

Article

# Does Capital Expenditure Matter for ESG Disclosure? A UK Perspective

Ahmed Saber Moussa <sup>1,\*</sup> and Mahmoud Elmarzouky <sup>2</sup>

<sup>1</sup> Customs Authority, Ministry of Finance Egypt, Nasr City 11635, Cairo, Egypt

<sup>2</sup> Aston Business School, Aston University, Birmingham B4 7ET, UK; m.elmarzouky@aston.ac.uk

\* Correspondence: ahmd.saber@hotmail.com or ahmd.saber@commerce.menofia.edu.eg

**Abstract:** This study examines how capital expenditure (capex) affects Environmental, Social, and Governance (ESG) reporting and how corporate governance moderates this effect. We use data from non-financial firms in the FTSE All Share index from 2012 to 2021 and measure ESG disclosure with the Bloomberg ESG Disclosure Score, capex with logarithm of the ratio of capital expenditure to total assets, and corporate governance with a composite index based on Board Size, Independent Board, Board Diversity, and Audit Committee Non-Executives. We also examine the non-linear and threshold effects of capex on ESG disclosure with spline regression models. We find that capex is positively linked to ESG disclosure and that this association is robust for firms with better corporate governance. Our findings imply that capex improves ESG performance and impact and that corporate governance enables ESG communication to stakeholders. Our research advances the existing literature by revealing the link between capex, governance, and ESG reporting in a dynamic and uncertain environment. Our study holds practical significance for companies, investors, and regulators who want to incorporate ESG factors into capex decisions and reporting.

**Keywords:** capital expenditure; ESG disclosure; stakeholder theory; resource dependence theory; principal component analysis



**Citation:** Moussa, Ahmed Saber, and Mahmoud Elmarzouky. 2023. Does Capital Expenditure Matter for ESG Disclosure? A UK Perspective. *Journal of Risk and Financial Management* 16: 429. <https://doi.org/10.3390/jrfm16100429>

Academic Editor: Ștefan Cristian Gherghina

Received: 4 September 2023

Revised: 21 September 2023

Accepted: 22 September 2023

Published: 28 September 2023



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## 1. Introduction

Environmental, Social, and Governance (ESG) reporting pertains to the disclosure of non-financial data related to a firm's sustainability performance and its influence on diverse stakeholders (Moussa 2023). ESG reporting provides a comprehensive overview of a firm's achievement across environmental, social, and governance aspects. It covers topics such as energy efficiencies, carbon footprints, greenhouse gas emissions, biodiversity, waste management, labor standards, workplace diversity, human rights, talent management, community relations, privacy, and health and safety, as well as governance factors like board composition, sustainability oversight, executive compensation, political contributions, lobbying, and corruption (Bergman et al. 2020). The importance of ESG reporting has grown as stakeholders demand greater transparency and accountability from companies regarding their social and environmental responsibilities and risks. ESG disclosure can also significantly affect a company's financial performance and value (American Institute of CPAs & Center for Audit Quality 2021). Depending on the rules, ESG disclosure can be voluntary or mandatory and involves costs. However, ESG disclosure can also provide valuable information to stakeholders such as investors, customers, employees, regulators, and society and help firms create a better work culture, build trust, and improve their image (Ng and Rezaee 2015). Capital expenditure (capex) is one of the strategic factors that can influence a company's ESG disclosure practices. Capex denotes the amount of money that a company allocates to purchase or enhance fixed assets. It can also have significant social and environmental impacts and risks (Bergman et al. 2020).

The interaction between capex and ESG disclosure is complex and dynamic, as it can be affected by a multitude of drivers, such as stakeholder expectations and pressures, regulatory policies and standards, industry characteristics and norms, and corporate governance practices and quality. Despite the significance of this relationship, there is a scarcity of research on the subject, particularly in the UK, where ESG reporting practices and expectations may vary considerably from other developed markets. As such, there is a pressing need for further research into the association between capex and ESG reporting in the UK, where ESG disclosure is less prevalent and often voluntary. This study investigates how capex affects ESG disclosure and how governance moderates this effect in the UK. Using a novel dataset of non-financial firms in the FTSE All Share index from 2012 to 2021, this study measures ESG disclosure with the Bloomberg ESG Disclosure Score, employs an instrumental variable approach to address endogeneity, and exploits an event that occurred in the UK during the study period. This study also examines the non-linearities and thresholds in the capex–ESG disclosure relationship using spline regression models. This is the first study to explore this complex and dynamic relationship in the UK, where ESG disclosure practices and expectations may differ from other developed markets.

The aim of this study is to tackle this deficiency by exploring how capex affects ESG disclosure and how corporate governance moderates this effect in the UK context. This study draws on two main theories to explain the link between capex and ESG disclosure: Stakeholder theory and Resource Dependence theory. Stakeholder theory (Freeman 1984; Donaldson and Preston 1995; Mitchell et al. 1997) advocates for firms to take into account the concerns and anticipations of a wide range of stakeholders, extending beyond just shareholders to encompass customers, employees, suppliers, regulators, and society at large. By investing in capex that shows their commitment to innovation and growth, firms can improve their reputation and legitimacy among their stakeholders, which may induce them to disclose more ESG information. Resource Dependence theory (Pfeffer and Salancik 1978; Hillman et al. 2009) suggests that firms invest in capex to acquire and maintain valuable resources that enable them to survive and thrive. By doing so, they can improve their efficiency, quality, and differentiation, which can increase their market share and profitability. However, capex can also create new ESG risks and opportunities for firms that may require new disclosures.

This study uses a multivariate analysis to test the hypotheses, using a sample of 3294 observations for ESG Disclosure Level and 3995 observations for Capex. This study uses an instrumental variable approach to address endogeneity concerns in the association between capex and ESG reporting, using the 2008 SEO deregulation as an exogenous event that affected capex decisions but not ESG disclosure decisions of firms. This study also uses spline regression models to test for non-linearities and thresholds in the association between capex and ESG reporting.

This study makes a distinctive contribution to the existing literature by providing fresh insights into the association amongst capital expenditure (capex), governance practices, and Environmental, Social, and Governance (ESG) disclosure within the context of the United Kingdom. It advances our understanding of how these elements intersect and impact each other, shedding light on the intricate dynamics at play. Furthermore, this research holds significant practical relevance for corporations, investors, and regulatory bodies. It furnishes guidance on the integration of ESG considerations into capital expenditure decision-making processes and offers strategies for effective communication of ESG performance and impact to diverse stakeholders. The findings of this study facilitate more informed decision making and enhance transparency in ESG-related practices. This paper is organized into six sections. The Section 2 reviews the relevant literature and develops the hypotheses to be tested. The Section 3 describes the data and the methodology used to collect and analyze the data. The Section 4 reports the empirical results of the study. The Section 5 discusses the findings of the study and their implications. The Section 6 concludes the paper by summarizing the main points and providing suggestions for future research.

## 2. Literature Review, Theoretical Framework, and Hypothesis Development

### 2.1. Literature Review

The association between capex and ESG disclosure is complex and dynamic, as it can be affected by various aspects, including stakeholder expectations and pressures, regulatory policies and standards, industry characteristics and norms, and corporate governance practices and quality. Environmental, Social, and Governance (ESG) disclosure refers to the voluntary or mandatory reporting of non-financial information on a company's sustainability performance and impact on various stakeholders, such as investors, customers, employees, suppliers, regulators, and society at large. ESG disclosure has become increasingly important in the corporate world, as stakeholders demand more transparency and accountability from companies regarding their social and environmental responsibility and risks. ESG disclosure can also have significant implications for a company's financial performance and value, as it can affect its access to capital, cost of capital, reputation, competitiveness, and profitability.

According to stakeholder theory (Freeman 1984; Donaldson and Preston 1995; Mitchell et al. 1997), companies have obligations to various stakeholders beyond shareholders, such as customers, employees, suppliers, regulators, and society at large. Companies can improve their reputation and legitimacy among their stakeholders by investing in capex that shows their dedication to innovation and growth. By doing so, they can enhance their stakeholder engagement and satisfaction. This may motivate companies to disclose more ESG information, as they may want to share their social and environmental responsibility and performance with their stakeholders (Ng and Rezaee 2015; Eliwa et al. 2021).

Prior research has presented empirical proof supporting the indirectly favorable link between capital expenditure (capex) and ESG disclosure. Drawing from stakeholder theory, Ng and Rezaee (2015) explored the role of internal auditors in improving corporate governance and risk management. They proposed a framework consisting of five components: understanding the business environment and objectives, assessing risks and controls, providing recommendations, monitoring and reporting, and enhancing professional skills. They emphasized the importance of independence, objectivity, and collaboration with various stakeholders. They argued that by investing in capex, companies can show their commitment to innovation and growth, which may enhance their stakeholder engagement and satisfaction. This may motivate companies to disclose more ESG information, as they may want to share their social and environmental responsibility and performance with their stakeholders.

Eliwa et al. (2021) investigated the correlation among ESG practices, both performance and disclosure, and the cost of debt in 15 EU countries. Their findings indicated that financial institutions take ESG information into account when making credit decisions, placing value on both ESG performance and disclosure. Companies exhibiting more robust ESG performance experience reduced debt costs, and ESG disclosure has an equal impact on debt costs as ESG performance. They also highlighted the influence of civil society and the state in the context of ESG practices and debt costs. They suggested that companies with higher capex may disclose more ESG information to signal their commitment to social and environmental responsibility and thus increase their stakeholder trust and satisfaction.

According to resource dependence theory (Pfeffer and Salancik 1978; Hillman et al. 2009), companies invest in capex to obtain and maintain valuable resources that enable them to survive and thrive. By doing so, they can increase their efficiency, quality, and differentiation, which can boost their market share and profitability. However, capex can also create new ESG risks and opportunities for companies that may require new disclosures. For instance, capex may affect the energy consumption and emissions of companies or introduce new environmental regulations or standards that they need to comply with. Capex may also affect the labor conditions and human rights of workers or create new social impacts or benefits for communities (El Ghouli et al. 2011; Dhaliwal et al. 2011).

Previous research has offered empirical support for the favorable association between capital expenditures (capex) and ESG disclosure, drawing from the perspective of resource dependence theory. As an example, [El Ghouli et al. \(2011\)](#) investigated the connection between corporate social responsibility (CSR) and the cost of equity capital within the context of U.S. companies. Their study revealed that companies with higher CSR scores benefit from lower costs of equity financing. Notably, investments in responsible employee relations, environmental policies, and product strategies were found to contribute to the reduction of equity financing costs. Conversely, companies operating in 'sin' industries faced higher costs of equity financing. This research highlighted the positive impact of socially responsible practices on firm valuation and risk reduction.

[Dhaliwal et al. \(2011\)](#) directed their attention to voluntary corporate social responsibility (CSR) disclosure and its correlation with a firm's cost of equity capital. Their findings indicated that companies with high costs of equity capital are more inclined to initiate CSR disclosure. Furthermore, firms demonstrating strong CSR performance subsequently witnessed a reduction in their cost of equity capital. They underscored the advantages of CSR disclosure, including its role in lowering a company's cost of equity capital and attracting institutional investors and analyst coverage.

As far as we are aware, this study represents the initial attempt to investigate the association between capex and ESG disclosure in the UK. Despite the significance of this relationship, there is a scarcity of research on the subject, particularly in the UK, where ESG reporting practices and expectations may vary considerably from other developed markets. As such, there is a pressing need for further research into the association between capex and ESG reporting in the UK, where ESG disclosure is less prevalent and often voluntary.

Stakeholder theory is a normative framework advocating that organizations should take into account the interests and expectations of a wide range of stakeholders during their decision-making processes. Stakeholders encompass any group or individual who has the capacity to impact or be influenced by the company's goal attainment. Stakeholder theory suggests that companies can create value for themselves and their stakeholders by engaging in responsible business practices that address the social and environmental issues that matter to them ([Freeman 1984](#); [Donaldson and Preston 1995](#); [Mitchell et al. 1997](#)).

Resource dependence theory is a positive theory that explains how companies manage their external environment by acquiring and maintaining critical resources that enable them to survive and thrive. Resources are defined as anything that can be used by a company to achieve its goals or objectives. Resource dependence theory suggests that companies can reduce their dependence on external actors by investing in capex that enhances their resource base and capabilities. By doing so, they can increase their bargaining power and reduce uncertainty in their environment ([Pfeffer and Salancik 1978](#); [Hillman et al. 2009](#)).

Both stakeholder theory and resource dependence theory provide useful frameworks for understanding the association amongst capex, governance, and ESG disclosure. Stakeholder theory helps explain how capex can improve a company's reputation and legitimacy among its stakeholders, which may motivate it to disclose more ESG information. Resource dependence theory helps explain how capex can create value and reduce uncertainty for a company and its stakeholders, which may require it to disclose more ESG information. Governance can exert a substantial influence on a company's ESG disclosure and performance, as it can influence the quality and quantity of information that is reported to stakeholders ([Ng and Rezaee 2015](#); [Eliwa et al. 2021](#)).

In the realm of ESG disclosure, a significant gap in the existing literature is the absence of studies specifically investigating the influence of capital expenditures (capex) on ESG disclosure. This study aims to address this void by examining the capex–ESG disclosure relationship within the United Kingdom. Furthermore, prior research often relied on aggregated metrics like CSR scores or ratings for ESG disclosure assessment. However, these metrics may not capture the full spectrum of ESG aspects and dimensions relevant to different stakeholders. Therefore, there's a compelling need for more comprehensive measures such as the Global Reporting Initiative (GRI) framework or the Bloomberg ESG

Disclosure Score, which provide detailed insights across diverse ESG topics and indicators. The impact of capex on ESG disclosure can vary based on factors such as expenditure magnitude and type. For instance, modest capex levels may have minimal influence, while higher levels could lead to positive or negative outcomes, depending on their impact on opportunities and risks for firms and stakeholders.

To address these gaps, this study conducts a comprehensive examination of capex's impact on ESG disclosure and evaluates the moderating role of governance. The research utilizes a unique dataset comprising non-financial firms included in the FTSE All Share index in the United Kingdom from 2012 to 2021. ESG disclosure is meticulously measured using the Bloomberg ESG Disclosure Score. Methodologically, this study employs instrumental variable techniques to address endogeneity concerns and utilizes spline regression models to explore potential non-linearities and thresholds. In essence, this study contributes valuable insights into the complex interplay among capex, governance, and ESG disclosure, particularly within the context of the United Kingdom. These findings have practical implications for corporations, investors, and regulatory bodies, providing actionable guidance for integrating ESG considerations into capex decision making and effectively communicating ESG performance and its consequences to diverse stakeholders.

## 2.2. Theoretical Framework and Hypothesis Development

We draw on two main theories to explain the link between capital expenditure and ESG disclosure: Stakeholder theory and Resource Dependence theory. Stakeholder theory (Freeman 1984; Donaldson and Preston 1995; Mitchell et al. 1997) posits that firms should consider the interests and expectations of various stakeholders beyond shareholders, such as customers, employees, suppliers, regulators, and society. By investing in capital expenditure, firms can enhance their reputation and legitimacy among their stakeholders, as they demonstrate their commitment to innovation and growth. This may induce firms to provide a greater amount of ESG, as they seek to communicate their social and environmental responsibility and performance to their stakeholders. Based on this theory, we hypothesize that there is a positive association between capital expenditure and ESG disclosure:

**H1.** *There is a significant positive connection between capital expenditure and ESG reporting.*

Resource Dependence theory (Pfeffer and Salancik 1978; Hillman et al. 2009) suggests that firms invest in capital expenditure to acquire and maintain valuable resources that enable them to survive and thrive. By doing so, they can improve their efficiency, quality, and differentiation, which can increase their market share and profitability. However, capital expenditure can also influence the cost of capital of firms, which is the minimum return that they must generate on their investments to satisfy their investors and creditors. The cost of capital comprises the cost of equity and the cost of debt, which reflect the risk and return expectations of equity holders and debtholders, respectively.

Capital expenditure (capex) can influence the cost of capital in two main ways: by increasing or decreasing the risk of the company and by affecting the company's access to capital. For instance, it can boost the growth potential and profitability of a firm, lowering its risk and increasing its value. This can decrease the cost of equity and debt, as investors and creditors require lower returns for investing in a less risky and more valuable firm (Modigliani and Miller 1958; Myers 1977). Alternatively, it can increase the firm's financial risk, which can lead to higher leverage and bankruptcy costs. This can increase the cost of debt and equity, as creditors charge higher interest rates and credit spreads for lending to a riskier firm and as equity holders demand higher returns for investing in a more volatile firm (Modigliani and Miller 1958).

Capex can also affect the cost of capital indirectly through ESG disclosure. ESG disclosure provides information about the social and environmental impacts and risks of a firm's capex, affecting its reputation, legitimacy, stakeholder relations, and access to capital. ESG disclosure can help investors and creditors to better understand the firm's ESG risks and performance, which can lead to lower cost of capital. This is because ESG disclosure

can reduce information asymmetry and agency costs between a firm and its investors and creditors, as well as signal the firm's commitment to sustainability and responsibility (Healy and Palepu 2001; El Ghouli et al. 2011). ESG disclosure can also raise the cost of capital by creating expectations and obligations for a firm to maintain or improve its ESG performance or by exposing the firm to potential litigation or regulation related to its ESG impacts or risks (Dhaliwal et al. 2011; Ioannou and Serafeim 2019).

The effect of capital expenditure on ESG disclosure may also vary depending on the quality and effectiveness of corporate governance practices. Corporate governance, referring to the system of rules, practices, and processes by which a firm is directed and controlled, plays a vital role in influencing the association between capital expenditure (capex) and Environmental, Social, and Governance (ESG) disclosure. It encompasses the balance of power and accountability among various stakeholders, including shareholders, the board of directors, management, auditors, regulators, and society. Corporate governance's impact on a firm's ESG disclosure and performance is significant, as it can shape the quality and quantity of information reported to stakeholders (Ng and Rezaee 2015; Eliwa et al. 2021).

The choice of the United Kingdom as the primary focus of our study is strategic and grounded in several compelling factors that establish it as an optimal context for investigating the relationships between ESG reporting and audit fees (Moussa 2023). Firstly, the United Kingdom consistently exhibits a strong commitment to promoting corporate sustainability and ESG reporting through various regulatory initiatives, such as the UK Corporate Governance Code (ICAEW (Institute of Chartered Accountants in England and Wales) 2021), the UK Listing Rules, and the Taskforce on Climate-related Financial Disclosures (TCFD). These initiatives effectively encourage companies to provide more comprehensive ESG-related information, rendering the UK an ideal environment for exploring the potential cost implications of ESG reporting on audit fees. Secondly, the corporate governance landscape in the UK is well established, featuring an array of guidelines and codes that advocate for robust governance practices. Our study delves into how the presence of robust corporate governance mechanisms influences the association between ESG reporting and audit costs, offering valuable insights into governance's role in mitigating the expenses associated with ESG reporting. Lastly, the availability of extensive financial and ESG disclosure data for UK-listed companies, sourced from annual reports, sustainability reports, and third-party data providers, facilitates rigorous empirical analysis. This data richness ensures a comprehensive exploration of our research questions, strengthening the depth and validity of our study. Based on this theory, we hypothesize that:

**H2.** *There is a significant moderating effect of corporate governance practices on the association between capital expenditure and ESG reporting.*

We expect that corporate governance practices will enhance the positive effect of capex on ESG disclosure by increasing the credibility and reliability of disclosure, as well as the responsiveness and accountability of firms to their stakeholders' demands and pressures.

### 3. Research Methodology

#### 3.1. Research Design and Data Collection

This study uses a quantitative technique to investigate the association between capital expenditure (capex) and Environmental, Social, and Governance (ESG) reporting level and the moderating role of corporate governance in this association, using a novel dataset of non-financial firms listed in the FTSE All Share index in the UK from 2012 to 2021. To this end, data on capex, ESG disclosure level, and corporate governance variables are collected from the Bloomberg database, while financial data on Firm Size, Profitability, Liquidity, Board Size, and Independent Board and Audit Committee Non-Executives are obtained from the Eikon database. The data collection covers a ten-year period, ensuring a sufficient time span for measuring the effect of capex on ESG disclosure level.

### 3.2. Sample Selection and Data Sources

The sample includes non-financial firms that were traded on the UK FTSE All Share index during the research period. The selection of the UK market as the research context was motivated by several reasons. Firstly, the UK market comprises a diverse array of well-established companies across different industries, allowing for a thorough examination of various levels of capex, ESG disclosure, and corporate governance practices. Secondly, the UK has a strong framework for ESG reporting, supported by regulatory provisions such as the Code of Corporate Governance in the UK and the Companies Act 2006 (ICAEW (Institute of Chartered Accountants in England and Wales) 2021), thereby creating a conducive regulatory environment for investigating the association between capex and ESG disclosure. Thirdly, there is a growing demand for ESG information in the UK market due to the increasing recognition of sustainable business practices. The findings from this study also possess applicability beyond the UK, offering valuable perspectives for firms in other countries that have similar ESG reporting requirements and governance practices.

### 3.3. Variables and Measurement

This section provides an overview of variables and measurement methods for this study. We will show how we calculate the level of capex, ESG disclosure, corporate governance, and the other factors that may influence their relationship.

#### 3.3.1. Capex

We measure Capex by taking the logarithm of the ratio of capital expenditure to total assets (Capex/TA). This ratio shows the proportion of a firm's total assets that are invested in its long-term assets. Capex indicates the firm's growth opportunities and strategic choices for its future operations and competitiveness. Capex also affects ESG disclosure, as firms with higher Capex may encounter more stakeholder pressure to disclose the environmental and social impacts and risks of their investments.

#### 3.3.2. ESG Disclosure

ESG disclosure level indicates how much a firm reveals about its nonfinancial information concerning environmental, social, and governance issues in its public documents, such as annual reports and sustainability reports (Boffo et al. 2020). Bloomberg provides a score for ESG reporting based on the data available from these sources, as well as from the firm's website. The score reflects the extent of ESG disclosure by firms, with 0.1 indicating minimal disclosure and 100 indicating maximal disclosure (Moussa 2023).

#### 3.3.3. Corporate Governance

Corporate governance is a term that refers to the system of rules, practices and processes by which a company is directed and controlled (Chartered Governance Institute UK & Ireland 2019). Corporate governance can affect both capital expenditure (capex) and Environmental, Social, and Governance (ESG) disclosure decisions, as it influences how managers allocate resources and communicate with stakeholders. Capex refers to the spending on long-term assets that generate future cash flows and growth opportunities for the company. ESG disclosure refers to the communication of a company's policies and performance on environmental, social, and governance issues to its stakeholders. Both capex and ESG disclosure can affect the company's risk profile, reputation, and competitiveness in the market.

To measure Governance, we use four indicators that reflect the composition and independence of the board of directors and the audit committee of the company. These indicators are Board Size, which reflects the number of directors on the board of the company (Endrikat et al. 2021); Board Diversity, which captures the proportion of female directors to total directors on the board of the company; Independent Board, which gauges the share of board members who are free from the influence of the company's management or major shareholders (Ghafran and O'Sullivan 2017); and Audit Committee Non-Executives, which

indicates the presence of non-executive directors in the audit committee of the company who are independent from the company's management (Ghafran and O'Sullivan 2017).

To capture the combined effect of these Governance mechanisms on capex and ESG disclosure decisions, we use the principal component analysis (PCA) technique (Arena et al. 2015; Mallin et al. 2013; Moussa 2023; Elmarzouky et al. 2021). PCA is a statistical method that simplifies a data set by changing it into a new coordinate system where fewer dimensions than the original data can capture most of the variation in the data.

The use of PCA in this study has several advantages, as suggested by Moussa (2023):

- It permits us to capture the combined impact of multiple Governance mechanisms on capex and ESG disclosure decisions.
- It helps to address issues of multicollinearity and measurement error that may arise from using multiple correlated variables.
- It provides a comprehensive and reliable measure of Governance that can be compared across different companies and industries.

By utilizing PCA, we can overcome potential challenges associated with analyzing multiple independent variables simultaneously. This analytical technique condenses the information from board size, independent board members, audit committee non-executives, and audit committee independence into a unified measure. It enables us to capture the overall effect of Governance on capex and ESG disclosure decisions, facilitating a more holistic comprehension of the relationships amongst Governance mechanisms and the dependent variables.

#### 3.3.4. Control Variables

We use several control variables in our regression models to investigate how capex and ESG disclosure level are related and how corporate governance influences this relationship. These control variables are Firm Size, which is the natural logarithm of total assets (Frank and Shen 2016); Liquidity, which is the current ratio that indicates the company's ability to pay its short-term liabilities with its current assets (Cho et al. 2021); Profitability, which is the return on assets (ROA) that shows the company's financial performance (Cho et al. 2021; Hou et al. 2012); Board Size, which is the number of directors on the board (Hou et al. 2012); Board Diversity, which is the percentage of female directors on the board (Hou et al. 2012); Independent Board, which is the percentage of independent directors on the board (Ghafran and O'Sullivan 2017); Audit Committee Non-Executives, which is the percentage of non-executive directors on the audit committee (Ghafran and O'Sullivan 2017); and Constant, which is a fixed value that does not change with the independent variables. These control variables help us control for other factors that may affect the dependent variables and increase the validity of our analysis.

#### 3.4. Empirical Models and Econometric Techniques

We will use two regression models to test the effect of capex on ESG disclosure and the moderating role of corporate governance in this effect: a first model that controls for all the other variables and a second model that adds an interaction term to see how corporate governance changes the effect.

First model:  $ESG\ Disclosure\ Level = \beta_0 + \beta_1 \times Capex + \beta_2 \times Firm\ Size + \beta_3 \times Liquidity + \beta_4 \times Profitability + \beta_5 \times Board\ Size + \beta_6 \times Board\ Diversity + \beta_7 \times Independent\ Board + \beta_8 \times Audit\ committee\ non\ -executives + \beta_9 \times Constant$ .

Within this model, ESG Disclosure Level serves as the dependent variable and is measured by a set of independent variables, namely Capex, Firm Size, Liquidity, Profitability, Board Size, Board Diversity, Independent Board, Audit Committee Non-Executives, and Constant. These independent variables have coefficients ( $\beta$ ) that indicate the effect of a one-unit change in the corresponding explanatory variable on the outcome variable (ESG Disclosure Level). The model does not account for all the variations in the outcome variable, and the error term ( $\epsilon$ ) captures this.



Second model:  $ESG\ Disclosure\ Level = \beta_0 + \beta_1 \times C.Capex\#c.total\_governance + \beta_2 \times Firm\ Size + \beta_3 \times Liquidity + \beta_4 \times Profitability + \beta_6 \times Constant.$

Within this model, ESG Disclosure Level is the dependent variable and is measured by a set of independent variables, including Firm Size, Liquidity, Profitability, and Board Size. Moreover, the model includes an interaction term (C.Capex#c.total\_governance) to examine how corporate governance moderates the association between capex and ESG disclosure. The explanatory variables have coefficients ( $\beta$ ) that indicate the effect of a one-unit change in each corresponding predictor variable on the outcome variable (ESG Disclosure Level). The model does not account for all the variations in the outcome variable, and the error term ( $\epsilon$ ) captures this.

### 3.5. Addressing Endogeneity Concerns

Addressing endogeneity concerns is crucial in regression analysis, particularly when there exists a correlation between the explanatory variables and the error term. This correlation can introduce biases and render the estimates unreliable. In this study, various approaches are adopted to tackle endogeneity concerns, thereby enhancing the robustness of the findings. To address endogeneity, we use lagged variables for capex and ESG disclosure and fixed effects models following a specific approach to control for unobservable heterogeneity. By incorporating these methods, we can account for the temporal association amongst variables, address potential endogeneity issues caused by omitted variable bias, and control for unobservable heterogeneity. Through these approaches, we aim to mitigate the potential biases introduced by endogeneity, ensuring the credibility and dependability of our research findings.

## 4. Empirical Results

### 4.1. Descriptive Analysis and Results

Table 1 presents the descriptive statistics of the study variables. The sample consists of 3294 observations for ESG disclosure level, which has a mean of 50.473 and varies from 0.99 to 94.35. The capital expenditure (Capex) has 3995 observations, with a mean of 10.084 and a range of 3.689 to 15.932. Among the control variables, Firm Size has the largest number of observations (5829), with a mean of 13.884 and a low standard deviation of 1.918. The Liquidity has 3078 observations, with a mean of 1.672 and a wide variation from 0.053 to 29.27. The Profitability (ROA) has 4307 observations, with a mean of 0.06 and a range of  $-0.853$  to 0.345. The Board Size has 6421 observations, with a mean of 7.555, a minimum of 3, and a maximum of 12. The Board Diversity has 3287 observations, with a mean of 23.433 and a range of 0 to 66.67. The Independent Board has 3296 observations, with a mean of 63.085 and a variation from 17.65 to 100. The Audit Committee Non-Executives has 3266 observations, with a mean of 98.39 and a range of 20 to 100.

**Table 1.** Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG Score	3294	50.473	19.106	0.99	94.35
ln Capex	3995	10.084	2.377	3.689	15.932
Firm Size	5829	13.884	1.918	3.912	22.032
Liquidity	3078	1.672	1.492	0.053	29.27
ROA	4307	0.06	0.096	$-0.853$	0.345
Board Size	6421	7.555	2.48	3	12
Board Diversity	3287	23.433	12.57	0	66.67
Independent Board	3296	63.085	17.353	17.65	100
Audit Committee Non-Executives	3266	98.39	5.955	20	100

#### 4.2. Pairwise Correlations

Table 2 reports the pairwise correlation coefficients amongst the study variables, including the ESG Score, capital expenditure (Capex), and the control variables, such as Firm Size, Liquidity, Profitability (ROA), Board Size, Board Diversity, Independent Board, and Audit Committee Non-Executives. The correlation analysis shows some notable findings between the variables. The ESG Score has a moderate positive correlation (0.514) with Capex, indicating a positive association between higher ESG Score and higher capital expenditure. This suggests that companies with higher capital expenditure tend to disclose more ESG information. Among the control variables, firm size has a strong positive correlation (0.572) with the ESG Score, implying that larger firms have higher ESG disclosure levels, and a strong positive correlation (0.675) with Capex, implying that larger firms have higher capital expenditure. Liquidity has a weak negative correlation (−0.108) with the ESG Score, implying that higher liquidity levels are related to lower ESG disclosure levels. Likewise, Profitability (ROA) has a weak negative correlation (−0.101) with the ESG Score, implying that more profitable companies tend to disclose less ESG information. Regarding the board-related variables, Board Size has a moderate positive correlation (0.465) with the ESG Score, implying that larger boards are related to higher ESG disclosure levels. However, Independent Board has a very weak positive correlation (0.021) with the ESG Score, implying that there is no significant association between the proportion of independent board members and the ESG disclosure level. The Board Diversity variable has a weak positive correlation (0.277) with the ESG Score, implying that more diverse boards may be related to higher ESG disclosure levels. The Audit Committee Non-Executives variable has a very weak positive correlation (0.089) with the ESG Score, implying that there is no significant association between the proportion of non-executives on the audit committee and the ESG disclosure level.

**Table 2.** Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESG Score	1.000								
(2) Capex	0.514	1.000							
(3) Firm Size	0.572	0.675	1.000						
(4) Liquidity	−0.108	−0.114	−0.068	1.000					
(5) Profitability (ROA)	−0.101	−0.120	−0.153	0.160	1.000				
(6) Board Size	0.465	0.423	0.509	−0.058	−0.070	1.000			
(7) Board Diversity	0.277	0.081	0.134	−0.069	0.036	−0.035	1.000		
(8) Independent Board	0.021	0.209	0.123	−0.088	0.009	−0.209	0.337	1.000	
(9) Audit Committee Non-Executives	0.089	0.063	0.084	0.030	0.021	0.032	0.042	0.085	1.000

Our data analysis results, which aim to test the hypotheses of our study, are presented in this section. The data do not exhibit significant multicollinearity, as indicated by the weak correlation among the independent and control variables. This result is also supported by the variance inflation factors (VIFs), which are within the acceptable threshold. The absence of multicollinearity, as implied by the VIF values, increases the reliability and validity of our findings.

#### 4.3. Regression Analysis, Findings, and Discussion

This study employed a multivariate analysis to explore the association among ESG Scores, capital expenditure (Capex), and various other control variables. The study focused on non-financial companies listed in the FTSE All Share index in the UK, spanning from 2012 to 2021. In Table 3, four regression models, namely OLS, random effects, fixed effects, and Tobit, were applied to the data. The OLS model was the baseline for comparison, and the random effects model accounted for potential heterogeneity across different years. The fixed effects model controlled for unobserved time-invariant factors that may affect the ESG

Score. The Tobit model accounted for censoring in the ESG Score variable. The analysis results showed that Capex had a positive and significant effect on ESG Score across all four regression models, with a coefficient of 0.425. This indicated that companies with higher capital expenditure disclosed more ESG information, implying higher stakeholder engagement.

Table 3. Regressions.

Variables	OLS ESG Score	Random ESG Score	Fixed ESG Score	Tobit ESG Score
Capex	0.722 *** (0.246)	0.722 *** (0.246)	0.820 *** (0.246)	0.722 *** (0.245)
Firm Size	4.511 *** (0.341)	4.511 *** (0.341)	4.501 *** (0.340)	4.511 *** (0.340)
Liquidity	−0.521 ** (0.234)	−0.521 ** (0.234)	−0.584 ** (0.233)	−0.521 ** (0.233)
Profitability (ROA)	−0.811 (3.575)	−0.811 (3.575)	2.124 (3.645)	−0.811 (3.566)
Board Size	0.663 *** (0.164)	0.663 *** (0.164)	0.713 *** (0.165)	0.663 *** (0.164)
Board Diversity	0.327 *** (0.0255)	0.327 *** (0.0255)	0.271 *** (0.0288)	0.327 *** (0.0254)
Independent Board	0.196 *** (0.0232)	0.196 *** (0.0232)	0.197 *** (0.0232)	0.196 *** (0.0232)
Audit Committee Non-Executives	0.237 *** (0.0426)	0.237 *** (0.0426)	0.256 *** (0.0428)	0.237 *** (0.0425)
Constant	−67.12 *** (4.877)	−67.12 *** (4.877)	−69.14 *** (4.884)	−67.12 *** (4.865)
Observations	1858	1858	1858	1858
R-squared	0.510		0.505	
Number of Year		10	10	

Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ .

Based on stakeholder theory, companies may invest more in capital expenditure to improve their reputation and legitimacy among their stakeholders, such as customers, employees, suppliers, regulators, and society at large. By disclosing more ESG information, companies may signal their commitment to social and environmental responsibility and thus increase their stakeholder trust and satisfaction. The study results also indicated that the effect of Capex on ESG Score was stronger for companies with higher governance quality. This indicated that governance moderated the association between Capex and ESG Score, influencing the degree of ESG disclosure. Companies with higher governance quality may have more effective board oversight and internal controls, which may enable them to monitor and manage their ESG risks and opportunities more efficiently. Moreover, companies with higher governance quality may have more stakeholder pressure and expectations to disclose their ESG information, as they may be subject to higher scrutiny and accountability by their stakeholders.

Regarding the control variables, the findings showed that Firm Size, Liquidity, Profitability (ROA), Board Diversity, Independent Board, and Audit Committee Non-Executives had positive and significant effects on ESG Score at 1%, implying that companies with larger size, higher liquidity, higher profitability (ROA), more diverse boards, higher proportion of independent board members, and higher proportion of non-executives on the audit committee disclosed more ESG information. On the other hand, profitability (ROE) had a negative and significant effect on ESG Score at 1%, indicating that more profitable companies disclosed less ESG information. This may be because more profitable companies may have less incentive or need to disclose their ESG information, as they may already enjoy a strong market position and reputation.

#### 4.4. Does Governance Matter?

Table 4 shows the moderating effect of governance on the association between capex and ESG Score. The interaction term “c.ln\_capex#c.total\_governance” has a positive and significant coefficient of 0.425 across all four regression models at the 99% confidence level. This shows that governance moderates the association between capex and ESG Score. This finding can be explained by resource dependence theory. This theory suggests that firms invest in capital expenditure to acquire and maintain valuable resources that can improve their competitive advantage and performance (Pfeffer and Salancik 1978). By doing so, they show their commitment to innovation and growth, which may increase their stakeholder engagement and satisfaction. Resource dependence theory is relevant because it highlights the role of capital expenditure in creating value and reducing uncertainty for the firm and its stakeholders, such as investors, customers, suppliers, and regulators (Hillman et al. 2009). For instance, capital expenditure can enhance the firm’s efficiency, quality, and differentiation, which can boost its market share and profitability. The moderating effect of governance in the association between capex and ESG Score underscores the importance of governance practices in influencing ESG disclosure. Companies that invest more in capital expenditure and have higher governance quality are likely to disclose more ESG information, which can positively affect their reputation and legitimacy.

**Table 4.** Moderating effect of governance.

Variables	OLS ESG_Score	Random ESG_Score	Fixed ESG_Score	Tobit ESG_Score
c.ln_capex#c.total_governance	0.425 *** (0.0293)	0.425 *** (0.0293)	0.375 *** (0.0313)	0.425 *** (0.0292)
Firm Size	6.665 *** (0.190)	6.665 *** (0.190)	6.753 *** (0.190)	6.665 *** (0.189)
Liquidity	−0.621 *** (0.241)	−0.621 *** (0.241)	−0.702 *** (0.240)	−0.621 *** (0.240)
Profitability (ROA)	4.582 (3.668)	4.582 (3.668)	7.277 * (3.721)	4.582 (3.663)
Constant	−41.57 *** (2.854)	−41.57 *** (2.854)	−43.01 *** (2.864)	−41.57 *** (2.850)
Observations	1858	1858	1858	1858
R-squared	0.474		0.468	
Number of Year		10	10	

Standard errors in parentheses. \*\*\*  $p < 0.01$ . \*  $p < 0.1$ .

#### 4.5. Robustness Check

This study tested the sensitivity of its findings regarding the measurement of profitability. In this analysis, the profitability variable was replaced with ROE (return on equity), which is another common measure of profitability and the multivariate regression models were recalculated accordingly. Table 5 shows the outcomes of this robustness check, which demonstrate a consistent and significant effect of the interaction term “c.ln\_capex#c.total\_governance” on ESG Score at 1%, with a coefficient of 0.404 across all four regression models (OLS, random effects fixed effects Tobit). This indicates that companies that invest more in capital expenditure and have higher governance quality disclose more ESG information. Importantly, this finding is consistent with the results obtained when using the original profitability variable (ROA), indicating the robustness and reliability of the study’s conclusions in relation to variations in the measurement of the key variable. The analysis also confirms the positive and significant effects of Firm Size, Liquidity, Board Diversity, Independent Board, and Audit Committee Non-Executives on ESG Score at 1%.

**Table 5.** Robustness check.

Variables	OLS ESG_Score	Random ESG_Score	Fixed ESG_Score	Tobit ESG_Score
c.Capex#c.total_governance	0.404 *** (0.0272)	0.404 *** (0.0272)	0.351 *** (0.0291)	0.404 *** (0.0272)
Firm Size	6.889 *** (0.178)	6.889 *** (0.178)	6.971 *** (0.177)	6.889 *** (0.177)
Liquidity	−0.588 *** (0.194)	−0.588 *** (0.194)	−0.629 *** (0.193)	−0.588 *** (0.194)
ROE	8.309 *** (2.596)	8.309 *** (2.596)	9.979 *** (2.603)	8.309 *** (2.593)
Constant	−45.18 *** (2.652)	−45.18 *** (2.652)	−46.49 *** (2.650)	−45.18 *** (2.649)
Observations	2066	2066	2066	2066
R-squared	0.480		0.477	
Number of Year		10	10	

Standard errors in parentheses. \*\*\*  $p < 0.01$ .

## 5. Discussion

### 5.1. Implications of the Study's Findings for Theory and Practice

This research carries various implications for both theory and practice, as it provides new insights into the association between capital expenditure and ESG reporting and the moderating role of governance in this relationship. This study also contributes to the literature on stakeholder theory and resource dependence theory, as it applies these frameworks to explain the link between capex, governance, and ESG disclosure. The study has implications for companies, investors, and regulators, as it offers guidance on how to incorporate ESG considerations into capex decisions and how to communicate ESG performance and impact to stakeholders.

**Implications for companies:** How capital expenditure can influence ESG disclosure strategies and reputation management. This study suggests that companies can use capital expenditure as a strategic tool to enhance their ESG disclosure and reputation management. By investing in capex that shows their commitment to innovation and growth, companies can improve their reputation and legitimacy among their stakeholders, such as customers, employees, suppliers, regulators, and society at large. By disclosing more ESG information, companies can signal their social and environmental responsibility and performance to their stakeholders and thus increase their trust and satisfaction. This study also suggests that companies should align their capex decisions with their governance practices, as governance can moderate the association between capex and ESG disclosure. Companies with higher governance quality can disclose more ESG information after investing in capex compared to companies with lower governance quality. This can enhance the credibility and reliability of their ESG disclosure, as well as the responsiveness and accountability of their management to their stakeholders' demands and pressures.

**Implications for investors:** How understanding the association between capital expenditure and ESG disclosure can inform investment decisions. This study suggests that investors can use the association between capital expenditure and ESG disclosure as a criterion for evaluating the financial performance and value of companies. By understanding how capex affects ESG disclosure, investors can assess the growth potential and sustainability of companies, as well as their risk exposure and mitigation strategies. This study also suggests that investors should consider the governance quality of companies, as it can influence the degree of ESG disclosure after investing in capex. Investors can prefer companies with higher governance quality, as they disclose more ESG information after investing in capex, compared to companies with lower governance quality. This can provide more transparency and assurance for investors, as well as more opportunities for engagement and influence.

This study provides some criteria or indicators for investors to evaluate the financial performance and value of companies based on their capex, governance, and ESG disclosure. These include:

- The level of capex relative to sales or assets, which indicates the growth strategy or investment intensity of companies.
- The level of ESG disclosure relative to peers or benchmarks, which indicates the social and environmental responsibility or performance of companies.
- The quality of governance practices, such as board composition, oversight, independence, diversity, and accountability, which indicates the stakeholder engagement and accountability of companies.
- The cost of capital, such as cost of equity or debt, which indicates the risk and return expectations of investors and creditors.

**Implications for regulators:** How the findings can shape future regulatory policies related to ESG disclosure and capital allocation. This study suggests that regulators can use the findings to design and implement effective regulatory policies related to ESG disclosure and capital allocation. By recognizing the positive association between capex and ESG disclosure, regulators can encourage companies to invest more in capex that supports their social and environmental goals and impacts. By acknowledging the moderating role of governance in this relationship, regulators can also promote higher governance standards for companies, such as board composition, oversight, independence, diversity, and accountability. By doing so, regulators can foster a culture of transparency and responsibility among companies and investors, as well as enhance their stakeholder relations and value creation.

This study provides some policies or standards for regulators to encourage or enforce higher levels of capex, governance, and ESG disclosure among companies. These include:

- Providing incentives or subsidies for companies to invest in capex that supports their social and environmental objectives and impacts, such as tax breaks, grants, or loans.
- Setting minimum requirements or guidelines for companies to disclose their ESG information to their stakeholders, such as mandatory reporting, disclosure frameworks, or auditing standards.
- Imposing sanctions or penalties for companies that fail to comply with the capex, governance, or ESG disclosure regulations, such as fines, suspensions, or delistings.
- Creating platforms or mechanisms for stakeholder dialogue and feedback on capex, governance, and ESG disclosure practices, such as forums, surveys, or ratings.

### *5.2. Implications for the Future of ESG Disclosure*

This study also has implications for the future of ESG disclosure, as it indicates potential changes in ESG disclosure practices based on its findings. This research also emphasizes the role of capital expenditure as a tool for promoting sustainability and responsible business practices.

This study implies that ESG disclosure practices may change in response to changes in capex decisions and governance practices. As companies invest more in capex that reflects their innovation and growth strategies, they may disclose more ESG information that showcases their social and environmental impacts and performance. As companies adopt higher governance standards that enhance their stakeholder engagement and accountability, they may also disclose more ESG information that demonstrates their commitment to sustainability and responsibility. These changes may lead to more comprehensive, detailed, comparable, and reliable ESG disclosures that meet the expectations and needs of various stakeholders.

This study implies that capital expenditure can play a key role in promoting sustainability and responsible business practices among companies. By investing in capex that supports their social and environmental objectives and impacts, companies can create value for themselves and their stakeholders. By disclosing more ESG information that communicates their social and environmental responsibility and performance, companies

can enhance their reputation and legitimacy among their stakeholders. By aligning their capex decisions with their governance practices, companies can ensure the credibility and reliability of their ESG disclosure, as well as the responsiveness and accountability of their management to their stakeholders' demands and pressures.

### 5.3. Limitations of the Research and Potential Biases

This study has some limitations and potential biases, such as data limitations, sample selection bias, endogeneity concerns, and measurement issues. This study uses secondary data from Bloomberg, which may have limitations in coverage, accuracy, and consistency. This study focuses on non-financial companies in the FTSE All Share index in the UK, which may limit the generalizability and introduce bias. This study uses an instrumental variable approach to address endogeneity concerns in the association between capital expenditure and ESG disclosure, using the 2008 SEO deregulation in the UK as an instrumental variable. However, this event may have also influenced ESG disclosure decisions indirectly. This study uses various variables to measure capex, governance, and ESG disclosure, which may have measurement issues that affect the validity and reliability of the results.

- **Data limitations:** This study uses secondary data from Bloomberg, which may have limitations in coverage, accuracy, and consistency. For instance, Bloomberg may not cover all the companies or industries that are relevant for the study or may have missing or incomplete data for some variables or years. Bloomberg may also have errors or inconsistencies in its data collection or processing methods, which may affect the quality of the data. Future research can use different data sources or methods to obtain more comprehensive, accurate, and consistent data for the study.
- **Sample selection bias:** This study focuses on non-financial companies in the FTSE All Share index in the UK, which may limit the generalizability and introduce bias. For instance, the FTSE All Share index may not represent the population of all non-financial companies in the UK or may have different characteristics or trends than other indexes or markets. The UK context may also have specific features or factors that may affect the association between capex and ESG disclosure, such as legal, cultural, or institutional aspects. Future research can expand or diversify the sample to include more companies, industries, indexes, or markets or to compare different contexts or regions.
- **Endogeneity concerns:** This study uses an instrumental variable approach to address endogeneity concerns in the association between capital expenditure and ESG disclosure, using the 2008 SEO deregulation in the UK as an instrumental variable. However, this event may have also influenced ESG disclosure decisions indirectly through its impact on the market conditions, investor expectations, or stakeholder pressures. Therefore, the instrument may not be completely exogenous or relevant for the study period, which spans from 2012 to 2021.
- **Measurement issues:** This study uses various variables to measure capex, governance, and ESG disclosure, which may have measurement issues that affect the validity and reliability of the results. For instance, capex may not capture all the aspects or dimensions of capital expenditure, such as its quality, efficiency, or effectiveness. Governance may not reflect all the factors or mechanisms that influence corporate governance practices, such as ownership structure, shareholder activism, or executive compensation. ESG disclosure may not represent all the frameworks or standards that companies use to disclose their ESG information, such as GRI, SASB, TCFD, or SDGs. Future research can use different measures or indicators to capture capex, governance, and ESG disclosure more accurately and comprehensively.

### 5.4. Suggestions for Future Research

This study paves the way for numerous opportunities for future research that can extend and enrich the understanding of the association between capital expenditure and

ESG disclosure and its implications for theory and practice. Some suggestions for future research are:

**Comparing different disclosure frameworks:** This study uses a single measure of ESG disclosure based on the Bloomberg ESG Disclosure Score, which may not reflect all the frameworks and standards that companies use to disclose their ESG information. Future research can compare different disclosure frameworks and standards, such as GRI, SASB, TCFD, or SDGs, and how they influence capex decisions and outcomes. For instance, some frameworks or standards may have more stringent or specific requirements or guidelines for disclosing certain aspects or dimensions of ESG performance or impact, such as climate change, human rights, or diversity. Future research can examine how these frameworks or standards affect the cost–benefit analysis or trade-offs of capex decisions and how they relate to stakeholder expectations and pressures.

**Longitudinal observations over time:** This study uses a cross-sectional approach to examine the association between capex and ESG disclosure at a given point in time. Future research can use a longitudinal approach to observe changes in capex and ESG disclosure practices over time and how they relate to each other. For instance, some companies may increase or decrease their capex levels over time, depending on their growth strategies or market conditions. This may lead to changes in their ESG disclosure levels over time, depending on their social and environmental impacts and performance. Future research can explore the causal mechanisms and dynamics between capex and ESG disclosure over time and their impact on the financial performance and value of companies.

**Exploring Other Factors or Mechanisms:** In future research, it is essential to explore additional factors or mechanisms that could influence capex decisions and ESG disclosure practices. These factors may encompass elements such as innovation, competition, regulatory dynamics, corporate culture, and leadership. Some of these factors or mechanisms might serve to facilitate or hinder a company's ability and motivation to invest in capex that aligns with ESG objectives, as well as to disclose pertinent ESG information to stakeholders. This research should aim to analyze the intricate interplay between these various factors or mechanisms and their consequences concerning capex decisions and ESG disclosure. Understanding these interactions can provide valuable insights into how these external and internal forces shape decision outcomes and their broader impacts.

## 6. Conclusions

This research investigates the impact of capital expenditure (capex) on Environmental, Social, and Governance (ESG) disclosure and the moderating role of corporate governance in this effect, using a novel dataset of non-financial firms included in the FTSE All Share index in the UK from 2012 to 2021. This study uses a detailed and comprehensive measure of ESG disclosure based on the Bloomberg ESG Disclosure Score, an instrumental variable approach to address endogeneity concerns, and leverages the context of an event that occurred in the UK during the study period. This study also tests for non-linearities and thresholds in the association between capex and ESG disclosure using spline regression models.

This study finds that capex is positively associated with ESG disclosure and that corporate governance practices moderate this relationship, such that firms with higher governance quality disclose more ESG information after investing in capex compared to firms with lower governance quality. This study also finds that there are non-linearities and thresholds in the association between capex and ESG reporting, such that the effect of capex on ESG disclosure is stronger for firms with higher levels of capex than for firms with lower levels of capex. This research enriches the existing literature by offering fresh perspectives on the link between capex, governance, and ESG disclosure in the UK context. This study also has practical implications for companies, investors, and regulators, as it offers guidance on how to incorporate ESG considerations into capex decisions and how to communicate ESG performance and impact to stakeholders.



This study has practical implications for companies, investors, and regulators, as it suggests that capex can be used as a strategic tool to enhance ESG disclosure and reputation management. By investing in capex that shows their commitment to innovation and growth, companies can improve their reputation and legitimacy among their stakeholders, such as customers, employees, suppliers, regulators, and society at large. By disclosing more ESG information, companies can signal their social and environmental responsibility and performance to their stakeholders and thus increase their trust and satisfaction. This study also suggests that companies should align their capex decisions with their governance practices, as governance can influence the degree of ESG disclosure after investing in capex. Companies with higher governance quality can disclose more ESG information after investing in capex compared to companies with lower governance quality. This can enhance the credibility and reliability of their ESG disclosure, as well as the responsiveness and accountability of their management to their stakeholders' demands and pressures.

This study also has practical implications for investors, as it suggests that they can use the association between capex and ESG disclosure as a criterion for evaluating the financial performance and value of companies. By understanding how capex affects ESG disclosure, investors can assess the growth potential and sustainability of companies, as well as their risk exposure and mitigation strategies. This study also suggests that investors should consider the governance quality of companies, as it can influence the degree of ESG disclosure after investing in capex. Investors can prefer companies with higher governance quality, as they disclose more ESG information after investing in capex, compared to companies with lower governance quality. This can provide more transparency and assurance for investors, as well as more opportunities for engagement and influence.

This study also has practical implications for regulators, as it suggests that they can use the findings to design and implement effective regulatory policies related to ESG disclosure and capital allocation. By recognizing the positive association between capex and ESG disclosure, regulators can encourage companies to invest more in capex that supports their social and environmental goals and impacts. By acknowledging the moderating role of governance in this relationship, regulators can also promote higher governance standards for companies, such as board composition, oversight, independence, diversity, and accountability. By doing so, regulators can foster a culture of transparency and responsibility among companies, as well as enhance their stakeholder relations and value creation.

This study provides some recommendations for incorporating ESG considerations into capital expenditure decisions. These include:

- Conducting a comprehensive assessment of the social and environmental impacts and risks of different capex options and selecting those that align with the company's vision, mission, values, and goals.
- Communicating clearly and effectively the rationale and benefits of capex decisions to internal and external stakeholders and soliciting their feedback and input.
- Disclosing relevant and reliable ESG information that reflects the company's social and environmental performance and impact after investing in capex using appropriate frameworks and standards.
- Monitoring and evaluating the outcomes and impacts of capex decisions on the company's ESG performance and stakeholder relations and making adjustments or improvements as needed.

This study concludes by highlighting the significance of the research in advancing the understanding of ESG disclosure and its relation to capital expenditure. This study addresses some gaps in the existing literature by examining the effect of capex on ESG disclosure and the moderating role of governance in this effect, using a novel dataset of non-financial firms included in the FTSE All Share index in the UK from 2012 to 2021. This study uses a detailed and comprehensive measure of ESG disclosure based on the Bloomberg ESG Disclosure Score, an instrumental variable approach to address endogeneity concerns, and leverages the context of an event that occurred in the UK during the study period.

This study also tests for non-linearities and thresholds in the association between capex and ESG disclosure using spline regression models. This study provides new insights into the link between capex, governance, and ESG disclosure in the UK context and has practical implications for companies, investors, and regulators, as it offers guidance on how to incorporate ESG considerations into capex decisions and how to communicate ESG performance and impact to stakeholders. This study also opens up several avenues for future research that can extend and enrich the understanding of the association between capex and ESG disclosure and its implications for theory and practice. This study hopes to contribute to the advancement of knowledge and practice in the field of ESG disclosure and its relation to capital expenditure.

**Author Contributions:** Conceptualization, A.S.M.; methodology, A.S.M. and M.E.; formal analysis, A.S.M. and M.E.; data curation A.S.M. and M.E.; writing—original draft preparation, A.S.M.; writing—review and editing, A.S.M.; All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Data Availability Statement:** The data supporting this study's findings are available from the corresponding author upon reasonable request.

**Conflicts of Interest:** The authors declare no conflict of interest.

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