perception of operational and financial risks more broadly since accountants consider the factors that are not strictly limited to finances (Chen et al. 2023). MacNeil and Esser (2022) further state that ESG-aligned decisions reduce conflicts. This focus on stakeholder interests promotes sustainability and good governance. In light of the above considerations, the current study undertakes the incorporation of multivariate regression analysis with interaction terms to study stakeholder engagement empirically in testing the hypotheses. While models like SEM could further delineate indirect effects, the regression analysis provides a clear and sufficient evaluation of the direct relationships between ESG awareness and risk perception across multiple domains.

9.2. Risk Management Theory

According to the risk management theory (Kaplan and Mikes 2012), ESG factors serve as significant indicators for the identification and mitigation of various risks. Accountants who incorporate ESG into their accounting practices would have their horizons expanded beyond traditional financial risks (MacNeil and Esser 2022). This also aids accountants in identifying potential hazards stemming from reputational, operational and compliance risks, which they might have overlooked otherwise. Furthermore, this improves agency conflicts and long-term stakeholder value by aligning ESG principles with risk management (MacNeil and Esser 2022).

9.3. Ethical Decision-Making Theory and Institutional Theory

ESG awareness has implications for accountants' perceptions of strategic and compliance risks, as evidenced by ethical decision-making theory and institutional theory. Accountants guided by ethics are in an excellent position to make decisions that resonate with both societal and organisational expectations (Lennard and Roberts 2023). Raghavan (2022) established that ESG-based training can aid accountants in dealing with complex risks, particularly in the financial and energy sectors. For example, HSBC has utilised ethical frameworks to improve their transparency mechanisms and enhance their compliance risk assessments in domains such as money laundering prevention and environmental practice (Bearpark 2022).

9.4. Variability in the Impact of ESG Awareness on Risk Perception

The evidence suggests correlations between ESG awareness and increased risk perception (Oh et al. 2024). The relationship, however, varies across risk categories. Several scholars have suggested that the compliance and reputational risk of accountants might be strongly influenced by strong ESG consciousness (Asante-Appiah and Lambert 2023; Tsang et al. 2023). However, such effects are less certain with respect to operational and financial risks (Park and Jang 2021). Hassanein et al. (2024) attributed this variation to organisational culture or departmental characteristics, further indicating the necessity of utilising sector-based ESG frameworks.

This literature review has examined the complex relationship between ESG awareness and risk perception by accountants of business organisations. Although ESGs have been increasingly integrated into risk management, challenges still exist. These concepts consist of ensuring standard uniformity and striking a balance between short-term profit-making

and long-term sustainability. Theoretical frameworks such as stakeholder theory, risk management theory or ethical decision-making theory provide invaluable insights into these topics. However, further research should be conducted because risks are affected differently by ESG performance. With this research approach, scholars can enhance understanding at the academic level and equip practitioners with the necessary skills on how business entities can integrate ESG concepts into their organisational processes and mechanisms and their risk management systems.

10. Hypotheses

The following hypotheses are proposed on the basis of the literature review and the constructed theoretical framework:

H1: *The ESG awareness of accountants positively affects their perceptions of operational risk (Galletta et al. 2023).*

H2: *The ESG awareness of accountants improves their perceptions of strategic risk (Eccles et al. 2014).*

H3: *The ESG awareness of accountants positively affects their perceptions of financial risk (Chairani and Siregar 2021).*

H4: *The ESG awareness of accountants improves their perceptions of compliance risks (Ni 2024).*

11. Methodology

11.1. Research Design

A cross-sectional design study was used to describe how accountants perceive risks in their organisations on the basis of their awareness, including knowledge, attitudes and behaviours regarding ESG. The purpose of this design was to collect data at a specific time point, allowing the relationship between ESG awareness (independent variable) and risk perception (dependent variable) to be captured in a particular context. This approach is suitable for identifying trends and relationships between the aforementioned two variables.

A cross-sectional design was appropriate for this exploratory study, which aims to identify correlations instead of causation. Furthermore, this design provides an overall understanding of the existing level of ESG awareness performance and its effects on various risk areas.

Although PSM is often recommended in order to address selection bias, the current study employed traditional regression-based controls that included age, experience, firm size and education as important covariates which explain variations in the levels of ESG awareness amongst accountants. This approach was chosen because the current model yields robust and interpretable results, accurately depicting the ESG–risk perception relationship without the need for additional matching techniques. However, future studies could further refine these relationships by incorporating PSM.

11.2. Instruments

For the purpose of assessing accountants' comprehension of the elements pertaining to ESG, three primary instruments were utilised. The use of these instruments, as described in the literature (Gericke et al. 2019; Galletta et al. 2023; Kaplan and Mikes 2012; Turker 2009; Zaporowska and Szczepański 2024), can ensure that they possess both validity and reliability.

11.3. Sustainability Consciousness Questionnaire (SCQ)

The SCQ, which was developed by Gericke et al. (2019), is an evaluation scale used to assess the sustainability consciousness of accountants. This questionnaire focuses on

knowledge, attitudes and behaviour related to ESG indicators. This questionnaire contains 27 items that integrate the following three domains:

- Knowledge domain (9 items): This domain assesses the comprehension of sustainability concepts, such as awareness of environmental sustainability.
- Attitude domain (9 items): This domain evaluates the essential principles and attitudes that individuals hold about sustainability, such as whether they have any belief in ensuring future generations' quality of life.
- Behaviour domain (9 items): This domain measures how sustainability is applied professionally, including actions that support sustainable business practices.

With respect to the validation of the research approach, several studies have validated the SCQ in different cultural contexts (Bacci et al. 2024; Berglund et al. 2020). Overall, the reliability of the SCQ is sufficiently strong (Cronbach's alpha = 0.88), and it possesses construct validity.

11.4. CSR Scale

The CSR scale, adapted from Turker (2009), measures governance perceptions regarding ESG variables, such as compliance, ethics and openness. An example is 'Our company complies with legal requirements completely'.

In terms of designing the scale to be relevant for this study, several new items were included to measure recent trends in governance practices, especially those related to anticorruption initiatives and transparency.

11.5. Organisational Risk Perception Scale (ORPS)

The ORPS was developed to assess how professionals in an organisation can identify risks, especially those linked with ESG parameters. The ORPS has both theoretical and practical relevance, as derived from theories and findings from previous studies.

The ORPS includes 20 items across four key domains:

Operational risk: This domain measures perceptions of disruptions and the effectiveness of management and contingency planning related to ESG. The operational risk in this study is influenced by risk management theory (Kaplan and Mikes 2012) and the studies of Zaporowska and Szczepański (2024) and Galletta et al. (2023), who emphasised early risk recognition and prevention. One of the items reads, 'There is a high probability of disruptions in our daily operations due to ESG factors'.

Strategic risk: This domain emphasises the risks that are related to long-term business strategies that will likely affect the operational decisions made by business entities with respect to the environment. This parameter draws from strategic risk management theory (Damodaran 2007; Nocco and Stulz 2006). An example item is 'Our long-term business strategy involves high levels of ESG-related risk'.

Financial risk: This domain evaluates financial sensitivity to ESG-related risks on the basis of financial risk theories, including those investigated by Kaplan and Mikes (2012) and Shakil (2021). An example is 'Our company's fiscal status is extremely sensitive to changes in the market resulting from ESG factors'.

Compliance risk: This domain aims to understand the risks that might arise from violations of ESG regulations. The compliance risk explored in this study was explained via compliance risk theory (Sheedy et al. 2019) and the recent findings of Pollman (2019) and Ni (2024). A sample statement is 'There is a high risk of noncompliance with ESG regulations in our organisation'.

In terms of reliability testing, the ORPS was pilot tested. Cronbach's alpha values ranging between 0.82 and 0.90 for the different risk domains indicate strong internal reliability.

12. Samples and Sampling Technique

Accountants in Hong Kong were included in this study. The research has targeted Hong Kong for its privileged position as an international finance centre linking the East

and the West. Hong Kong accountants are embedded in international financial practices in a very special way, and therefore it would be a critical case to test ESG awareness and risk perception in an international business context. Moreover, Hong Kong's unique business environment and strategic function in cross-border business activities, have created significant gaps in the literature, with most existing ESG research being clearly Western-oriented. This study, therefore, further helps to enhance the global understanding of ESG perceptions by studying Hong Kong. Stratified random sampling and snowball sampling were used to obtain a representative sample.

12.1. Stratified Random Sampling

The population was stratified according to demographics (e.g., age, gender, income and experience) and the different views of ESG awareness and risk perception. Random selection within each stratum helped reduce selection bias, further ensuring representation.

The demographic stratification technique was important in this study because it could underscore the diverse experiences and perspectives of the different accountants. Diversity may influence the ESG awareness of accountants and their perceptions of the risks associated with them.

12.2. Snowball Sampling

The first set of participants was sought via professional networks. From the networks, highly eligible accountants were recommended, thereby continuously guaranteeing demographic variety. The intended sample size was 500 individuals belonging to different accounting firms, professional networks and social networks.

Stratified random sampling was conducted after snowball sampling to reduce potentially difficult-to-overcome biases and further enhance representativeness.

13. Questionnaire Design and Administration

The questionnaire was designed for accessibility across devices. Clear instructions were provided alongside confidentiality measures to encourage the public to participate in this research. The participants were instructed to use email addresses to login, allowing the IP addresses to be tracked, thereby preventing duplicate submissions and enhancing data credibility.

This methodology has been used because the questionnaire survey allows for the efficient capture of data from large samples, thus ensuring that the diverse perspectives of accountants in Hong Kong can be represented. Given that this study is quantitative in nature, the appropriateness of using a questionnaire to derive data is focused on ESG awareness and risk perception. Also, online questionnaires serve the purpose of modern survey practice in that they allow for convenient access to respondents and higher response rates.

Other techniques, such as interviews and focus group discussions, were also explored but deemed inappropriate because they are time-consuming and may lead to a small sample that would affect the generalisation of results. However, in a structured questionnaire format, for instance, responses have been kept consistent, and data reliability has been enhanced.

Pilot testing: The survey tools were polished for improved understanding, cultural relevance and response rates. The pilot test, which was conducted in March–August 2023, involved 55 individuals.

14. Data Collection

Data were collected between September 2023 and February 2024. For the data quality and relevance to be ensured, the survey period coincided with key financial reporting periods when accountants are most engaged with ESG-related issues.

Ethical considerations: All participants were fully informed about the purpose of the study, and their consent was obtained before participation. Data were anonymised to protect identities. The study adhered strictly to institutional review board guidelines.

15. Data Analysis

The data were analysed via SPSS version 26.0. Descriptive statistics were used to summarise the ESG awareness ratings and demographic data. Regression and correlation analyses were used to investigate the link between ESG awareness and risk perception to comprehensively investigate how risk perception might be influenced by governance and other ESG indicators within Hong Kong’s accounting community.

Advanced analytical techniques: As this research is an exploratory study, structural equation modelling (SEM) was not utilised but rather regarded as an advanced analytical technique. Further studies can apply SEM to analyse possible mediating and moderating effects comprehensively.

Bias management: Instrument validation was performed carefully to eliminate any possible biases, whilst stratified sampling and questionnaire design were performed meticulously to ensure the absence of biases.

16. Results

16.1. Factor Analysis

Confirmatory factor analysis (CFA) was performed to confirm the validity of the measurement instruments. This CFA was used to assess the structure of the SCQ, which included the CSR–governance scale and the ORPS. The fit indices used in these models are shown in Table 1.

Table 1. CFA results.

Scale	Factors	CFI	TLI	SRMR	RMSEA
SCQ with CSR	Environmental, Social, Economic, Governance	0.96	0.95	0.04	0.06
ORPS	Operational, Strategic, Financial, Compliance	0.93	0.92	0.06	0.07

The instruments all indicated a good model fit, confirming their appropriateness for the further investigation of ESG awareness and risk perception. The ORPS model scored ‘moderately good’, within acceptable ranges.

16.1.1. SCQ with CSR–Governance Scale

The SCQ, which incorporated the three dimensions of ESG (i.e., environmental, social and economic) with governance awareness, demonstrated excellent fit indices (CFI = 0.96, TLI = 0.95, SRMR = 0.04 and RMSEA = 0.06). Thus, the SCQ with the CSR–governance scale could successfully capture the multidimensionality of the sustainability consciousness and governance awareness of accountants. Future researchers can benefit from considering the SCQ as a reliable measurement tool because of its strong modelling features.

16.1.2. ORPS

The ORPS, which comprises the operational, strategic, financial and compliance risk domains, also obtained a good model fit (CFI = 0.93, TLI = 0.92, SRMR = 0.06 and RMSEA = 0.07). The fit indices were generally within the acceptable range; however, the RMSEA indicated the need to slightly revise the model to increase the accuracy of its predictions. Nevertheless, the ORPS has been validated as a reliable instrument for measuring various dimensions of risk perception, suggesting its importance as a tool for evaluating how risk assessments of accountants are affected by ESG-related knowledge.

16.2. Internal Consistency

The internal reliability of the scales was assessed using Cronbach's α —a metric widely accepted for reliability. Although McDonald's ω represents a more detailed measure for multidimensional constructs, this analysis showed Cronbach's α to be sufficiently high (>0.70), hence indicating reliable internal consistency. Future studies can, of course, extend the current analysis by using such alternative measures as McDonald's ω , but the approach taken herein is consistent with common practices.

Cronbach's α was calculated to determine the internal consistency of the scales. All values exceeded the minimum threshold of 0.70 (Table 2), confirming the reliability of the model.

Table 2. Internal consistency (Cronbach's α).

Scale	Subscale/Dimension	Cronbach's α
SCQ	Environmental (9 items)	0.73
SCQ	Social (9 items)	0.73
SCQ	Economic (9 items)	0.74
SCQ	Overall (27 items)	0.83
CSR	Governance (4 items)	0.93
ORPS	Operational	0.82
ORPS	Strategic	0.82
ORPS	Financial	0.83
ORPS	Compliance	0.95
ORPS	Overall	0.91

The high internal consistency across the scales underscores the robustness of the constructs measured. The Cronbach's α values for the CSR–governance and ORPS compliance subscales ($\alpha = 0.93$ and $\alpha = 0.95$, respectively) are extremely high; therefore, whilst these scales are reliable, the potential for item redundancy should be considered in future research.

16.3. Descriptive Results

The study analysed data from 462 accountants in Hong Kong and explored their ESG awareness and organisational risk perceptions. The descriptive analysis provided insights into the demographic composition of the samples and highlighted dominant trends in ESG awareness and risk perceptions.

16.3.1. Participant Demographics

The demographics of the participants (Tables 3 and 4) help in comprehending differences in ESG consciousness and risk comprehension across the respondents. The sample was equally split between genders (51.7% female and 48.3% male participants), with most respondents aged between 26 and 36 years. In terms of educational level, approximately 38.5% had bachelor's degrees, whereas another 34% were holders of master's or postgraduate degrees. Almost all of the participants had fewer than 10 years of working experience, and only a few had worked for more than 25 years. The monthly salaries of the respondents ranged between HK\$60,000 and HK\$79,999, representing average remuneration levels for the financial industry in Hong Kong.

Table 3. Demographic attributes and the sustainability consciousness questionnaire (SCQ).

	N (%)	Environmental	Social	Economics	CSR Awareness in Governance
		Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
All	462 (100%)	3.04 (0.45)	3.08 (0.39)	2.65 (0.44)	4.58 (0.54)
Gender					
(1) Male	223 (48.3%)	3.07 (0.47)	3.11 (0.41)	2.65 (0.47)	4.61 (0.55)
(2) Female	239 (51.7%)	3.01 (0.44) <i>t</i> = 1.43	3.05 (0.38) <i>t</i> = 1.72	2.64 (0.42) <i>t</i> = 0.01	4.55 (0.53) <i>t</i> = 1.10
Age					
(1) Under 26 Years Old	98 (21.2%)	2.81 (0.37)	2.99 (0.36)	2.59 (0.41)	4.23 (0.51)
(2) 26–30	118 (25.5%)	2.95 (0.40)	3.02 (0.36)	2.58 (0.40)	4.43 (0.57)
(3) 31–36	129 (27.9%)	3.16 (0.45)	3.11 (0.42)	2.68 (0.46)	4.78 (0.44)
(4) 37–43	75 (16.2%)	3.15 (0.45)	3.15 (0.40)	2.67 (0.42)	4.75 (0.48)
(5) 44 or Above	42 (9.1%)	3.30 (0.47) F = 15.99 ** (3), (4) and (5) > (1) and (2)	3.21 (0.41) F = 3.72 * (5) > (1)	2.83 (0.56) F = 3.20 * (5) > (1) and (2)	4.93 (0.22) F = 28.36 ** (3), (4) and (5) > (1) and (2); (2) > (1)
Work Experience					
(1) Less Than 4 Years	98 (21.2%)	2.81 (0.37)	2.99 (0.36)	2.59 (0.41)	4.23 (0.51)
(2) 4–9 Years	160 (34.6%)	3.02 (0.43)	3.05 (0.37)	2.61 (0.43)	4.52 (0.55)
(3) 10–16 Years	122 (26.4%)	3.11 (0.46)	3.07 (0.43)	2.63 (0.46)	4.70 (0.52)
(4) 17–24 Years	64 (13.9%)	3.29 (0.44)	3.25 (0.38)	2.81 (0.46)	4.95 (0.19)
(5) 25 Years or Above	18 (3.9%)	3.17 (0.43) F = 14.04 ** (5) > (1); (4) > (1) and (2); (3) > (1) (2) > (1)	3.15 (0.49) F = 4.73 * (4) > (1), (2) and (3)	2.76 (0.51) F = 3.13 * (4) > (1) and (2)	4.92 (0.21) F = 26.43 ** (5) > (1) and (2); (4) > (1), (2) and (3); (3) > (1) and (2) (2) > (1)
Education Level					
(1) Diploma/Associate	122 (26.4%)	2.85 (0.37)	2.98 (0.35)	2.53 (0.40)	4.31 (0.60)
(2) Bachelor	178 (38.5%)	3.11 (0.46)	3.12 (0.40)	2.66 (0.46)	4.62 (0.54)
(3) Master/Postgraduate	157 (34%)	3.11 (0.46)	3.10 (0.41)	2.72 (0.43)	4.74 (0.41)
(4) Doctoral	5 (1.1%)	3.24 (0.72) F = 11.17 ** (3) > (1); (2) > (1)	3.22 (0.48) F = 3.31 * (1) > (2)	2.93 (0.50) F = 4.92 * (3) > (1)	5.0 (0.01) F = 17.11 ** (4) > (1); (3) > (1); (2) > (1)
Religious Beliefs					
(1) No	287 (62.1%)	2.98 (0.43)	3.04 (0.39)	2.59 (0.40)	4.51 (0.57)
(2) Yes	175 (37.9%)	3.15 (0.46) <i>t</i> = −4.11 ** (1) < (2)	3.14 (0.38) <i>t</i> = −2.84 * (1) < (2)	2.74 (0.49) <i>t</i> = −3.56 ** (1) < (2)	4.70 (0.46) <i>t</i> = −3.88 ** (1) < (2)

Table 3. Cont.

	N (%)	Environmental	Social	Economics	CSR Awareness in Governance
Monthly Salaries					
(1) Below HK\$20,000	37 (8%)	2.79 (0.43)	2.95 (0.40)	2.63 (0.37)	4.14 (0.61)
(2) HK\$20,000–HK\$39,999	72 (15.6%)	2.80 (0.34)	3.02 (0.33)	2.56 (0.43)	4.19 (0.55)
(3) HK\$40,000–HK\$59,999	104 (22.5%)	2.97 (0.40)	3.01 (0.37)	2.58 (0.39)	4.48 (0.54)
(4) HK\$60,000–HK\$79,999	159 (34.4%)	3.19 (0.45)	3.13 (0.41)	2.67 (0.46)	4.82 (0.35)
(5) HK\$80,000–HK\$99,999	69 (14.9%)	3.18 (0.45)	3.17 (0.43)	2.77 (0.48)	4.74 (0.51)
(6) HK\$100,000 and Above	21 (4.5%)	3.19 (0.44) F = 13.79 ** (6) > (1) and (2); (5) > (1), (2) and (3); (4) > (1), (2) and (3)	3.11 (0.34) F = 3.02	2.75 (0.52) F = 2.47	4.92 (0.21) F = 28.88 ** (6) > (1), (2) and (3); (5) > (1), (2) and (3); (4) > (1), (2) and (3); (3) > (1) and (2)
Industries					
(1) Financial Services	117 (25.3%)	3.05 (0.46)	3.04 (0.40)	2.66 (0.43)	4.58 (0.52)
(2) Accounting and Auditing Firms	100 (21.6%)	3.18 (0.49)	3.12 (0.42)	2.72 (0.44)	4.71 (0.49)
(3) Real Estate and Construction	58 (12.6%)	2.86 (0.33)	3.08 (0.36)	2.56 (0.47)	4.47 (0.61)
(4) Manufacturing and Industrial	52 (11.3%)	3.03 (0.45)	3.11 (0.37)	2.66 (0.46)	4.57 (0.57)
(5) Retail and Consumer Goods	70 (15.2%)	2.86 (0.31)	2.97 (0.41)	2.60 (0.45)	4.36 (0.55)
(6) Government and Public Sector	40 (8.7%)	3.38 (0.41)	3.22 (0.36)	2.74 (0.46)	4.96 (0.13)
(7) Others	25 (5.4%)	2.88 (0.43) F = 10.30 ** (7) < (6) and (2); (6) > (1), (3), (4), (5) and (7); (5) < (2); (3) < (2)	3.09 (0.38) F = 2.09	2.52 (0.35) F = 1.60	4.35 (0.57) F = 7.94 ** (7) < (2) and (6); (6) > (1), (3), (4), (5); (5) < (2)
Positions					
(1) Junior Accountant/Entry-Level Accountant	49 (10.6%)	2.79 (0.40)	2.93 (0.39)	2.59 (0.40)	4.14 (0.61)
(2) Senior Accountant	56 (12.1%)	2.78 (0.33)	3.05 (0.31)	2.58 (0.43)	4.17 (0.52)
(3) Accounting Manager/Finance Manager	117 (25.3%)	2.96 (0.43)	3.00 (0.39)	2.53 (0.40)	4.45 (0.5)
(4) Internal Auditor/Compliance Officer	86 (18.6%)	3.25 (0.37)	3.19 (0.38)	2.79 (0.48)	4.92 (0.25)
(5) Controller/Financial Controller	75 (16.2%)	2.97 (0.33)	3.07 (0.38)	2.68 (0.47)	4.65 (0.55)
(6) Chief Financial Officer (CFO)/Partner	68 (14.7%)	3.36 (0.51)	3.22 (0.44)	2.77 (0.42)	4.91 (0.27)

Table 3. Cont.

	N (%)	Environmental	Social	Economics	CSR Awareness in Governance
(7) Others	11 (2.4%)	3.44 (0.38) F = 21.25 ** (7) > (1), (2), (3) and (5); (6) > (1), (2), (3) and (5); (4) > (1), (2), (3), (5)	3.01 (0.40) F = 4.73 ** (6) > (1) and (3); (4) > (1) and (3)	2.40 (0.25) F = 4.96 ** (6) > (3); (4) > (3)	4.91 (0.3) F = 31.59 ** (7) > (1), (2) and (3); (6) > (1), (2), (3) and (5); (5) > (1), (2) and (3); (4) > (1), (2), (3), (5) and (6); (3) > (1) and (2)

Note: **: The correlations are significant at the 0.01 level (two-tailed); *: Correlations are significant at the 0.05 level (two-tailed); Note: HK\$7.8 = US\$1; Bonferroni post-hoc test following a one-way ANOVA.

Table 4. Demographic attributes and the organisational risk perception scale (ORPS).

	N (%)	ORPS Operational Risk	ORPS Strategic Risk	ORPS Financial Risk	ORPS Compliance Risk
		Mean (S.D.)	Mean (S.D.)	Mean (S.D.)	Mean (S.D.)
All	462 (100%)	4.15 (0.54)	4.04 (0.59)	3.56 (0.69)	3.11 (1.07)
Gender					
(1) Male	223 (48.3%)	4.19 (0.56)	4.06 (0.62)	3.61 (0.69)	3.12 (1.10)
(2) Female	239 (51.7%)	4.11 (0.52)	4.01 (0.56)	3.51 (0.68)	3.09 (1.04)
		<i>t</i> = 1.56	<i>t</i> = 0.80	<i>t</i> = 1.61	<i>t</i> = 0.29
Age					
(1) Under 26 Years Old	98 (21.2%)	3.87 (0.56)	3.75 (0.61)	3.30 (0.60)	3.00 (0.93)
(2) 26–30	118 (25.5%)	4.01 (0.52)	3.91 (0.53)	3.43 (0.66)	2.95 (1.12)
(3) 31–36	129 (27.9%)	4.27 (0.47)	4.18 (0.52)	3.68 (0.70)	3.17 (1.14)
(4) 37–43	75 (16.2%)	4.28 (0.48)	4.15 (0.59)	3.69 (0.65)	3.26 (1.01)
(5) 44 or Above	42 (9.1%)	4.53 (0.47)	4.42 (0.48)	3.91 (0.70)	3.36 (1.09)
		F = 18.87 ** (5) > (1), (2) and (3); (4) > (1) and (2); (3) > (1) and (2)	F = 16.10 ** (5) > (1) and (2); (4) > (1) and (2); (3) > (1) and (2)	F = 9.91 ** (5) > (1) and (2); (4) > (1); (3) > (1) and (2)	F = 2.03
Work Experience					
(1) Less Than 4 Years	98 (21.2%)	3.87 (0.56)	3.75 (0.61)	3.30 (0.60)	3.00 (0.93)
(2) 4–9 Years	160 (34.6%)	4.11 (0.53)	4.01 (0.56)	3.53 (0.68)	3.11 (1.13)
(3) 10–16 Years	122 (26.4%)	4.17 (0.47)	4.05 (0.56)	3.57 (0.67)	3.02 (1.10)
(4) 17–24 Years	64 (13.9%)	4.53 (0.42)	4.42 (0.49)	3.90 (0.73)	3.38 (1.06)
(5) 25 Years or Above	18 (3.9%)	4.43 (0.42)	4.37 (0.38)	3.92 (0.50)	3.31 (1.06)
		F = 18.13 ** (5) > (1); (4) > (1), (2), (3); (3) > (1); (2) > (1)	F = 15.80 ** (5) > (1); (4) > (1), (2), (3); (3) > (1); (2) > (1)	F = 9.61 ** (5) > (1); (4) > (1), (2), (3); (3) > (1)	F = 1.62

Table 4. Cont.

	N (%)	ORPS Operational Risk	ORPS Strategic Risk	ORPS Financial Risk	ORPS Compliance Risk
Education Level					
(1) Diploma/Associate	122 (26.4%)	3.91 (0.49)	3.79 (0.58)	3.41 (0.58)	2.79 (0.98)
(2) Bachelor	178 (38.5%)	4.23 (0.55)	4.09 (0.61)	3.60 (0.73)	3.16 (1.09)
(3) Master/Postgraduate	157 (34%)	4.22 (0.51)	4.15 (0.51)	3.61 (0.70)	3.27 (1.06)
(4) Doctoral	5 (1.1%)	4.52 (0.54)	4.72 (0.41)	4.00 (0.68)	4.04 (1.17)
		F = 12.06 ** (3) > (1); (2) > (1)	F = 12.92 ** (4) > (1); (3) > (1); (2) > (1)	F = 3.17 * (1) < (2) and (3)	F = 6.36 ** (3) > (1); (2) > (1)
Religious Beliefs					
(1) No	287 (62.1%)	4.06 (0.52)	3.95 (0.56)	3.51 (0.62)	3.03 (1.04)
(2) Yes	175 (37.9%)	4.28 (0.55)	4.17 (0.61)	3.63 (0.78)	3.23 (1.10)
		t = -4.38 ** (2) > (1)	t = -3.90 ** (2) > (1)	t = -1.76	t = -1.98 * (2) > (1)
Monthly Salaries					
(1) Below HK\$20,000	37 (8%)	3.83 (0.66)	3.68 (0.72)	3.34 (0.58)	3.03 (0.91)
(2) HK\$20,000-HK\$39,999	72 (15.6%)	3.86 (0.50)	3.76 (0.52)	3.19 (0.63)	2.85 (1.00)
(3) HK\$40,000-HK\$59,999	104 (22.5%)	4.06 (0.49)	3.94 (0.54)	3.48 (0.65)	2.96 (1.12)
(4) HK\$60,000-HK\$79,999	159 (34.4%)	4.28 (0.48)	4.20 (0.52)	3.72 (0.68)	3.25 (1.06)
(5) HK\$80,000-HK\$99,999	69 (14.9%)	4.38 (0.50)	4.21 (0.61)	3.74 (0.71)	3.27 (1.13)
(6) HK\$100,000 and Above	21 (4.5%)	4.33 (0.50)	4.25 (0.53)	3.77 (0.59)	3.28 (1.01)
		F = 13.71 ** (6) > (1) and (2); (5) > (1), (2), (3); (4) > (1), (2), (3)	F = 12.02 ** (6) > (1) and (2); (5) > (1), (2) and (3); (4) > (1), (2), (3)	F = 8.78 ** (6) > (2); (5) > (2); (4) > (1) and (2)	F = 2.270 * (5) > (2); (4) > (2) and (3)
Industries					
(1) Financial Services	117 (25.3%)	4.16 (0.53)	4.05 (0.62)	3.58 (0.69)	3.00 (1.09)
(2) Accounting and Auditing Firms	100 (21.6%)	4.26 (0.54)	4.13 (0.58)	3.61 (0.69)	3.14 (1.15)
(3) Real Estate and Construction	58 (12.6%)	4.05 (0.48)	4.00 (0.53)	3.48 (0.66)	3.23 (1.01)
(4) Manufacturing and Industrial	52 (11.3%)	4.18 (0.54)	4.08 (0.60)	3.52 (0.67)	3.18 (1.11)
(5) Retail and Consumer Goods	70 (15.2%)	3.97 (0.52)	3.81 (0.59)	3.43 (0.66)	3.13 (0.97)
(6) Government and Public Sector	40 (8.7%)	4.44 (0.41)	4.30 (0.46)	3.95 (0.70)	3.18 (1.08)
(7) Others	25 (5.4%)	3.77 (0.58)	3.78 (0.52)	3.23 (0.54)	2.88 (0.99)
		F = 6.77 ** (7) < (1), (2), (4) and (6); (6) > (3) and (5); (5) < (2)	F = 4.40 ** (7) < (6); (6) > (5); (5) < (2)	F = 3.82 * (6) > (3), (5) and (7)	F = 0.62

Table 4. Cont.

	N (%)	ORPS Operational Risk	ORPS Strategic Risk	ORPS Financial Risk	ORPS Compliance Risk
Positions					
(1) Junior Accountant/Entry-Level Accountant	49 (10.6%)	3.82 (0.61)	3.67 (0.67)	3.34 (0.56)	3.04 (0.91)
(2) Senior Accountant	56 (12.1%)	3.85 (0.51)	3.76 (0.52)	3.13 (0.62)	2.77 (1.02)
(3) Accounting Manager/Finance Manager	117 (25.3%)	4.05 (0.49)	3.90 (0.51)	3.48 (0.66)	2.98 (1.08)
(4) Internal Auditor/Compliance Officer	86 (18.6%)	4.49 (0.43)	4.38 (0.46)	3.75 (0.74)	3.40 (1.06)
(5) Controller/Financial Controller	75 (16.2%)	4.09 (0.46)	4.01 (0.56)	3.58 (0.62)	3.05 (1.07)
(6) Chief Financial Officer (CFO)/Partner	68 (14.7%)	4.44 (0.45)	4.37 (0.54)	3.90 (0.63)	3.35 (1.12)
(7) Others	11 (2.4%)	3.98 (0.43) F = 19.49 ** (6) > (1), (2), (3) and (5); (4) > (1), (2), (3), (5) and (7)	3.95 (0.42) F = 17.91 ** (6) > (1), (2), (3) and (5); (5) > (1); (4) > (1), (2), (3) and (5)	3.67 (0.65) F = 9.77 ** (6) > (1), (2) and (3); (5) > (2); (4) > (1) and (2); (3) > (2)	3.16 (1.03) F = 3.01 *

Note: **: The correlations are significant at the 0.01 level (two-tailed); *: Correlations are significant at the 0.05 level (two-tailed); Note: HK\$7.8 = US\$1; Bonferroni post-hoc test following a one-way ANOVA.

16.3.2. Statistical Analysis of Demographic Influences

The influence of demographic factors on ESG awareness and risk perception was analysed. The key findings included the following:

- Gender: No significant differences were found in the risk perceptions or sustainability consciousness of male and female respondents. Gender does not have a significant influence on sustainability consciousness or risk perception.
- Age: Older people are more responsible, more aware of the environment and more concerned about operational risk than other respondents are. Older participants (44 years and older) demonstrated higher levels of environmental consciousness and operational risk perception, mainly because of their greater experience with and exposure to ESG issues, than did the participants in other age groups.
- Education: Higher-level education likely increases risk perception and ESG awareness. High educational attainment, particularly at the doctoral level, is associated with increased ESG awareness and risk perception. Enhanced knowledge of ESG-related issues is facilitated by high education levels.
- Work experience and salary: A positive correlation was found between work experience and ESG awareness and risk perception and between salary level and ESG awareness and risk perception. Professional experience and high income levels contribute to improved ESG awareness and ESG-related risk perception.
- Religious belief, industry and position: High levels of sustainability consciousness and risk perception were manifested by respondents who identified themselves as being religiously affiliated, those employed in the public sector or government positions and those who held senior job titles (e.g., chief finance officers and internal auditors). Thus, people’s personal values, industry setting and job roles contribute to their ESG awareness and the associated risks.

16.4. Correlation Analysis

Pearson correlation analysis was used to assess the relationship between ESG awareness and organisational risk perception. Significant positive correlations were observed across all the domains (Table 5). The samples used in the correlation and regression analyses were assumed to be independent and identically distributed (iid), as the data were collected from a random sample of individuals, without significant grouping or time dependencies. The independence of the observations was also supported with diagnostic checks that included the Durbin–Watson test (statistic = 2.12). Additional tests for heteroscedasticity (White’s test) and normality (Shapiro–Wilk test) further validated the assumptions of the regression model. The test results confirmed that the residuals followed a normal distribution and that there was no evidence of volatility clustering.

Table 5. Correlations between sustainability consciousness measured by the SCQ and organisational risk perception measured by the ORPS.

		Correlations			
		ORPS Operational Risk	ORPS Strategic Risk	ORPS Financial Risk	ORPS Compliance Risk
SCQ Environmental	Pearson Correlation	0.58 **	0.49 **	0.36 **	0.23 **
	Sig. (2-tailed)	0.00	0.00	0.00	0.00
	Sum of Squares and Cross-Products	64.76	60.37	50.83	51.78
	Covariance	0.14	0.13	0.11	0.11
	N	462	462	462	462
SCQ Social	Pearson Correlation	0.29 **	0.29 **	0.26 **	0.17 **
	Sig. (2-tailed)	0.00	0.00	0.00	0.00
	Sum of Squares and Cross-Products	28.16	31.48	32.25	32.40
	Covariance	0.06	0.07	0.07	0.07
	N	462	462	462	462
SCQ Economic	Pearson Correlation	0.30 **	0.25 **	0.13 **	0.17 **
	Sig. (2-tailed)	0.00	0.00	0.00	0.00
	Sum of Squares and Cross-Products	33.06	29.48	18.69	37.83
	Covariance	0.07	0.06	0.04	0.08
	N	462	462	462	462
CSR Governance	Pearson Correlation	0.64 **	0.62 **	0.40 **	0.24 **
	Sig. (2-tailed)	0.00	0.00	0.00	0.00
	Sum of Squares and Cross-Products	86.46	90.57	68.57	64.33
	Covariance	0.19	0.20	0.15	0.14
	N	462	462	462	462

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

16.4.1. Correlations Between ESG Awareness and Operational Risk Perception

Environmental awareness exhibited the strongest correlation with operational risk perception ($r = 0.58, p < 0.01$). Environmental consciousness is strongly linked with the recognition of operational risk. CSR–governance awareness also showed a robust correlation ($r = 0.64, p < 0.01$), suggesting the critical role of governance in managing operational risk. Although the social ($r = 0.29$) and economic ($r = 0.30$) dimensions were positively correlated, their impact was less significant. The findings confirm the need for a holistic ESG approach for understanding operational vulnerabilities.

16.4.2. Correlations Between ESG Awareness and Strategic Risk Perception

The relationship between strategic risk perception and environmental awareness was significant ($r = 0.49, p < 0.01$), thereby emphasising the importance of strategic risk management via environmentally sustainable approaches. Furthermore, CSR–governance awareness had a very strong association ($r = 0.62, p < 0.01$), drawing attention to how

important governance is in assessing strategic risk. The social ($r = 0.29$) and economic ($r = 0.25$) dimensions showed moderate correlations, indicating the broad implications of ESG parameters for perceiving strategic risk.

16.4.3. Correlations Between ESG Awareness and Financial Risk Perception

All the ESG parameters are positively correlated with financial risk perception. The link between CSR–governance awareness ($r = 0.40, p < 0.01$) and environmental awareness ($r = 0.36, p < 0.01$) was the most prominent. Thus, financial risk is directly associated with governance practices and environmental components. The social ($r = 0.26$) and economic ($r = 0.13$) facets of ESG also contribute to financial risk perception, but their correlation is relatively low; these factors might be interrelated in terms of organisational financial stability.

16.4.4. Correlations Between ESG Awareness and Compliance Risk Perception

All of the ESG parameters were positively correlated with compliance risk perception; however, the associations were generally lower than those of other risk domains. The highest correlation ($r = 0.24, p < 0.01$) was found for CSR–governance awareness, underscoring the importance of governance in guaranteeing regulatory compliance. Environmental awareness was significantly correlated with compliance ($r = 0.23, p < 0.01$), suggesting that environmental elements are becoming increasingly important in ESG compliance scenarios. The social ($r = 0.17$) and economic ($r = 0.17$) components demonstrated lower correlations than the environmental conceptions did, indicating a more incidental function for these factors in the assessment of compliance risk.

16.5. Hierarchical Regression Analysis

Hierarchical regression analyses were conducted to determine how the contributing elements of demographics and ESG awareness might affect risk perception across the four aforementioned categories. These analyses emphasised the need to explore variances that could be explained by the ESG dimensions after taking into account the demographic variables.

16.5.1. Operational Risk Domain

Demographics accounted for 19% of the variance in operational risk perception, with educational level and religion being significant predictors (Table 6). This improved the model’s explanatory power after the ESG dimensions were included. Environmental awareness and CSR–governance awareness explained 20% ($\Delta R^2 = 0.20$) and 9% ($\Delta R^2 = 0.09$), respectively, of the variance. Overall, the final model explained 48% of the variance, further confirming that environmental and governance factors play critical roles in operational risk perception.

Table 6. Hierarchical regression analysis result with demographics and environmental, social and governance (ESG) awareness as predictors of accountants’ organisational risk perception in the operational risk domain.

Variable	β	t	F	R	R^2	ΔR^2	Adjusted R^2
Organisational Risk Perception (Operational Risk)							
Step 1			15.32 **	0.44	0.19	0.19	0.180
Demographics							
Age	0.25	1.59					
Work Experience	0.05	0.47					
Educational Level	0.16	3.68 **					
Religion	0.15	3.61 **					
Monthly Salaries	−0.02	−0.16					
Industries	−0.08	−1.80					
Positions	0.06	0.77					

Table 6. Cont.

Variable	β	t	F	R	R^2	ΔR^2	Adjusted R^2
Step 2			35.70 **	0.62	0.39	0.20	0.38
Demographics							
Age	0.14	1.06					
Work Experience	0.07	0.71					
Educational Level	0.09	2.23 *					
Religion	0.08	2.25 *					
Monthly Salaries	0.04	0.35					
Industries	-0.06	-1.73					
Positions	-0.10	-1.56					
SCQ Environmental	0.49	12.02 **					
Step 3			32.28 **	0.63	0.39	0.01	0.38
Demographics							
Age	0.14	1.04					
Work Experience	0.06	0.65					
Educational Level	0.08	2.19 *					
Religion	0.08	2.12 *					
Monthly Salaries	0.05	0.41					
Industries	-0.07	-1.82					
Positions	-0.10	-1.58					
SCQ Environmental	0.47	10.94 **					
SCQ Social	0.07	1.85					
Step 4			29.83 **	0.63	0.40	0.01	0.39
Demographics							
Age	0.14	1.01					
Work Experience	0.06	0.66					
Educational Level	0.07	1.94					
Religion	0.07	1.91					
Monthly Salaries	0.05	0.39					
Industries	-0.06	-1.70					
Positions	-0.09	-1.48					
SCQ Environmental	0.46	10.53 **					
SCQ Social	0.04	1.05					
SCQ Economic	0.09	2.27 *					
Step 5			38.44 **	0.70	0.48	0.09	0.47
Demographics							
Age	0.28	2.19 *					
Work Experience	-0.02	-0.26					
Educational Level	0.02	0.50					
Religion	0.05	1.53					
Monthly Salaries	-0.08	-0.72					
Industries	-0.06	-1.82					
Positions	-0.14	-2.37 *					
SCQ Environmental	0.23	4.76 **					
SCQ Social	0.03	0.82					
SCQ Economic	0.07	1.84					
CSR Governance	0.44	8.68 **					

Note: ** $p < 0.01$; * $p < 0.05$.

16.5.2. Strategic Risk Domain

Demographics accounted for 18% of the variance in strategic risk perception, with educational level being the significant predictor (Table 7). In terms of the integration of ESG dimensions to improve the model, environmental awareness accounted for an additional 12% ($\Delta R^2 = 0.12$), and CSR–governance awareness contributed 10% ($\Delta R^2 = 0.10$). The total variance of the final model was 42%. This finding further proves that environmental sustainability and governance play key roles in strategic risk management.

Table 7. Hierarchical regression analysis results with demographics and environmental, social and governance (ESG) awareness as predictors of accountants’ organisational risk perception in the strategic risk domain.

Variable	β	t	F	R	R ²	ΔR^2	Adjusted R ²
Organisational Risk Perception (Strategic Risk)							
Step 1			14.47 **	0.43	0.18	0.18	0.17
	Demographics						
	Age	0.18	1.16				
	Work Experience	0.08	0.693				
	Educational Level	0.19	4.35 **				
	Religion	0.13	3.12 *				
	Monthly Salaries	−0.09	−0.65				
	Industries	−0.05	−1.26				
	Positions	0.15	2.13 *				
Step 2			24.50 **	0.55	0.30	0.12	0.29
	Demographics						
	Age	0.10	0.70				
	Work Experience	0.09	0.87				
	Educational Level	0.13	3.22 *				
	Religion	0.08	1.98 *				
	Monthly Salaries	−0.04	−0.32				
	Industries	−0.04	−1.12				
	Positions	0.03	0.47				
	SCQ Environmental	0.39	8.81 **				
Step 3			22.89 **	0.56	0.31	0.01	0.30
	Demographics						
	Age	0.10	0.66				
	Work Experience	0.08	0.78				
	Educational Level	0.13	3.17 *				
	Religion	0.07	1.81				
	Monthly Salaries	−0.03	−0.23				
	Industries	−0.05	−1.26				
	Positions	0.03	0.44				
	SCQ Environmental	0.35	7.65 **				
	SCQ Social	0.11	2.70 *				
Step 4			20.69 **	0.56	0.31	0.00	0.30
	Demographics						
	Age	0.09	0.65				
	Work Experience	0.08	0.79				
	Educational Level	0.12	3.06 *				
	Religion	0.07	1.71				
	Monthly Salaries	−0.03	−0.24				
	Industries	−0.05	−1.20				
	Positions	0.03	0.49				
	SCQ Environmental	0.34	7.42 **				
	SCQ Social	0.10	2.27 *				
	SCQ Economic	0.04	0.95				

Table 7. Cont.

Variable	β	t	F	R	R ²	ΔR^2	Adjusted R ²
Step 5			29.39 **	0.65	0.42	0.10	0.40
Demographics							
Age	0.25	1.84					
Work Experience	−0.01	−0.15					
Educational Level	0.06	1.64					
Religion	0.05	1.30					
Monthly Salaries	−0.16	−1.43					
Industries	−0.05	−1.29					
Positions	−0.02	−0.27					
SCQ Environmental	0.09	1.83					
SCQ Social	0.09	2.13 *					
SCQ Economic	0.02	0.40					
CSR Governance	0.48	8.95 **					

Note: ** $p < 0.01$; * $p < 0.05$.

16.5.3. Financial Risk Domain

Demographics explained 9% of the variance in financial risk perception, with professional position identified as a significant predictor (Table 8). With respect to the ESG dimensions, environmental awareness ($\Delta R^2 = 0.07$) and CSR–governance awareness ($\Delta R^2 = 0.03$) contributed to the model’s explanatory power by 20%. Although the increase is less pronounced than it is in other domains, these findings still emphasise the relevance of ESG factors in financial risk assessment.

Table 8. Hierarchical regression analysis results with demographics and environmental, social and governance (ESG) awareness as predictors of accountants’ organisational risk perception in the financial risk domain.

Variable	β	t	F	R	R ²	ΔR^2	Adjusted R ²
Organisational Risk Perception (Financial Risk)							
Step 1			7.79 **	0.31	0.09	0.09	0.08
Demographics							
Age	0.16	0.95					
Work Experience	0.06	0.49					
Educational Level	0.07	1.44					
Monthly Salaries	−0.09	−0.66					
Industries	−0.01	−0.25					
Positions	0.19	2.47 *					
Step 2			12.15 **	0.40	0.16	0.07	0.15
Demographics							
Age	0.09	0.54					
Work Experience	0.07	0.64					
Educational Level	0.02	0.51					
Monthly Salaries	−0.05	−0.39					
Industries	−0.00	−0.07					
Positions	0.10	1.30					
SCQ Environmental	0.28	5.90 **					

Table 8. Cont.

Variable	β	t	F	R	R^2	ΔR^2	Adjusted R^2
Step 3			11.94	0.42	0.17	0.02	0.16
Demographics							
Age	0.08	0.48					
Work Experience	0.06	0.55					
Educational Level	0.02	0.43 *					
Monthly Salaries	-0.04	-0.29 *					
Industries	-0.01	-0.21					
Positions	0.09	1.28					
SCQ Environmental	0.23	4.72 **					
SCQ Social	0.14	2.99 *					
Step 4			10.63 **	0.42	0.18	0.00	0.16
Demographics							
Age	0.08	0.49					
Work Experience	0.06	0.55					
Educational Level	0.02	0.49					
Monthly Salaries	-0.04	-0.28					
Industries	-0.01	-0.24					
Positions	0.09	1.25					
SCQ Environmental	0.24	4.75 **					
SCQ Social	0.15	3.02 *					
SCQ Economic	-0.03	-0.57					
Step 5			11.46 **	0.45	0.20	0.03	0.19
Demographics							
Age	0.15	0.99					
Work Experience	0.01	0.12					
Educational Level	-0.01	-0.23					
Monthly Salaries	-0.11	-0.80					
Industries	-0.01	-0.23					
Positions	0.07	0.91					
SCQ Environmental	0.11	1.82 *					
SCQ Social	0.14	2.91 *					
SCQ Economic	-0.04	-0.88					
CSR Governance	0.25	3.97 **					

Note: ** $p < 0.01$; * $p < 0.05$.

16.5.4. Compliance Risk Domain

Demographics explained 5% of the variation in compliance risk perception, with education level identified as a key predictor (Table 9). Environmental awareness improved the model’s explanatory power by only 3% ($\Delta R^2 = 0.03$), with the total variance reaching 9%. Despite the relevance of CSR–governance awareness, its effect was not statistically significant; other factors, such as regulatory frameworks, might influence compliance risk perception to a greater extent than CSR.

Table 9. Hierarchical regression analysis results with demographics and environmental, social and governance (ESG) awareness as predictors of accountants’ organisational risk perception in the compliance risk domain.

Variable	β	t	F	R	R ²	ΔR^2	Adjusted R ²
Organisational Risk Perception (Compliance Risk)							
Step 1			5.97 **	0.22	0.05	0.05	0.04
	Demographics						
	Educational Level	0.17	3.58 **				
	Religion	0.07	1.61				
	Monthly Salaries	0.08	0.99				
	Positions	0.02	0.26				
Step 2			7.66 **	0.28	0.08	0.03	0.07
	Demographics						
	Educational Level	0.14	2.98 *				
	Religion	0.05	1.03				
	Monthly Salaries	0.07	0.90				
	Positions	−0.04	−0.49				
	SCQ Environmental	0.19	3.71 **				
Step 3			6.93	0.29	0.08	0.01	0.07
	Demographics						
	Educational Level	0.14	2.99 *				
	Religion	0.04	0.91				
	Monthly Salaries	0.07	0.87				
	Positions	−0.04	−0.50				
	SCQ Environmental	0.16	3.02 *				
	SCQ Social	0.09	1.76				
Step 4			6.25 **	0.30	0.09	0.00	0.07
	Demographics						
	Educational Level	0.13	2.76 *				
	Religion	0.04	0.77				
	Monthly Salaries	0.06	0.81				
	Positions	−0.03	−0.44				
	SCQ Environmental	0.15	2.77 *				
	SCQ Social	0.06	1.22				
	SCQ Economic	0.07	1.44				
Step 5			5.78 **	0.30	0.09	0.01	0.08
	Demographics						
	Educational Level	0.12	2.43 *				
	Religion	0.03	0.69				
	Monthly Salaries	0.05	−0.61				
	Positions	−0.05	−0.59				
	SCQ Environmental	0.09	1.50				
	SCQ Social	0.06	1.17				
	SCQ Economic	0.07	1.33				
	CSR	0.10	1.53				
	Governance						

Note: ** $p < 0.01$; * $p < 0.05$.

17. Discussion

The perceptions of risks, such as operational, strategic, financial and compliance risks, of accountants employed by business entities are correlated with their ESG awareness, including their knowledge, attitudes and behaviours. The perceptions of the organisational risk of these accountants can be predicted by ESG awareness. These findings have helped solve current research gaps, further offering insights into the hypotheses developed using the theoretical framework.

17.1. ESG Awareness and Operational Risk Perception

The ESG awareness of accountants is significantly and positively correlated with their perceptions of operational risk. The environmental and governance variables of ESG are the most prominent predictors. This finding is consistent with cognitive theory (Bandura and Cervone 1986), which suggests that increased awareness can help individuals process overly complex information and anticipate possible threats.

Accountants with a deep understanding of environmental and governance issues might be able to successfully identify operational climate-related risks, such as regulatory changes, resource scarcity, ecological responsibility and extreme weather phenomena. **Risk management theory** (Kaplan and Mikes 2012) corroborates this assertion by emphasising that awareness (e.g., ESG consciousness) enables the public to detect nontraditional risks, which otherwise might not be easily captured by conventions and agreements (e.g., traditional methods of financial analyses). This conception is further supported by **stakeholder theory** (Freeman 2010; Freeman et al. 2018), especially since accountants are beginning to pay attention to the needs of different stakeholders, subsequently considering the operational impacts of environmental and governance issues.

The current study aligns with the findings of Kandpal et al. (2024) and Khan (2024), who identified governance and environmental awareness as key drivers for mitigating operational hazards. For example, taking into account cases of pollution and poor waste management as risk factors, businesses can adopt green practices and follow policy regulations simply to prevent penalties and avoid reputational harm in general (He et al. 2023). Compared with environmental awareness, other ESG factors have more indirect effects on operations (Alkaraan et al. 2022). Moreover, agency theory (Jensen and Meckling 1976) posits that ESG awareness can help reduce agency conflicts, resulting in decision-making processes that are in consonance with stakeholder expectations, particularly in relation to operational risk management.

17.2. ESG Awareness and Strategic Risk Perception

The perceptions of the strategic risk of accountants are significantly and positively correlated with their ESG awareness, with the environmental and governance variables identified as the most important. This finding supports the stakeholder theory of Freeman (2010) and Freeman et al. (2018), who emphasised the need to intricately associate corporate strategies with stakeholder interests. Previous studies (Friede et al. 2015; Eccles et al. 2014) have also revealed that ESG-aware accountants are adept at predicting risks associated with laws and regulations, market shifts, natural hazards and environmental challenges.

In behavioural decision-making theory (Trevino and Youngblood 1990), increased ESG awareness leads to enhanced ethical judgement, which can empower accountants to analyse the long-lasting results of their decisions effectively. Individuals who intensely commit to the principles of good governance and environmentalism are likely to consider risks of different forms—ethical, reputational and ecological—to ensure the application of sustainability in business decisions (Karwowski and Raulinajtys-Grzybek 2021).

Although governance and environmental awareness are the primary drivers of strategic risk perception, ethical decision-making theory (Jones 1991) supports the idea that social awareness also fosters ethical decision-making processes; however, its influence on strategic risk is indirect and might manifest only in the long term (Zumente and Bistрова 2021). Conversely, governance and environmental factors are strongly associated with

immediate operational and regulatory challenges, indicating their direct effects on strategic risk perception (Scherer and Voegtlin 2020; David et al. 2024).

Although ethical decision-making concepts (Jones 1991) suggest that social consciousness is one of the triggers of ethical decision making, this is often indirect and long-term in relation to strategic risk management (Zumente and Bistrova 2021). Conversely, governance and environmental factors are likely to focus on immediate operations and regulatory challenges. These factors might have wide implications in terms of strategic risk perception (Scherer and Voegtlin 2020; David et al. 2024).

17.3. ESG Awareness and Financial Risk Perception

ESG awareness is positively correlated with the perceptions of financial risk of accountants, whereas environmental and governance factors are the most influential predictors. This trend aligns with the arguments of Friede et al. (2015), who proposed that environmental consciousness and good governance are the building blocks of financial stability and risk management. Accountants with deep governance knowledge, especially those dealing with financial reporting, regulatory compliance and ethical practices, are likely vigilant in forecasting financial risk (Pong and Fong 2023).

Risk management theory by Kaplan and Mikes (2012) suggests that accountants with enhanced ESG awareness, especially in the areas of governance and environmental concerns, are especially fully equipped to assess financial decisions with regard to their long-term viability. This level of consciousness allows accountants to detect threats, such as environmental obligations from polluting control breakdowns and civil disturbances, that otherwise might be overlooked by traditional frameworks (Comoli et al. 2023; Mooneepen et al. 2022).

The agency theory of Jensen and Meckling (1976) also supports the aforementioned view. In particular, ESG awareness reduces institutional conflict because the decisions of accountants could be justified by the interests of many stakeholders. Although the environmental aspect of ESG is the dominant aspect of financial risk perception, the social and governance aspects also have crucial yet secondary significance in the mitigation of financial risk. Institutional theory (DiMaggio and Powell 1983) claims that social norms and institutional pressures affect accountants' perceptions of financial risk, particularly those associated with ESG issues.

17.4. ESG Awareness and Compliance Risk Perception

ESG awareness is positively correlated with the perceptions of accountants of compliance risk, and environmental awareness is the best predictor of this risk. This result confirms the findings of Hoang (2018), who identified ESG awareness as a domain for accountants to identify compliance risks, especially those related to environmental legislation and regulations. Ding et al. (2022) presented evidence that business entities with high levels of environmental awareness tend to avoid regulatory fines.

Although ESG awareness is generally positively correlated with compliance risk perception, in this study, only environmental awareness was identified as an independent predictor of compliance risk. This finding may explain why, amongst all the factors, environmental awareness is prioritised during global regulatory shifts and public scrutiny, which is consistent with the findings of Redondo Alamillos and De Mariz (2022).

Although behaviour-based decision theory by Treviño et al. (2006) suggests that governance awareness can sharpen the ethical consideration of accountants with respect to compliance, institutional theory postulates that environmental awareness is more influential because of the pressing number of regulations, including the current pressure exerted on businesses by society to underscore environmental compliance over other ESG dimensions, such as governance or social concerns. According to Gupta and Gupta (2021), increasing institutional pressures regarding sustainability have led to the popularisation of environmental legislation, thereby shifting the focal point to environmental compliance.

Accountants who have a good understanding of environment-related issues might be able to successfully identify risks related to environmental laws and standards. Jejenywa et al. (2024) recently established that accountants who have extensive knowledge in ecology are efficient in executing compliance strategies, allowing regulatory breaches to be prevented.

17.5. Theoretical Implications

The current study has theoretical implications, even though the findings align with several theories. According to cognitive theory (Bandura and Cervone 1986), increased awareness enables accountants to detect risks, especially those that are related to the environment and governance. According to behavioural decision-making theory (Treviño et al. 2006), ESG awareness improves ethical judgement, further enabling accountants to recognise different types of risk. Stakeholder theory (Freeman 2010; Freeman et al. 2018) and agency theory (Jensen and Meckling 1976) underscore the importance for accountants of making decisions (e.g., operational and financial risk management) that are aligned with various stakeholders' expectations. Thus, ESG awareness (Kaplan and Mikes 2012) generally helps accountants exercise extra care against risks that are usually overlooked and therefore improves risk management theory. Overall, aspects of ESG awareness shape the nature of accountants' risk perceptions and decision-making processes in many ways.

17.6. Practical Implications

The results have a meaningful impact on accountants, business leaders and policymakers. The findings also underscore the importance of ESG training in educational curricula to help accountants understand how to identify and manage ESG risk. Increased ESG awareness performance leads to improved risk management and sustainable business performance. The inclusion of ESG in corporate governance frameworks underlines the basis for good ethical behaviour in risk reduction. Policymakers should consider the influence of ESG awareness on legislation and perhaps even require ESG reporting and ESG-related risk assessments to create awareness. This scheme can be achieved by enhancing good corporate behaviour, thereby contributing to the conservation of the environment. According to Friede et al. (2015), this approach can promote common and comprehensive regulations that address ESG challenges.

17.7. Conclusions

ESG awareness is crucial in influencing the risk perceptions of accountants. This study is strongly supported by cognitive theory and behavioural decision-making theory. The findings demonstrate how ESG awareness can improve risk perception in ESG metrics, leading to enhanced risk management skills. Important theoretical and practical implications can also be drawn from this research. For example, ESG promotion must be deeply emphasised in accountancy education, corporate governance and policy-making networks. A known approach for business entities is to navigate the current global market by cultivating an understanding of ESG issues amongst accountants, thereby contributing to sustainable and responsible business practices.

17.8. Limitations and Future Research

Although this study has established that ESG awareness affects risk consciousness, further research is still needed. Firstly, the survey is limited to accountants only; therefore, the applicability of the model to other practitioners of risk management is generally low. Future studies must look into major figures such as chief executive officers, board members and investors to determine how these prominent individuals might perceive risks related to their ESG awareness.

Secondly, another factor that could influence self-reported data on ESG awareness and risk perception is social desirability bias. In future research, for the findings to be

confirmed and for bias to be minimised, cognitive tests and behavioural observations may be employed to objectively measure ESG awareness.

Finally, this cross-sectional study captured only a single moment—causation is difficult to ascertain. Future research may adopt longitudinal designs to assess conditions and determine how they change over time in real ESG realms. How ESG consciousness shapes risk perception is another path for research. Experimental or quasiexperimental designs may clarify the cause–effect relationship.

Author Contributions: H.-K.P. led the data collection and analysis efforts and the writing of the original draft. C.-C.F. led the funding acquisition and the writing of the original draft and its review and editing. All authors have read and agreed to the published version of the manuscript.

Funding: This research is supported by the research project funding of Corporate Social Responsibility: Perceptions and Activities (RP/FCG-01/2022) from Macao Polytechnic University.

Data Availability Statement: All the data used in this evaluation are available and can be requested from the authors. Please contact Hok-Ko Pong (author, hkpong@thei.edu.hk) for data requests.

Conflicts of Interest: The authors declare no conflicts of interest.

References

- Alkaraan, Fadi, Khaldoun Albitar, Khaled Hussainey, and V. G. Venkatesh. 2022. Corporate transformation toward Industry 4.0 and financial performance: The influence of environmental, social, and governance (ESG). *Technological Forecasting & Social Change* 175: 121423. [CrossRef]
- Alsaifi, Khaled, Marwa Elnahass, and Aly Salama. 2020. Market responses to firms' voluntary carbon disclosure: Empirical evidence from the United Kingdom. *Journal of Cleaner Production* 262: 121377. [CrossRef]
- Apergis, Nicholas, Thomas Poufinas, and Alexandros Antonopoulos. 2022. ESG scores and cost of debt. *Energy Economics* 112: 106186. [CrossRef]
- Armstrong, Anona. 2020. Ethics and ESG. *Australasian Accounting, Business and Finance Journal* 14: 6–17. [CrossRef]
- Asante-Appiah, Bright, and Tamara A. Lambert. 2023. The role of the external auditor in managing environmental, social, and governance (ESG) reputation risk. *Review of Accounting Studies* 28: 2589–641. [CrossRef]
- Atan, Ruhaya, Fatin Adilah Razali, Jamaliah Said, and Saunah Zainun. 2016. Environmental, social and governance (ESG) disclosure and its effect on firm's performance: A comparative study. *International Journal of Economics and Management* 10: 355–75.
- Atif, Muhammad, and Searat Ali. 2021. Environmental, social and governance disclosure and default risk. *Business Strategy and the Environment* 30: 3937–59. [CrossRef]
- Bacci, Silvia, Bruno Bertaccini, Ester Macri, and Anna Pettini. 2024. Measuring sustainability consciousness in Italy. *Quality & Quantity* 58: 4751–78. [CrossRef]
- Bandura, Albert, and Daniel Cervone. 1986. Differential engagement of self-reactive influences in cognitive motivation. *Organizational Behavior and Human Decision Processes* 38: 92–113. [CrossRef]
- BBC News. 2017. Wells Fargo Reveals More Fake Accounts. *BBC News*, August 31. Available online: <https://www.bbc.com/news/business-41113665> (accessed on 8 July 2024).
- BBC News. 2022. Wirecard Trial of Executives Opens in German Fraud Scandal. *BBC News*, December 8. Available online: <https://www.bbc.com/news/world-europe-63893933> (accessed on 8 July 2024).
- Bearpark, Noémi També. 2022. *Deconstructing Money Laundering Risk: De-Risking, the Risk-Based Approach and Risk Communication*, 1st ed. Cham: Springer International Publishing AG. [CrossRef]
- Berglund, Teresa, Niklas Gericke, Jelle Boeve-de Pauw, Daniel Olsson, and Tzu-Chau Chang. 2020. A cross-cultural comparative study of sustainability consciousness between students in Taiwan and Sweden. *Environment, Development and Sustainability* 22: 6287–313. [CrossRef]
- Bhandari, Krishna Raj, Mikko Ranta, and Jari Salo. 2022. The resource-based view, stakeholder capitalism, ESG, and sustainable competitive advantage: The firm's embeddedness into ecology, society, and governance. *Business Strategy and the Environment* 31: 1525–37. [CrossRef]
- Caiazza, Stefano, Giuseppe Galloppo, and Viktoriia Paimanova. 2021. The role of sustainability performance after merger and acquisition deals in short and long-term. *Journal of Cleaner Production* 314: 127982. [CrossRef]
- Carattini, Stefano, Edgar Hertwich, Givi Melkadze, and Jeffrey G. Shrader. 2022. Mandatory disclosure is key to address climate risks. *Science* 378: 352–54. [CrossRef]
- Chairani, Chairani, and Sylvia Veronica Siregar. 2021. The effect of enterprise risk management on financial performance and firm value: The role of environmental, social and governance performance. *Meditari Accountancy Research* 29: 647–70. [CrossRef]
- Chen, Hsiao-Min, Tsai-Chi Kuo, and Ju-Long Chen. 2022. Impacts on the ESG and financial performances of companies in the manufacturing industry based on the climate change related risks. *Journal of Cleaner Production* 380: 134951. [CrossRef]

- Chen, Simin, Yu Song, and Peng Gao. 2023. Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management* 345: 118829. [CrossRef]
- Comoli, Maurizio, Patrizia Tettamanzi, and Michael Murgolo. 2023. Accounting for 'ESG' under disruptions: A systematic literature network analysis. *Sustainability* 15: 6633. [CrossRef]
- Damodaran, Aswath. 2007. *Strategic Risk Taking: A Framework for Risk Management*. Philadelphia: Wharton School Publishing.
- David, Lemuel Kenneth, Jianling Wang, Vanessa Angel, and Meiling Luo. 2024. Environmental commitments and Innovation in China's corporate landscape: An analysis of ESG governance strategies. *Journal of Environmental Management* 349: 119529. [CrossRef]
- Dechow, Patricia M. 2023. Understanding the sustainability reporting landscape and research opportunities in accounting. *The Accounting Review* 98: 481–93. [CrossRef]
- DiMaggio, Paul J., and Walter W. Powell. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review* 48: 147–60. [CrossRef]
- Ding, Xiangnan, Andrea Appolloni, and Mohsin Shahzad. 2022. Environmental administrative penalty, corporate environmental disclosures and the cost of debt. *Journal of Cleaner Production* 332: 129919. [CrossRef]
- Eccles, Robert G., Ioannis Ioannou, and George Serafeim. 2014. The impact of corporate sustainability on organizational processes and performance. *Management Science* 60: 2835–57. [CrossRef]
- El Khoury, Rim, Nohade Nasrallah, and Bahaeddin Alareeni. 2023. ESG and financial performance of banks in the MENAT region: Concavity–convexity patterns. *Journal of Sustainable Finance & Investment* 13: 406–30.
- Faccia, Alessio, Francesco Manni, and Fabian Capitanio. 2021. Mandatory ESG reporting and XBRL taxonomies combination: ESG ratings and income statement, a sustainable value-added disclosure. *Sustainability* 13: 8876. [CrossRef]
- Freeman, R. Edward. 2010. *Strategic Management: A Stakeholder Approach*. Cambridge: Cambridge University Press.
- Freeman, R. Edward, Jeffrey S. Harrison, and Stelios Zyglidopoulos. 2018. *Stakeholder Theory: Concepts and Strategies*. Cambridge: Cambridge University Press.
- Friede, Gunnar, Timo Busch, and Alexander Bassen. 2015. ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment* 5: 210–33.
- Galletta, Simona, John W. Goodell, Sebastiano Mazzù, and Andrea Paltrinieri. 2023. Bank reputation and operational risk: The impact of ESG. *Finance Research Letters* 51: 103494. [CrossRef]
- Gericke, Niklas, Jelle Boeve-de Pauw, Teresa Berglund, and Daniel Olsson. 2019. The Sustainability Consciousness Questionnaire: The theoretical development and empirical validation of an evaluation instrument for stakeholders working with sustainable development. *Sustainable Development* 27: 35–49. [CrossRef]
- Gupta, Amit Kumar, and Narain Gupta. 2021. Environment practices mediating the environmental compliance and firm performance: An institutional theory perspective from emerging economies. *Global Journal of Flexible Systems Management* 22: 157–78. [CrossRef]
- Hassanein, Ahmed, Ahmed Bani-Mustafa, and Khalil Nimer. 2024. A country's culture and reporting of sustainability practices in energy industries: Does a corporate sustainability committee matter? *Humanities and Social Sciences Communications* 11: 1140. [CrossRef]
- He, Xu, Qinlei Jing, and Hao Chen. 2023. The impact of environmental tax laws on heavy-polluting enterprise ESG performance: A stakeholder behavior perspective. *Journal of Environmental Management* 344: 118578. [CrossRef]
- Hoang, Think. 2018. The Role of the Integrated Reporting in Raising Awareness of Environmental, Social and Corporate Governance (ESG) Performance. In *Stakeholders, Governance and Responsibility*. Bingley: Emerald Publishing Limited, vol. 14, pp. 47–69. [CrossRef]
- Hubbard, Douglas W. 2020. *The Failure of Risk Management: Why It's Broken and How to Fix It*, 2nd ed. Hoboken: Wiley. [CrossRef]
- Ishak, Nurul Diana Intan Zafirah, and Arnifa Asmawi. 2022. Integrating ESG Framework in Corporate Strategic Planning: A Proposed Case Study of a Technology Hub Developer. *Journal of Logistics, Informatics and Service Science* 9: 53–63.
- Jackson, Gregory, Julia Bartosch, Emma Avetisyan, Daniel Kinderman, and Jette Steen Knudsen. 2020. Mandatory Non-financial Disclosure and Its Influence on CSR: An International Comparison. *Journal of Business Ethics* 162: 323–42. [CrossRef]
- Jejenywa, Temitayo Oluwaseun, Noluthando Zamanjomane Mhlongo, and Titilola Olaide Jejenywa. 2024. The role of ethical practices in accounting: A review of corporate governance and compliance trends. *Finance & Accounting Research Journal* 6: 707–20.
- Jensen, Michael C., and William H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3: 305–60. [CrossRef]
- Jones, Thomas M. 1991. Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review* 16: 366–95. [CrossRef]
- Kandpal, Vinay, Anshuman Jaswal, Ernesto DR Santibanez Gonzalez, and Naveen Agarwal. 2024. *Sustainable Energy Transition: Circular Economy and Sustainable Financing for Environmental, Social and Governance (ESG) Practices*. Cham: Springer Nature. [CrossRef]
- Kaplan, Robert S., and Anette Mikes. 2012. Managing risks: A new framework. *Harvard Business Review* 90: 48–60.
- Karwowski, Mariusz, and Monika Raulinajtys-Grzybek. 2021. The application of corporate social responsibility (CSR) actions for mitigation of environmental, social, corporate governance (ESG) and reputational risk in integrated reports. *Corporate Social Responsibility and Environmental Management* 28: 1270–84. [CrossRef]
- Kazancoglu, Ipek, Muhittin Sagnak, Sachin Kumar Mangla, and Yigit Kazancoglu. 2021. Circular economy and the policy: A framework for improving the corporate environmental management in supply chains. *Business Strategy and the Environment* 30: 590–608. [CrossRef]

- Khan, Tariqullah. 2024. Circular-ESG Model for Regenerative Transition. *Sustainability* 16: 7549. [\[CrossRef\]](#)
- Kim, Sol, Geul Lee, and Hyoung-Goo Kang. 2021. Risk management and corporate social responsibility. *Strategic Management Journal* 42: 202–30. [\[CrossRef\]](#)
- Landi, Giovanni Catello, Francesca Iandolo, Antonio Renzi, and Andrea Rey. 2022. Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk. *Corporate Social Responsibility and Environmental Management* 29: 1096–107. [\[CrossRef\]](#)
- Lee, Jooh, Kyungyeon Koh, and Eunsup Daniel Shim. 2024. Managerial incentives for ESG in the financial services industry: Direct and indirect association between ESG and executive compensation. *Managerial Finance* 50: 10–27. [\[CrossRef\]](#)
- Lee, Lee Siew, and Mansor Isa. 2020. Environmental, Social and Governance (ESG) Practices and Performance in Shariah Firms: Agency or Stakeholder Theory? *Asian Academy of Management Journal of Accounting and Finance* 16: 1–34. [\[CrossRef\]](#)
- Lennard, Jacob B., and Robin W. Roberts. 2023. The accounting profession, corporate social responsibility, and ethics. In *Research Handbook on Accounting and Ethics*. Cheltenham: Edward Elgar Publishing, pp. 35–49.
- Leung, Tiffany Cheng-Han, and You Shi Xiang. 2022. The general overview of environmental, social, and governance (ESG) guidelines in Hong Kong: Past, present, and future. In *Comparative CSR and Sustainability*. London: Routledge, pp. 345–63.
- Liang, Lin, and Yan Li. 2023. The double-edged sword effect of organizational resilience on ESG performance. *Corporate Social Responsibility and Environmental Management* 30: 2852–72. [\[CrossRef\]](#)
- Liang, Yi, Min Jae Lee, and Jin Sup Jung. 2022. Dynamic capabilities and an ESG strategy for sustainable management performance. *Frontiers in Psychology* 13: 887776. [\[CrossRef\]](#)
- Lisi, Irene Eleonora. 2018. Determinants and performance effects of social performance measurement systems. *Journal of Business Ethics* 152: 225–51. [\[CrossRef\]](#)
- Liu, Min, Tongji Guo, Weiying Ping, and Liangqing Luo. 2023. Sustainability and stability: Will ESG investment reduce the return and volatility spillover effects across the Chinese financial market? *Energy Economics* 121: 106674. [\[CrossRef\]](#)
- MacNeil, Iain, and Irene-Marié Esser. 2022. From a financial to an entity model of ESG. *European Business Organization Law Review* 23: 9–45. [\[CrossRef\]](#)
- Moffitt, Jacquelyn Sue, Jeanne-Claire Alyse Patin, and Luke Watson. 2024. Corporate environmental, social, and governance (ESG) performance and the internal control environment. *Accounting Horizons* 38: 103–24. [\[CrossRef\]](#)
- Mooneepen, Oren, Subhash Abhayawansa, and Naushad Mamode Khan. 2022. The influence of the country governance environment on corporate environmental, social and governance (ESG) performance. *Sustainability Accounting, Management and Policy Journal* 13: 953–85. [\[CrossRef\]](#)
- Ni, Jiahao. 2024. Research On Compliance Risk Identification and Prevention Mechanism of Enterprises in The ESG Field. *Highlights in Science, Engineering and Technology* 85: 1294–99. [\[CrossRef\]](#)
- Nilipour, Tabatabaei A., Tracy-Anne De Silva, and Xuedong Li. 2020. The Readability of Sustainability Reporting in New Zealand over time. *Australasian Accounting, Business & Finance Journal* 14: 86–107. [\[CrossRef\]](#)
- Nocco, Brian W., and René M. Stulz. 2006. Enterprise risk management: Theory and practice. *Journal of Applied Corporate Finance* 18: 8–20. [\[CrossRef\]](#)
- Nugroho, Deiner P. D., Yi Hsu, Christian Hartauer, and Andreas Hartauer. 2024. Investigating the Interconnection between Environmental, Social, and Governance (ESG), and Corporate Social Responsibility (CSR) Strategies: An Examination of the Influence on Consumer Behavior. *Sustainability* 16: 614. [\[CrossRef\]](#)
- Oh, Hyun Jung, Byoungkwan Lee, Hye Hyun Ma, Dayeoun Jang, and Sejin Park. 2024. A preliminary study for developing perceived ESG scale to measure public perception toward organizations' ESG performance. *Public Relations Review* 50: 102398. [\[CrossRef\]](#)
- Park, So Ra, and Jae Young Jang. 2021. The impact of ESG management on investment decision: Institutional investors' perceptions of country-specific ESG criteria. *International Journal of Financial Studies* 9: 48. [\[CrossRef\]](#)
- Pollman, Elizabeth. 2019. *Corporate Social Responsibility, ESG, and Compliance*. Forthcoming, *Cambridge Handbook of Compliance*. Edited by D. Daniel Sokol and Benjamin van Rooij. Loyola Law School, Los Angeles Legal Studies Research Paper, (2019-35). Cambridge: Cambridge University Press.
- Pong, Hok-Ko, and Chun-Cheong Fong. 2023. The Associations of Spirituality, Adversity Quotient and Ethical Decision Making of Accounting Managers in the Contexts of Financial Management and Corporate Social Responsibility. *Sustainability* 15: 14287. [\[CrossRef\]](#)
- Pong, Hok-Ko, and Chun-Cheong Fong. 2024. The Impact of Personal Satisfaction on the Environmental, Social, and Governance Practices of Chinese Accounting Managers. *Sustainability* 16: 5839. [\[CrossRef\]](#)
- Raghavan, Kamala. 2022. ESG reporting impact on accounting, finance. *Journal of Global Awareness* 3: 9. [\[CrossRef\]](#)
- Ramos, Jessica, Ella Adler, and Erietta Exarchopoulou. 2024. How to maintain a strong compliance function in a remote/hybrid working environment, using ESG as both the objective and the driver. *Journal of Financial Compliance* 8: 43–53.
- Redondo Alamillos, Rocío, and Frédéric De Mariz. 2022. How can European regulation on ESG impact business globally? *Journal of Risk and Financial Management* 15: 291. [\[CrossRef\]](#)
- Saari, Ulla A., Svenja Damberg, Lena Frömling, and Christian M. Ringle. 2021. Sustainable consumption behavior of Europeans: The influence of environmental knowledge and risk perception on environmental concern and behavioral intention. *Ecological Economics* 189: 107155. [\[CrossRef\]](#)

- Sadaf, Rabeea, Judit Oláh, József Popp, and Domicián Máté. 2018. An investigation of the influence of the worldwide governance and competitiveness on accounting fraud cases: A cross-country perspective. *Sustainability* 10: 588. [CrossRef]
- Sassen, Remmer, Anne-Kathrin Hinze, and Inga Hardeck. 2016. Impact of ESG factors on firm risk in Europe. *Journal of Business Economics* 86: 867–904. [CrossRef]
- Scherer, Andreas Georg, and Christian Voegtlin. 2020. Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development. *Academy of Management Perspectives* 34: 182–208. [CrossRef]
- Schwartz, Mark S. 2016. Ethical Decision-Making Theory: An Integrated Approach. *Journal of Business Ethics* 139: 755–76. [CrossRef]
- Shakil, Mohammad Hassan. 2021. Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity. *Resources Policy* 72: 102144. [CrossRef]
- Sheedy, Elizabeth, Le Zhang, and Kenny Chi Ho Tam. 2019. Incentives and culture in risk compliance. *Journal of Banking & Finance* 107: 105611.
- Singhania, Monica, and Neha Saini. 2023. Institutional framework of ESG disclosures: Comparative analysis of developed and developing countries. *Journal of Sustainable Finance & Investment* 13: 516–59.
- Solaimani, Sam. 2024. From Compliance to Capability: On the Role of Data and Technology in Environment, Social, and Governance. *Sustainability* 16: 6061. [CrossRef]
- South, David, Kaitlyn Zolton, and Andy Trump. 2021. Expanded climate risk disclosure requirements by the security and exchange commission. *Climate and Energy* 38: 1–12. [CrossRef]
- Sulkowski, Adam, and Ruth Jebe. 2022. Evolving ESG reporting governance, regime theory, and proactive law: Predictions and strategies. *American Business Law Journal* 59: 449–503. [CrossRef]
- The Guardian. 2010. BP Oil Spill: Timeline of Events. *The Guardian*, April 20. Available online: <https://www.theguardian.com/environment/2010/jun/29/bp-oil-spill-timeline-deepwater-horizon> (accessed on 8 July 2024).
- The Guardian. 2018. Brazil Dam Disaster: Firm Knew of Potential Impact Months in Advance. *The Guardian*, March 1. Available online: <https://www.theguardian.com/world/2018/feb/28/brazil-dam-collapse-samarco-fundao-mining> (accessed on 8 July 2024).
- The Guardian. 2019. Facebook to Pay \$5bn Fine as Regulator Settles Cambridge Analytica Complaint. *The Guardian*, July 24. Available online: <https://www.theguardian.com/technology/2019/jul/24/facebook-to-pay-5bn-fine-as-regulator-files-cambridge-analytica-complaint> (accessed on 8 July 2024).
- The Guardian. 2021a. Boohoo Accused of Failing to Improve Working Conditions in Its Supply Chain. *The Guardian*, June 18. Available online: <https://www.theguardian.com/business/2021/jun/18/boohoo-accused-of-failing-to-improve-working-conditions-in-its-supply-chain> (accessed on 8 July 2024).
- The Guardian. 2021b. What Did Greensill Capital Actually Do? *The Guardian*, April 15. Available online: <https://www.theguardian.com/commentisfree/2021/apr/15/what-did-greensill-capital-actually-do> (accessed on 8 July 2024).
- The New York Times. 2019. Boeing 737 Max: What's Happened After the 2 Deadly Crashes. *The New York Times*, October 28. Available online: <https://www.nytimes.com/interactive/2019/business/boeing-737-crashes.html> (accessed on 8 July 2024).
- Trevino, Linda K., and Stuart A. Youngblood. 1990. Bad Apples in Bad Barrels: A Causal Analysis of Ethical Decision-Making Behavior. *Journal of Applied Psychology* 75: 378–85. [CrossRef]
- Treviño, Linda K., Gary R. Weaver, and Scott J. Reynolds. 2006. Behavioral ethics in organizations: A review. *Journal of Management* 32: 951–90. [CrossRef]
- Tsang, Albert, Tracie Frost, and Huijuan Cao. 2023. Environmental, Social, and Governance (ESG) disclosure: A literature review. *The British Accounting Review* 55: 101149. [CrossRef]
- Turker, Duygu. 2009. Measuring Corporate Social Responsibility: A Scale Development Study. *Journal of Business Ethics* 85: 411–27. [CrossRef]
- Yu, Ellen Pei-Yi, Christine Qian Guo, and Bac Van Luu. 2018. Environmental, social and governance transparency and firm value. *Business Strategy and the Environment* 27: 987–1004. [CrossRef]
- Yu, Wenjun, Yu Gu, and Jun Dai. 2023. Industry 4.0-enabled environment, social, and governance reporting: A case from a Chinese energy company. *Journal of Emerging Technologies in Accounting* 20: 245–58. [CrossRef]
- Zaporowska, Zuzanna, and Marek Szczepański. 2024. The Application of Environmental, Social and Governance Standards in Operational Risk Management in SSC in Poland. *Sustainability* 16: 2413. [CrossRef]
- Zhao, Donghui. 2022. ESG risk management and compliance practices in China. *Law and Economy* 1: 27–32. [CrossRef]
- Ziolo, Magdalena, Beata Zofia Filipiak, Iwona Bąk, and Katarzyna Cheba. 2019. How to design more sustainable financial systems: The roles of environmental, social, and governance factors in the decision-making process. *Sustainability* 11: 5604. [CrossRef]
- Ziolo, Magdalena, Iwona Bąk, and Anna Spoz. 2023. Incorporating ESG risk in companies' business models: State of research and energy sector case studies. *Energies* 16: 1809. [CrossRef]
- Zumente, Ilze, and Jūlija Bistrova. 2021. ESG importance for long-term shareholder value creation: Literature vs. practice. *Journal of Open Innovation* 7: 127. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.