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Utilizing ESG Communication Strategies to Augment Capital Expenditure in Financially Constrained Firms

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Abstract

Purpose - The aim of this research is to examine how Environmental, Social, and Governance (ESG) components influence capital expenditure in financially constrained firms. The study utilizes a sample of 142 firms listed on the London Stock Exchange spanning the period from 2012 to 2021. Design/methodology/approach - This study explores the association between Environmental, Social, and Governance (ESG) metrics and capital expenditures, focusing on financially constrained firms. The research employs the Generalized Method of Moments (GMM) as the methodical approach. The initial step involves explaining the variables and subsequently specifying the model. The dependent variable in the analysis is the capital expenditure of the firm, while the independent variables encompass ESG disclosure, and the financial constraint of the firm measured through the Whited-Wu index. Findings - The study revealed a positive influence of Environmental, Social, and Governance (ESG) scores on the association between financial constraints and capital expenditures within the examined sample. These findings highlight the substantial advantages of integrating ESG considerations into firms' strategic decision-making processes. Such integration enhances resilience. This is particularly evident in increased capital expenditures during periods of financial constraints. This underscores the strategic importance of ESG factors in protecting firms against financial challenges while positively impacting their operational decisions. Research limitations/implications - The study's findings are specific to a certain group of companies (142 firms listed on the London Stock Exchange from 2012 to 2021). Therefore, these results cannot be generalized to other markets. In addition, the study uses ESG data from Datastream, but different providers use varying specifications for ESG information. This lack of standardization in ESG data could affect the study's results since scores may differ between companies when assessed by different data providers. Originality/value – This study makes a meaningful contribution to the growing body of literature exploring the connection between sustainability and financial performance. It adds value by examining the impact of Environmental, Social, and Governance (ESG) factors and financial constraints on the capital expenditure of 142 UK firms from 2012 to 2021. This research enhances our understanding of how ESG considerations and financial constraints jointly impact firms' strategic financial decisions. To the best of the researchers' knowledge, no existing literature directly addresses the specific impact arising from the interaction between financially constrained firms and their capital expenditure. This gap underscores the unique focus and contribution of our study in exploring this uncharted area within the scholarly domain.

Keywords *ESG, Financial contraints, capital expenditure, London Stock Exchange, GMM*

1. Introduction

Corporate Social Responsibility (CSR/ESG) initiatives have gained prominence as ethical business proposals in the 21st century as a result of the increased demands, by stakeholders in

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particular and the public in general, for transparency in the wake of persistent business scandals and accounting schemes. Improving ESG activities is believed to reduce information asymmetry, increase firms' transparency, competitive advantage, overall performance, and sustainability, as it aligns with stakeholders' demands. In accordance with Freeman's (1984) stakeholder theory, many companies implement CSR as part of their management strategy to enhance their image and performance (Wu and Shen, 2013). Thus, ESG initiatives serve as a catalyst to encourage and facilitate ESG investments among firms. It assists them in developing ESG strategic priorities as part of their corporate decision-making process, determining proper governance structures at numerous organizational levels, and allocating resources efficiently through ESG-focused governance. These endeavors ultimately result in economic gains for the involved firms and satisfy the demands of their stakeholders.

The growing significance and perception of ESG practices have prompted research into the relationship between ESG and the financial performance of a company. Several studies demonstrate that ESG has a substantial positive impact on performance. Fernández et al. (2019) and Hang et al. (2019), among others, have argued that ESG activities may generate value for firms by enhancing their social responsibility and reputation. This is consistent with the maximization of shareholder wealth. In contrast, other studies (Masulis & Reza, 2015; Buchanan et al., 2018) demonstrated a negative effect of ESG on shareholder value. Whelan et al. (2021) analyzed one thousand studies published between 2015 and 2020 and found that eight percent of corporate studies and fourteen percent of investment studies reported a negative relationship between ESG and firms' financial performance. In addition, few researchers were unable to document any impact of ESG on financial performance (e.g., Qiu et al., 2016, Cho et al., 2016, Walls et al., 2012, AlKhouri and Suwaidan, 2022). Furthermore, many studies have investigated the impact of ESG on the performance measured through the reduction in the cost of equity for corporations (AlKhouri &Suwaidan, 2022; El Ghoul et al., 2011; Sharfman and Fernando, 2008). The inconclusive research results encouraged further investigation into a possible explanation for these contradictory findings. According to Whelan et al., (2020) previous research on ESG has encountered difficulties in identifying and elucidating the underlying mechanisms, processes, and interactions linking ESG scores and disclosures to firm performance.

The growing recognition of the significance of sustainable business practices and their potential effects on firms' financial decisions is what drove our research that examines the impact of ESG on capital expenditure in firms suffering from financial constraints. Concurrently, financial constraints have been a prevalent obstacle for many firms. When firms have limited access to external capital, high borrowing costs, or cash flow restrictions, they confront financial constraints. These constraints can impede investment decisions, including capital expenditures, and limit a firm's capacity to pursue sustainable initiatives.

Given this context, the purpose of this research study is to examine how the interaction between financial constraints and ESG considerations influences the investment decisions of firms. In this regard, this paper investigates whether financially constrained firms prioritize ESG investments, how ESG considerations can mitigate financial constraints, and the potential impact of ESG on financial performance and value creation through firms' capital investment decisions. Our intention is to answer the question of whether companies with superior ESG performance are more likely to overcome financial constraints and allocate resources to sustainable investment initiatives. In this regard, ESG plays a crucial role in increasing the financial flexibility of constrained firms and provides valuable insight into the potential advantages of integrating sustainability practices into capital expenditure decisions. Firms with limited financial resources frequently encounter difficulties in allocating resources to capital

expenditure projects while addressing ESG concerns. Therefore, this line of research aids in the identification of the potential trade-offs and limitations firms confront when making investment decisions. It illuminates how firms can allocate resources strategically in order to reconcile financial constraints and sustainable investment priorities. By examining the impact of ESG on capital expenditure in the context of financial constraints, this study contributes to the expanding corpus of literature examining the relationship between sustainability and financial outcomes. It comes to complement the literature by examining the impact of ESG and financial constraints on firms' capital expenditure using a sample of 142 UK firms over the 2012–2021 period. The results of this study have implications for firms, investors, and policymakers seeking to align financial and sustainability investment objectives.

To reach the research objective, this paper implements the system Generalized Method of Moments (GMM), which is suitable for short periods (T) and large numbers of companies (N) and has the benefit of addressing potential endogeneity concerns (Wooldridge 2001). As anticipated, the study discovered a positive impact of ESG scores on the relationship between financial constraints and capital expenditures among the investigated sample.

The outline of this paper is as follows: Section 2 provides the literature review and develops the main hypotheses. Section 3 outlines the data and methodology implemented in the study, while the study design followed in section 4. In section 5 the authors provide the results, while the last section (6) summarizes and concludes the paper.

2. Literature Review and Hypotheses Development

Information asymmetry acknowledges that in market economies, individuals have different levels of awareness regarding pertinent information. Therefore, those who have access to sufficient information are typically in a more advantageous position than those who have limited information. The ESG reporting guidelines enhance the quality and credibility of sustainability information shared with the public in order to resolve this imbalance. Thus, the disclosure of ESG-related information contributes to the reduction of information asymmetry (Darnall et al., 2021). Analysts play a crucial role as information intermediaries on the capital market, and enhancing the accuracy of their forecasts contributes considerably to reducing information asymmetry. Thus, ESG ratings incentivize businesses to prioritize sustainable development, resulting in enhanced corporate governance, decreased information and operational risk, and enhanced accuracy of analyst forecasts (Luo and Wu, 2022; Schiemann et al., 2022). According to El Ghoul et al. (2011), ESG performance can increase investment efficacy by reducing financing restrictions. ESG disclosure provides investors with important non-financial information that facilitates external financing (El Ghoul et al., 2011). In addition, ESG disclosure increases external supervision and attention, helps uninformed investors acquire more information, reduces the synchronization of stock prices (Kim et al., 2012), and is directly related to the approval of corporate refinancing in significantly polluting industries (Goss and Roberts, 2011). According to Banerjee et al. (2020), this information asymmetry between firms and their stakeholders, especially investors, is the underlying cause of firm financial constraints. Prior research suggests that the influence of ESG disclosure activities acts as a moderating factor in mitigating financial constraints within firms (Wong et al. 2020). Firms with superior ESG performance exhibit an ethical commitment without compromising their financial returns.

Firms with adequate financial resources are able to invest their surplus funds in ESG initiatives, thereby enhancing their performance. This, in turn, allows the company to adapt to its external environment and attain higher long-term profitability (Kraft & Hage, 1990), which leads to

higher capital expenditure. The natural resource perspective asserts that ESG performance positively influences the financial performance of a company. Responsible behavior enables the accumulation of capabilities and new resources, such as knowledge and enhanced corporate culture (Branco & Rodrigues, 2006). According to Davis (1973), corporate environmental responsibility results in long-term financial performance, which, in turn, benefits society and the community as a whole. Campbell (2007) suggests that companies with a surplus of resources are more likely to allocate a portion of those resources to ESG (Environmental, Social, and Governance) activities. This suggests that the relationship between corporate performance and ESG initiatives operates in the opposite direction, with higher corporate performance resulting in greater ESG engagement.

Financially constrained firms typically have limited access to external sources of funding, such as bank loans or equity investments, which can limit their ability to engage in a variety of projects, including ESG-related ones. These firms may encounter higher borrowing costs, stricter lending requirements, or limited capital availability, making it more challenging for them to allocate resources to capital expenditures. Therefore, financially constrained firms may prioritize their available funds toward essential operations, debt repayment, or short-term requirements, potentially reducing the capital available for long term related projects including the ESG. This can result in a negative relationship between ESG and capital expenditure for these companies, as they may be forced to prioritize immediate financial concerns over long-term sustainability initiatives with their limited resources.

H1: *There is a negative relationship between financially constrained firms and their capital expenditures.*

Moreover, due to their financial constraints, these firms may have to choose between investing in ESG initiatives and other investment opportunities. Financially constrained firms may be required to make strategic capital allocation decisions due to limited resources. The need to address financial constraints may take precedence over ESG investments, resulting in a decrease in capital expenditures for sustainability initiatives.

An expanding body of literature supports this viewpoint. For instance, El Ghoul and Karoui (2017) mentioned that companies with high ESG scores are less likely to be financially constrained. ESG factors can signal to investors that a company is more likely to be profitable and sustainable over the long term. Consequently, these firms are more likely to have access to capital and be able to fund their capital expenditure plans.

Wang and Chen (2017) found in a separate study that firms with high ESG scores are more likely to invest in capital expenditures. This is due to the fact that ESG factors can assist businesses in reducing financial constraints and enhancing their financial performance. Consequently, these businesses are more likely to be able to engage in capital expenditures.

It is essential to note that the Financial Constraints Theory's predicted negative relationship between ESG and capital expenditure is not absolute and can vary depending on the circumstances. Some firms with limited financial resources, for example, may still prioritize ESG initiatives if they perceive prospective benefits, such as an enhanced reputation, improve in stock prices, strengthened stakeholder relationships, or long-term cost savings. As more pressure is exerted on firms by outside stakeholders, such as customers, fund investors, and regulators, to invest in ESG projects, these firms tend to allocate resources to ESG initiatives at the expense of capital expenditure. Thus, this suggests that firms that prioritize ESG-related projects tend to allocate less resources to capital expenditure projects compared to firms that do not do so. However, firms might resort to different financing mechanisms, such as partnerships, grants, or innovative

financing solutions, which may enable financially constrained firmss to surmount some of the obstacles and allocate resources to ESG-related projects.

Therefore, according to stakeholder theory this research hypothesizes the following:

H2: *There is a significant negative relationship between ESG and capital expenditure.*

For financially constrained firms, high ESG initiatives can yield multiple benefits. First, it can enhance the company's reputation and brand image, thereby attracting environmentally and socially conscious clients and investors. Second, it can help mitigate potential risks related to noncompliance or negative stakeholder perceptions. It can also provide opportunities for innovation, product differentiation, and market expansion. These advantages can enhance the firm's long-term competitiveness and financial performance.

In addition, financially constrained companies that actively engage in ESG initiatives can leverage their commitment to entice alternative sources of financing. Socially responsible investors, impact funds, or sustainability-focused lenders may be more inclined to provide financial assistance to companies that accord with their ESG principles. This can alleviate some of the financial constraints encountered by these companies, allowing them to allocate additional resources to capital expenditure.

H3: *When ESG is high, the impact of financial constraint on capital expenditure is mitigated.*

The hypothesis assumes that financially constrained firms recognize the significance of addressing environmental, social, and governance (ESG) issues to maintain positive stakeholder relationships, enhance reputation, and create long-term value. Thus, ESG disclosure is used to signal the firm's commitment to its stake holders, as signaling theory is considered as the framework that seeks to solve potential challenges which may occur due to the presence of information asymmetry between the firm's management and external stakeholders. The concept of asymmetric information pertains to the issue of information quality, wherein managers attempt to communicate their hidden traits in order to receive rewards (Spence, 1973 and Jamali et al., 2020). Despite their limited financial resources, these firms prioritize ESG initiatives as a strategic response to meet stakeholder expectations and contribute to sustainable practices.

3. Data and Methodology

The study concentrates on industrial firms listed on the London Stock Exchange (LSE) from 2012 to 2021. A method of purposive sampling is used to assure the relevance and validity of the research. This method enabled the selection of companies that met specific criteria. The final sample consisted of 142 companies that met the following criteria: availability of all required information from 2012 to 2021; and continuous trading of shares on the LSE during the specified period. This study's primary data source was DataStream. Table 1 shows the variables used in the study and their measurements.

The dependent variable of this study is firm capital expenditure divided by lagged assets. The independent variables are:

1. ESG Environmental, social and governance (ESG) disclosure score by firms.
2. Financial constraint (FC). The Whited-Wu index (Whited & Wu, 2006) is chosen as the measure of financial constraints, as it effectively identifies firms facing higher external fund costs.

The Whited-Wu index is calculated using the following formula:

Whited-Wu (2006) index = -0.091*(Cash flow/ total assets) + 0.062 (Dividend dummy) + 0.021(Lev) - 0.044* Size + 0.102* Industry sales growth - 0.035* SG

A greater Whited-Wu index value indicates greater difficulty or higher costs for a company to obtain external financing, indicating a greater degree of financial constraint. During the research period, the Whited-Wu index is calculated for each company in the sample.

Using the Whited-Wu index and categorizing the firms accordingly, the study intends to investigate the relationship between ESG, financial constraints, and capital expenditure in a nuanced fashion that takes into account the varying levels of constraints faced by various firms.

Control variables: In order to account for potential confounding variables that may influence the observed empirical results, we opted to include three control variables that have been previously identified in relevant literature. These variables are as follows: firm size (size), debt level (debt), firm performance measured by Tobin Q (TQ).

Table 1: Variables' Measurements.

Measurement of variables used in research models. Variables	Measurement
CE	capital expenditure/ lagged total asset
ESG	Environmental, Social and Governance score
ENV	Environmental score
SOC	Social score
GOV	Governance score
Size	Natural logarithm of total assets
FC	Financial Constraint measured by Whited-Wu index
Debt ratio (Lev)	Total debt/ total asset

Source: Author's Own.

4. Study Design

To examine the impact of ESG on firms' capital expenditure, we construct the following equation:

$$CE_{i,t} = \alpha_0 + \alpha_1 FC_{i,t} + Control\ Variables_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where CE is capital expenditure serves as the dependent variable, FC refers to financial constraint, $\varepsilon_{i,t}$ is the error term, i, t refer to company and time consecutively.

In order to examine the moderating impact of ESG on firm's capital expenditure, we formulate the following equations:

$$CE_{i,t} = \alpha_0 + \alpha_1 FC_{i,t} + \alpha_2 ESG_{i,t} + Control\ Variables_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$CE_{i,t} = \alpha_0 + \alpha_1 FC_{i,t} + \alpha_2 ESG_{i,t} + \alpha_3 FC_{i,t} * \alpha_4 ESG_{i,t} + Control\ Variables_{i,t} + \varepsilon_{i,t} \quad (3)$$

Arellano and Bover (1998) and Blundell and Bond (2000) devised the two-step Generalized Method of Moment (GMM). This method has the benefit of addressing potential endogeneity concerns (Wooldridge 2001) and is preferred for panel data samples with a small T and a large N. The system GMM model eliminates the expected correlation between the lag-dependent variable and the error term by utilizing the first difference. Moreover, this procedure accounts for endogeneity by assigning lags to both predetermined and endogenous variables.

In this study, we hypothesize that capital expenditure and ESG decisions of firms are endogenously determined. ESG disclosure will provide more information on companies with financial constraints, which may be characterized by a high degree of asymmetric information. As endogeneity issues can result in biased estimates, we utilize the GMM methodology to run our regressions.

5. Empirical Results

Table 2 displays the descriptive data for the variables under investigation, specifically capital expenditures, financial constraints as defined by the WW index, ESG and its constituent components, and enterprises' cash flow. The mean capital expenditures for enterprises are computed, displaying a standard deviation of 0.045. The range of values extends from 0 to 0.494, suggesting significant variation between various companies. The ESG metric exhibits a mean value of 39.37. The ESG scores exhibit a wide range, extending from a minimum value of.876 to a maximum value of 90.34. This observation underscores the considerable diversity in ESG performance among these companies. The WW index exhibits a range of -8.06 to 5.24.

Table 3 shows the correlation matrix between the variables under study. The figures in the table indicate no serious correlation between the variables. The variance inflation factor was also utilized in order to examine the presence of multicollinearity. The average value obtained was 1.03, with a range spanning from 1.01 to 1.05. This indicates that the likelihood of multicollinearity significantly influencing our findings is low.

Table 2: Summary Statistics for Variables Used in the Study.

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG	1,418	39.37114	20.90566	0.875685	90.34357
GOV	1,418	49.69206	24.39875	0.726714	98.45455
SOC	1,418	39.01659	21.86207	0.734821	95.35519
ENV	1,414	31.85944	25.30311	0	91.01415
CE	1,418	0.045157	0.046676	0	0.494483
TQ	1,418	2.265598	4.713082	.514097	91.20095
Lev	1,418	0.246571	0.229896	0	5.257919
SIZE	1,418	6.461542	0.627909	4.443592	8.060698
FC	1,418	-0.22016	1.062016	-8.67376	5.240784

ESG refers to environmental, social and governance disclosure; GOV is governance; SOC is social; ENV is environmental; CE is capital expenditure; TQ is Tobin Q; Lev refers to leverage; Size is firm size; FC refers to financial constraint as measured by WW index.

Table 3: The Correlation Matrix.

	CE	ESG	FC	TQ	Lev	SIZE
CE	1					
ESG	-0.0495	1				
FC	-0.0542	-0.0712	1			
TQ	0.0409	-0.0742	0.0517	1		
Lev	0.0683	0.057	-0.0257	-0.0159	1	
SIZE	-0.0795	0.1454	-0.0281	0.0901	0.1383	1

Table 4 below outlines the two-step-system GMM regression results of regressing financial constraints (panel 1), ESG (panel 2), and the interaction variable between financial constraints and ESG (panel 3) on firms' capital expenditures. Table 4 panel 1 shows the relationship between financially constrained firms and their capital expenditures. The results support the

first hypothesis that financially constrained firms are less likely to increase their capital expenditures. The coefficient on financial constraint is negative and significant at the 5% level. The lag of capital expenditure is positive and significant at 1% level. Implementing the lag of capital expenditure in GMM accounts for potential endogeneity in our model. Table 4 panel 2 shows the impact of ESG on capital expenditure. The coefficient of ESG is negative and significantly related to the firm's capital expenditure. This supports the stakeholder's theory where firms prioritize ESG projects even if they are financially constrained. The last panel (3) shows the results of testing the moderating impact of ESG on the relationship between financial constraint and capital expenditures. The results indicate a positive and significant impact of the interaction term (FC*ESG) and capital expenditures. This result suggests that ESG has a significant positive moderating impact on the firms' capital expenditures. This supports our third hypothesis.

Furthermore, results show persistence in capital expenditures, so firms that invested one year before in capital they tend to continue to do so. A firm's performance and size are positively related to capital expenditure (panel 3), while leverage exerts negative impact on capital expenditure.

In addition, Table 4 displays a significant first order correlation (AR1) and an insignificant second order serial correlation (AR2). Under the null hypothesis, the Sargan test of over identifying restrictions indicates that our instruments are valid.

Table 4: The Impact of FC, ESG, and the Interaction Variables on Firms' Capital Expenditure.

	FC	**ESG**	**FCXESG**
Variables	Panel 1	Panel 2	Panel 3
L1. CE	0.3910 (0.000) *	0.3680 (0.000) *	0.3430 (0.000) *
L. TQ	-0.0011 (0.108)	-0.001 (0.09) ***	0.3640 (0.000) *
FC	-0.0040 (0.05) **		-0.0141 (0.003) *
ESG		-0.0004 (0.018) *	-0.00049 (0.002) *
FC*ESG			0.00023 (0.021) **
SIZE	0.0079 (0.000) *	0.0103 (0.000) *	0.01155 (0.000) *
Lev	-0.0158 (.007) *	-0.012(0.044) **	-0.0125 (0.037) **
Observation	1276	1276	1276
Chi ^{2}	309.51*	316.22*	328.79*
Sargan test	275.85*	276.82*	272.33*
AR(1)	-3.398*	-3.611*	-3.7437*
AR(2)	-.2472	-.2834	-.30025

To further examine the issue, Table 5 outlines the impact of ESG components as moderating factors affecting the relationship between financially constrained firms and their capital expenditure. Table 5 panels 1a and 1b show the impact of ENV disclosure on capital expenditure, and the impact of the interaction variable of financial constraint and the environment factor (FC*ENV) on capital expenditure consecutively. Results indicate that firms' environmental initiatives exert a negative and significant impact on capital expenditure. However, ENV initiatives by firms moderate the impact of financial constraints on capital expenditures. As hypothesized, these results suggest that environmental initiatives by firms enhances the firm's reputation and brand image, thereby attracting environmentally and socially conscious clients and investors, and can help mitigate potential risks related to noncompliance, negative stakeholder perceptions, and financial constraints. The same table (5) also shows the results of the SOC initiatives on capital expenditure (panel 2a), as well as the results of the

interaction between social initiatives and financial constraint on capital expenditure. Results on social initiatives are negative and significantly related to firms' capital expenditures, however, the interaction variable (FC*SOC) is insignificantly related to capital expenditure. This result is interesting since it suggests that social projects may not be the main driver for capital expenditure in financially constrained firms. Although SOC initiatives impact capital expenditure negatively, it does not help financially constrained firms in improving capital expenditure. The impact of governance initiatives is significant and negatively related to capital expenditure (panel 3a), the role that governance plays in reducing the impact of financially constrained firms on capital expenditure is significant and positive (panel 3b). The disclosure of Governance practices, thus, has the potential to enhance a company's financial position by signaling its capacity to secure financing at reduced costs, hence leading to improved financial outcomes, and consequently to increase capital expenditure.

To ensure the reliability of our analysis, we conducted two robustness tests. Initially, we included a dummy variable for Covid-19 in the regression; however, this addition did not yield any significant alterations in the results. It's plausible that the effects of Covid-19 may require a more prolonged period to manifest in our analysis.

Subsequently, we re-ran the regression model, introducing year and industry dummy variables. Despite this adjustment, the qualitative outcomes remained consistent, indicating no substantial changes in our findings. Given the consistent results, we have opted not to present these outcomes here, in the interest of conserving space.

Table 5: The Impact of Financial Constraints and ESG Components on Capital Expenditures.

	ENV	**FC*ENV**	**SOC**	**FC*SOC**	**GOV**	**FC*GOV**
Variables	Panel 1a	Panel 1b	Panel 2a	Panel 2b	Panel 3a	Panel 3b
L1. CE	.3675 (0.000) *	0.362596 (0.000) *	0.3786 (0.000) *	0.37511 (0.000) *	0.381329 (0.000) *	0.381625 (0.000) *
L. TQ	-0.00111 (0.093) ***	-0.00111 (0.093) ***	0.37858 (0.105)		-0.00113 (0.09) ***	-0.00111 (0.096) *
FC		-0.0106 (0.001) *		-0.0060 (0.154)		-0.01681 (0.000) *
ENV	-0.00032 (0.012) *	-0.0004 (0.001) *				
FC*ENV		0.000198 (0.015) **				
Soc			-0.00027 (0.043) **	-0.00031 (0.027) **		
FC*SOC				.000004 (0.649)		
GOV					-0.00016 (0.13)	-0.00029 (.01) *
FC*GOV						0.000255 (0.002) *
SIZE	0.00938 (0.000) *	0.01039 (0.000) *	0.0094 (0.000) *	0.010132 (0.000) *	0.0092 (0.000) *	0.010639 (0.001) *
levearge	-0.01053 (0.086) ***	-0.01094 (0.072) ***	-0.01288 (0.031) **	-0.01315 (0.027) **	-0.01526 (0.009) *	-0.01577 (0.007) *
Observation	1276	1276	1276	1276	1276	1276
Chi ²	318.45*	318.41*	311.29*	317.95*	308.94*	323.97*
Sargan test	275.697*	271.12*	275.523*	274.269*	277.266*	270.490*
AR(1)	-3.565*	-3.6919 *	-3.4674*	-3.541*	-3.512*	-3.6454*
AR(2)	-.2713	-.28566	-.25076	-.27182	-.26768	-.26393

6. Summary and Conclusions

The current research has provided empirical evidence of a direct impact of ESG scores on the relationship between financial constraints and capital expenditures within a list of firms listed on the London Stock Exchange over the period 2012–2021. The result of this research underscores the significant benefit of ESG considerations for firms in their strategic decision-making, and improve their resilience when they face financial constraints, as shown by their increase in capital expenditure. The results of this research confirm the predictions of the Signaling theory, which suggests that firms use ESG disclosure to signal their commitments to the stakeholders and society and, consequently, their strive toward long-term sustainability. This action resulted in reducing the impact of financial constraints on their capital expenditures, as firms with high ESG are more able to secure additional funding from different sources at a lower cost.

The findings of the study have important implications for firms striving to manage financial constraint and at the same time proceeding with sustainability goals. The findings also highlight the important role of ESG in forming firms' investment decisions.

Although the results are encouraging, the current study suffers from some limitations. First, the study used available disclosed data for ESG from Thompson Reuters Asset 4. Given that there are many companies that provide ESG data, the use of ESG data published by different companies might provide different results. Previous research found a lack of consistency in the methodologies used by the companies that publish ESG disclosures, which might result in different outcomes when used (Abhyawansa & Tyagi, 2021).

Future research should be oriented toward the implementation of measure of ESG, which provides more robust and more comprehensive information regarding the company's commitment to its stakeholders and society. In addition, the focus of further research will be on conducting in-depth examinations of ESG and the factors that make up ESG in a variety of different industries.

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