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Environmental, Social, and Governance Score and Corporate Financial Performance: The Strategic Role of Corporate Cash Holdings

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Abstract

This research paper investigates the impact of Environmental, Social, and Governance (ESG) performance on corporate financial performance (CFP). Moreover, it explores the moderating role of corporate cash holdings in the link between ESG and the financial performance of firms. Data is collected for companies with ESG ratings throughout the world. The final sample of this study consists of 6072 firms from 1999 to 2020 covering the various regions of the universe, including East Asia and Pacific, Europe and Central Asia, South Asia and Sub-Saharan Africa, Latin America and the Caribbean, Middle East and North Africa, and North America. Panel data regression by using STATA software is conducted to investigate the direct and moderating roles among the variables. The research's findings show that higher ESG hurts firms' profitability, measured by EBIT; however, ESG positively influences firms' revenue (sales). Furthermore, we examined the moderating role of corporate cash holdings on the ESG and CFP nexus. The results indicate that firms with substantial cash reserves can better manage the costs associated with ESG activities, mitigate the impact on profitability, and enhance revenue generation. Our research study contributes to the existing knowledge and provides novel insights regarding ESG by investigating the role of corporate cash holdings on the ESG and corporate financial performance nexus. This study highlights the incentives for corporate managers to maintain sufficient cash reserves. Secondly, firms should adopt governance policies that balance short-run financial goals with long-run sustainability objectives.

Keywords: Corporate cash holdings, ESG score, global listed firms, financial performance.

1. Introduction

Environmental sustainability is a crucial concern for policymakers and business communities worldwide. Climate change and the depletion of resources are compelling reasons to increase the emphasis on environmental, social, and governance (ESG) practices

and sustainability reporting for firms. Organizations have adopted various environmental management strategies (Dai et al., 2017; Yang et al., 2019). Green production (Gong et al., 2018), Eco-designs, sustainable supply chain management (Govindan et al., 2014), water conservation, green marketing (Groening et al., 2018), and climate risk management are some among the other initiatives and practices opted for as environmental strategies. Globally, to measure the performance of corporates related to environmental, social, and governance factors, rating agencies such as Refinitv, Sustainalytics, Bloomberg, MSCI, RepRisk, and Vigo Eiris, among others, emerged to issue ESG scores to corporates. These rating agencies collect firm-level information on different sustainability perspectives, such as emissions, effluents, waste management, water use, land conversion, biodiversity management, business ethics, human capital management, and governance practices. Sub-indexes are constructed for distinct levels of aggregation, weights are applied and a score (e.g., A, A-, B, or 1 to 100) is assigned to each company. These scores present their assessment of the company's sustainable practices.

Literature highlights that ESG disclosures contribute significantly towards firms' financial performance. Raghavan, (2022) argues that better ESG performance results in a better financial position. Stefan & Paul, (2008) reveals that environmental performance leads to improved financial outcomes by increasing revenue due to better access to markets & finances, product differentiation, good relations with stakeholders, and proper risk management. ESG practices positively influence a firm's financial position by reducing financial restrictions (Li et al., 2018; Zhang & Lucey, 2022) moreover, a firm's non-financial disclosure assists in estimating future financial performance (Serafeim & Grewal, 2017). Albitar et al., (2020) analyzed the relationship of ESG disclosure and firms' performance through pre-assessment and post-assessment methods and observed a positive and significant effect of ESG Scores on firms' financial performance. Firms with better ESG practices are often in a position to manage regulatory risks, attract socially responsible investors, and sustain long-term growth.

ESG disclosures and higher ESG scores reflect the efficiency, credibility, and transparency of the organization, these are the driving factors to gain investors' trust that ultimately raise firm value. Socially conscious investors park their funds in firms with high ESG scores to develop green portfolios and believe the ESG standing of a firm is a selection criterion in addition to financial measures to construct decisions regarding sustainable investments (Atan et al., 2018). Conversely, some studies exhibit a negative relation between ESG ratings and firm financial outcomes (Farooq, 2015; Zahid et al., 2022; Saygili et al., 2022). These distinct findings are compelling us to reexamine the ESG and CFP nexus.

Furthermore, one of the crucial aspects in financial management is corporate cash holdings, that is the most liquid assets for organizations. Cash reserves reflect firms' liquidity, risk management, and strategic investment capabilities. Cash and marketable securities presented on the face of the balance sheet are important assets and attract the attention of

investors, analysts, and other companies (Subramaniam et al., 2011). Substantial cash holdings serve as a buffer against financial distress for firms and also enable them to capitalize on feasible and profitable investment opportunities by giving the firms flexibility to invest. Chen et al., (2020) argue that "cash is king" as it decides the firms' financing, investment, and operations, and consequently determines firms' overall value.

The objective of this research is to explore the moderating role of corporate cash holdings in the relationship between firms' ESG ratings and financial performance. How might cash holdings influence the relationship between ESG scores and the financial performance of a firm? The core hypothesis is that corporations with higher cash holdings might leverage their liquidity to invest more effectively and efficiently in ESG practices, thus enhancing their financial performance. This hypothesis is aligned with the study of Chang & Yang (2022), they argue that firms with higher cash reserves invest more in research and development (R&D) and spend more on capital expenditures. On the contrary, firms with low cash holdings may face more challenges in coping with ESG investments, costs, and other financial obligations, thereby potentially affecting overall profitability and other economic outcomes.

This study aims to fill the gap in existing literature by investigating the interplay among the ESG, financial performance, and cash holdings. As per the knowledge of the authors, there is no research in the literature that has studied firms' ESG scores, financial performance, and cash holdings, providing evidence from all over the world. This study highlights the distinct aspect of how financial liquidity, specifically, cash holdings, can influence/shape the ESG strategies on financial outcomes by investigating the moderating role of cash reserves. This research addresses two critical questions: Can financial liquidity mitigate the potential negative impact of ESG practices on corporate financial outcomes? Do corporate cash holdings enhance the positive effects of strong ESG scores on corporate financial performance?

Our study is relevant in the current global scenario, where corporates simultaneously face economic uncertainties and sustainability challenges. The interplay between corporate cash holdings, ESG score, and financial outcomes can influence corporate policies, investors' strategies and promote a holistic approach that integrates financial stability and sustainable practices. This research contributes to the literature by filling the gap among financial management, ESG considerations, and corporate performance. It highlights the strategic role of liquidity in supporting firms in pursuing sustainability objectives. Adding corporate cash holdings helps us look beyond ESG and CFP's direct relationship and is useful for corporate leaders to build a conducive environment.

The structure of this paper is as follows: Section 2 describes the theoretical background and literature, Section 3 describes data and methodology, Section 4 presents results, and Section 5 concludes the findings and highlights policy and managerial implications.

2. Theoretical Background and Literature

Stakeholder theory is linked to ESG research. Business is viewed as a system for creating value for stakeholders (Freeman, 1984). It is inevitable for organizations to evaluate continuously how they interact with the stakeholders. It is the core idea of stakeholder theory that organizations must realize the value of relationships with stakeholders to succeed or fail (Al Amosh et al., 2024). Despite the traditional approach of the business, the increase of shareholders' wealth (profit maximization), it is now believed that a company's survival is tied to the input and participation of society at large. A firm's existence is not only to pursue the interests of its own, but the interests of stakeholders as a whole (Donaldson & Preston, 1995). The primary stakeholders of a company are shareholders, employees, consumers, suppliers, and creditors. Similarly, the secondary stakeholders are regulatory bodies, residents, communities, and all those affected by business activities in direct or indirect manners, like the natural environment. Thus, firms are to consider the interests of all stakeholders and ensure sustainability by focusing on social and environmental concerns.

In literature, researchers have employed ESG factors, disclosures, or scores to assess the ESG performance of organizations. The study of Fatemi et al., (2018) shows that organizations with better environmental performance contribute to financial outcomes. Orlitzky, (2013) provides evidence that firms with better CSR practices enhance the firm's financial performance. ESG practices and corporate responsible behavior upgrade the performance and values of firms (Bhaskaran et al., 2020; Cek & Eyupoglu, 2020; Ahmad et al., 2021). Study of Alareeni & Hamdan, (2020) investigate the overall and each dimension's effects on the financial outcomes of listed UK companies, overall, ESG scores show a significant as well as positive impact, however, individually, each dimension: environment, social, and governance, is showing mixed results on the dependent variable, that is, the corporate financial performance.

ESG disclosure and the firm's market performance are assessed by Buallay et al., (2020), indicating a positive association. Lo & Sheu, (2007) proved the significant and positive association between corporates' sustainability and firms' market value measured as Tobin's Q. Environmental disclosures, either mandatory or voluntary, also exhibit a positive impact on corporates' financial outcomes (Wu et al., 2024).

2.1 The Trade-off Model of Cash Holdings and Hypothesis

In a state of perfect capital market, there will be no cost of transaction for raising funds and the level of cash holdings will be irrelevant to the firm's value. However, capital markets are imperfect, so the transaction costs are relevant while raising funds. Therefore, companies determine the suitable level for cash holdings by managing the trade-off between the cost and benefits of investing funds in liquid assets as proposed by Miller & Orr, (1966) and Kim et al. (1998). The value of the company reaches its peak when the

advantages of holding cash are equivalent to the cost of maintaining cash reserves. Keeping cash in hand reduces the likelihood of encountering financial difficulties, minimizes transaction expenses, and creates additional avenues for investment that might otherwise be inaccessible due to financial constraints (Guizani, 2017; Lozano & Yaman, 2020). Inadequate cash reserves may lead to liquidity shortage, reduce the desired investments (Campello et al., 2010; Mercatanti et al., 2019), limit spending for research and development (Chang & Tang, 2021), increase financing expenses, and a shock dividend policy (Lee & Suh, 2011).

Yuan et al., (2025) have given the evidence that ESG performance of a company also positively affects its cash reserves. Ahmed & Khalaf (2025) examined the moderating role of cash holdings in the relationship between ESG performance and companies' market value, sample of the study was European Union (EU) companies. Their results show that cash reserves have a positive effect on firms' market value.

Despite the extensive literature on ESG, corporate cash holdings, and corporate financial performance, none of the research has incorporated the moderating role of corporate cash holdings between the relationship of ESG dimensions and CFP. The contribution of our research is twofold: one is to reexamine the connection between ESG and CFP, and the second is to examine the strategic role of cash holdings in this direction.

- Hypothesis 1: ESG components (Environment, Social, and Governance) have a negative impact on corporate financial outcomes.
- Hypothesis 2: Corporate cash holdings positively moderate the relationship of ESG performance and financial performance.

3. Data and Methodology

This section presents summary of the sample, variables, descriptive statistics, and methodology.

3.1 Sample Selection

Data was collected from DataStream, a global financial and macroeconomic time series database, for 32,574 publicly listed companies in 92 countries from 1999 to 2020. We filtered the data for companies having ESG scores in the DataStream database, and after scrutiny, ended up with 6072 companies and 39067 firm-year observations because of data unavailability of some companies, as ESG disclosures are not mandatory in some regions. The summary of sample is presented in Table 1.

Table 1: Sample Summary

	Initial Sample	**With ESG Component Scores**
Sample Period	1999 – 2020	1999 – 2020
Number of Companies		
Number of Countries	92	55
Total Observations	308,257	39,067
Region-wise Number of Observations		
East Asia and Pacific	98,583	9,469
Europe and Central Asia	49,213	5,323
Latin America and the Caribbean	6,628	1,035
Middle East and North Africa	7,721	230
North America	129,815	22,397
South Asia	13,489	337
Sub-Saharan Africa	2,808	276

3.2 Dependent Variables

Two parameters are used to measure corporate financial performance: profitability and sales revenue. We measure profitability as earnings before interest and taxes (EBIT) and sales revenue as the natural logarithm of net sales for a year. Research studies use the sales revenue to measure firm profitability (Zahid et al., 2022) and EBIT (Xu & Li, 2022); (Carnini Pulino et al., 2022); (Nguyen & Nguyen, 2020)) as a proxy for firm financial performance.

3.3 Independent and Moderating Variables

ESG components (environment, social, and governance) scores are used as independent variables. The output of these three components contracts the ESG scores. It is valuable to assess the impact of each independent component (E, S, and G) to prevent the potential influence of one dimension on another. (Buallay et al., 2020). Assessing while keeping this categorization supports us to investigate which ESG component score is most significant, and which positively or negatively impacts corporate financial performance.

The moderating variable in this research study is corporate cash holdings. Corporate cash holdings are measured as cash and marketable securities normalized by total assets (Javadi et al., 2021).

3.4 Control Variables

Literature indicates several factors influence corporate financial performance. We are also considering control variables that align with the literature to avoid biased analyses and to assess the actual impact of independent and moderating variables. Control variables included in this research are size, leverage, and growth. Large organizations can benefit from economies of scale, which is crucial for achieving financial outcomes. Debt level affects the finance costs that can disturb the profitability of organizations. Moreover, following the prior studies of Smith & Watts (1992) market-to-book ratio is included as control variable to proxy for growth opportunities. Size is measured as the natural log of total assets (Zhu et al., 2014); (Wang & Wang, 2024). Debt/leverage affects the cash flow of a corporation. Leverage is measured as the ratio of total debt to total assets (Zahid et al., 2022). Growth is measured as the market-to-book ratio, the ratio of the equity's market value to equity's book value.

Table 2: List of Variables

Variable Role		Symbol	Measure
Dependent variables	Sales Revenue	Rev(logn)	Natural logarithm of net sales
	Earnings before Interest and Taxes	EBIT	EBIT divided by total assets
Independent and moderating variables	Environmental performance score	Environment	E score extracted from the Datastream
	Social performance score	Social	S score extracted from the Datastream
	Governance performance score	Governance	G score extracted from the Datastream
	Cash holdings	CASH	Cash and marketable securities to total assets
Control Variables	Size	SIZE	Natural logarithm of total assets
	Leverage	LEV	Total debt to total assets
	Growth	MTB (Market-to-Book)	Equity's market value to equity's book value

3.5 Empirical Models

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Environmental\ Score_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (1)$$

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Social\ Score_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (2)$$

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Governance\ Score_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (3)$$

The above multivariate regression models 1, 2, and 3 are estimated to see the hypothesized relationship between components of ESG and corporate financial performance. In the above models, i is the firm and t is the time (in years). Firms' financial performance is measured by earnings before interest and taxes (EBIT) and sales revenue (Rev(logn)). Year dummies are included to control for time-specific effects. The error term is denoted by ε.

To investigate the moderating impact of corporate cash holdings in the ESG and financial performance nexus, an interaction term is generated: Cash holdings × ESG components.

The interaction term is included in the following models.

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Environmental\ Score_{i,t} + \beta_2 Cash\ holdings_{i,t} + \beta_3 Cash\ holdings_{i,t} * Environmental\ Score_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (4)$$

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Social\ Score_{i,t} + \beta_2 Cash\ holdings_{i,t} + \beta_3 Cash\ holdings_{i,t} * Social\ Score_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (5)$$

$$Finanical\ Performance_{i,t} = \alpha_{\circ} + \beta_1 Governance\ Score_{i,t} + \beta_2 Cash\ holdings_{i,t} + \beta_3 Cash\ holdings_{i,t} * Governance\ Score_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6\ MTB_{i,t} + Year\ Dummies + \varepsilon_{i,t} \quad (6)$$

4. Results and Discussion

4.1 Descriptive Statistics

Table 3 is presenting the descriptive statistics for the variables of our study sample. The mean revenue value is 13.81, indicating that most of the firms are earning substantial revenue as the revenue value ranges from 0 to 20, the minimum of 0 indicates some firms have no revenue in certain years. The standard deviation of 2.88 denotes little variation across firms, and the values are concentrated around the mean.

Table 3: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Dependent Variables					
Rev	39,146	13.81028	2.883187	0	20.14
EBIT	39,146	0.030285	0.1919466	-1.387817	0.2276161
Independent and Moderating Variables					
Environment	39,067	28.74836	27.99866	0	98.55
Social	16,376	39.84685	23.24134	0.09	98.47
Governance	39,146	47.87564	22.55	0.19	99.15
Cash Holdings	39,146	0.1696458	0.1968076	0	1.014925
Control Variables					
SIZE	39,146	14.42696	1.405988	6.733402	15.6996
LEV	39,146	0.2633466	0.1985362	0	0.8282596
MTB	39,146	1.704289	1.565825	0.3201134	9.95166

EBIT, scaled by total assets, has a mean of 0.030285, which denotes that firms are earning a small positive profit before interest and taxes. The negative minimum value (-1.387817) indicates that some firms are bearing losses.

The mean value of the environmental score is 28.75, showing the moderate performance of firms on environmental factors. It ranges from 0 to 95.55 with a standard deviation of 28, highlighting the considerable variation in environmental performance across firms.

The social score has a mean value of 39.85, it shows moderate to strong social performance by firms with considerable variations as the standard deviation is 23.24. Social score has smaller observations as compared to other variables because of missing data.

The governance score, with an average of 47.88, denotes moderate performance of firms on governance factors. The standard deviation of 22.25 and a wide range from 0.19 to 99.15 portray the substantial variability in governance practices among firms.

Firms, on average, hold 16.96% of their total assets as cash and marketable securities. The wide range from 0 to 101.49% highlights significant variations in cash reserves across the firms.

Size has a mean of 14.43 and a standard deviation of 1.41 showing most of the firms are large and have little variations across firms. Leverage has a mean of 26.33% that indicates

firms (on average) finance about a quarter of their assets with debt. The mean value of the market-to-book ratio is 1.70 indicating that firms (on average) are valued higher by the market than their book value.

4.2 Correlation Matrix

Table 4 presents the correlation matrix. Environment score and revenue are positively correlated, indicating that firms with a high environment score generate higher revenue. However, there is a weak positive correlation between the environment score and EBIT. Social score and revenue are showing a moderate and positive correlation. Governance score is showing a weak positive correlation with both performance indicators, revenue and EBIT. Cash holdings indicate a moderate and negative correlation with revenue and EBIT.

Table 4: Pearson Correlation

	Environment	**Governance**	**Social**	**Cash Holding**	**Revenue**	**EBIT**	**SIZE**	**LEV**	**MTB**
Environment	1								
Governance	0.4229	1							
Social	0.7483	0.4253	1						
Cash Holdings	-0.2213	-0.1679	-0.123	1					
Revenue	0.4404	0.3228	0.4079	-0.2989	1				
EBIT	0.1904	0.1677	0.1481	-0.2590	0.5379	1			
SIZE	0.4918	0.3165	0.4437	-0.2753	0.7940	0.5387	1		
LEV	0.0965	0.0492	0.1269	-0.3214	0.1435	-0.109	0.1265	1	
MTB	-0.1517	-0.1013	-0.066	0.3155	-0.3620	-0.535	-0.404	0.076	1

4.3 ESG Components and Corporate Financial Performance

Table 5 reveals the results of ESG components and corporate financial performance relationship established on the estimation of models 1, 2, and 3. Panel data regression with random effects is used to estimate the models. Table 5, sections A and B, subdivide into models 1, 2, and 3 to describe the impact of ESG components on EBIT and Revenue, respectively.

Table 5: ESG Components and Corporate Financial Performance

Variables	Section A: EBIT			Section B: Revenue		
	1	2	3	1	2	3
Environment	-0.000168*** (0.00005)			0.00556*** (0.000574)		
Social		-0.000338*** (0.000092)			0.00646*** (0.00106)	
Governance			.0000903* (0.0000495)			0.00350*** (0.000402)
SIZE	0.0757*** (0.00311)	0.0698*** (0.00431)	0.0739*** (0.00297)	1.067*** (0.0268)	1.126*** (0.0402)	1.083*** (0.0269)
LEV	-0.186*** (0.0131)	-0.249*** (0.0221)	-0.185*** (0.0131)	0.375*** (0.0926)	0.230 (0.152)	0.385*** (0.0928)
MTB	0.000331 (0.00196)	0.00459 (0.00300)	0.000263 (0.00196)	0.0116 (0.0105)	0.0264 (0.0173)	0.0135 (0.0105)
Constant	-1.007*** (0.0428)	-0.867*** (0.0575)	-0.982*** (0.0399)	-2.282*** (0.369)	-3.546*** (0.552)	-2.729*** (0.372)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,067	16,376	39,146	39,067	16,376	39,146
Number of Firms	6,072	2,328	6,082	6,072	2,328	6,082

In parentheses, robust standard errors are presented *** p<0.01, ** p<0.05, * p<0.1

The results of section A of Table 5 show that the environmental component (E) of ESG has a statistically significant (at the 1% level) but negative impact on EBIT, indicating that higher environmental scores might reduce EBIT. The social (S) score also has a statistically significant effect at the 1% level but a negative impact on EBIT, suggesting that better social performance could reduce profitability measured as EBIT. These findings support the arguments that implementation of ESG practices becomes a cost to organizations, ultimately to the shareholders, and limits viable opportunities (Kim & Lyon, 2015; Zahid et al., 2022). Governance (G) scores have a positive and marginally significant impact on EBIT at the 10% significance level, indicating that better governance practices might slightly improve EBIT. Expenditures on environmental and social motives, for instance,

sustainable operations, sustainable sourcing, fair labor practices, and community engagements increase and lower the profitability.

Section B of Table 5 presents the results of our alternative proxy of financial performance – revenue (natural logarithm of sales). Models 1, 2, and 3 indicate that there are statistically significant as well as positive relationships between the environmental, social, and governance scores and revenue, respectively. This indicates that better environmental, social, and governance practices contribute to higher revenues. Year dummies are included in all models to ensure that the coefficients on the other variables reflect the impact net of any time-specific shocks.

In a bird's eye view, strong environmental and social scores are associated with lower EBIT, indicating that investments/costs in environmental and social practices might reduce profitability in the short run. Conversely, all ESG dimensions including the environmental, social, and governance are positively associated to revenue, highlighting that strong ESG performance may enhance a firm's ability to generate revenue. This positive impact on revenue indicates that investment in ESG practices builds a positive brand image and corporate reputation among customers (Khan & Liu, 2023) that increases the customer base of the organization and ultimately revenue (sales). Furthermore, socially responsible investors try to accomplish green investment goals by supporting organizations that contribute to the environment positively (Raut et al., 2023). Companies with strong CSR practices are less risky and in a better position to gain investor preference (Bacha et al., 2020). While debating the third dimension – governance (G), better governance reduces the information asymmetry and agency issues, and strengthens the link with all stakeholders (Yoon et al., 2018).

4.4 ESG Components and Corporate Financial Performance: The Moderating Role of Corporate Cash Holdings

Table 3: Moderating Role of Corporate Cash Holdings in ESG and Financial Performance Nexus

Variables	Section A: EBIT			Section B: Revenue		
	1	2	3	1	2	3
Environment	-0.000670***			0.00302***		
	(0.000065)			(0.000622)		
Social		-0.000733***			0.00529***	
		(0.000143)			(0.00138)	
Governance			-0.000387***			0.00137**
			(0.000067)			(0.000596)
Cash holdings	-0.197***	-0.240***	-0.260***	-1.850***	-1.108**	-2.084***
	(0.0164)	(0.0414)	(0.0233)	(0.186)	(0.475)	(0.259)
Environment * Cash holdings	0.00352***			0.0196***		
	(0.000326)			(0.00279)		
Social * Cash holdings		0.00274***			0.00811	
		(0.000841)			(0.00782)	
Governance * Cash holdings			0.00303***			0.0141**
			(0.000395)			(0.00387)
SIZE	0.0670***	0.0630***	0.0659***	1.010***	1.091***	1.028***
	(0.00283)	(0.00376)	(0.00269)	(0.0264)	(0.0402)	(0.0264)
LEV	-0.206***	-0.272***	-0.204***	0.181**	0.0993	0.202**
	(0.0133)	(0.0219)	(0.0132)	(0.0918)	(0.158)	(0.0922)
MTB	0.00334*	0.00867***	0.00302	0.0344***	0.0423**	0.0347***
	(0.00192)	(0.00278)	(0.00192)	(0.0105)	(0.0177)	(0.0105)
Constant	-0.853***	-0.744***	-0.826***	-1.130***	-2.901***	-1.574***
	(0.0401)	(0.0507)	(0.0372)	(0.371)	(0.568)	(0.370)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,067	16,376	39,146	39,067	16,376	39,146
Number of Firms	6,072	2,328	6,082	6,072	2,328	6,082

In parentheses, robust standard errors are presented *** p<0.01, ** p<0.05, * p<0.1

While introducing the interaction terms in the model, Section A of Table 6 presents that ESG pillars (environment, social, and governance) are negatively associated with EBIT. Corporate cash holdings are statistically significant at the 1% level but negatively associated with EBIT across all three models. Higher cash holdings are linked to reduced profitability (EBIT), possibly because of forgone investment returns because of holding cash. The interaction terms a) Environment * Cash holdings, b) Social * Cash holdings, and c) Governance * Cash holdings all show positive, significant, and moderating impact on the association between all ESG dimensions and EBIT. It indicates firms with high environmental, social, and governance scores and substantial cash reserves may mitigate negative impacts on profitability and see a positive effect. Firms with high liquidity can better absorb the costs of environmental initiatives and convert them into financial benefits.

Section B: represents that environment, social, and governance scores are positively related to revenue (sales), which aligns with the results of Ahmed & Abu Khalaf (2025) who conducted research in EU companies and reported the positive effect of ESG scores on firms' market value. The interaction term of Environment * cash holdings is positive and significant at 1% significance level, which shows that cash holdings strengthen the positive effect of environment score on revenue. It indicates firms with strong environmental performance and considerable cash reserves tend to see an increase in revenue (sales).

The interaction term of Social * Cash holdings is positive but insignificant. It suggests that the interaction term between the social score and cash holding might positively affect the revenue, but its effect is not statistically strong. The interaction term between governance and cash holdings is significantly positive at the 5% level, it indicates the positive moderating impact. So, we can say that firms with better governance and higher cash holdings experience increased revenue. Control variable: SIZE and MTB (Market-to-Book) ratios are positive and significant, as evident in the literature, moreover, leverage is negatively associated with EBIT but positively associated with revenue might be because of the firm's ability to use debt for growth. Overall, the results reveal that better ESG practices can leverage their cash reserves more effectively, potentially enhancing profitability and revenue.

5. Conclusion, Policy and Managerial Implications

This research investigates the effects of ESG dimensions Environment (E), Social (S), and Governance (G) on corporate financial performance and the strategic role of corporate cash holdings in this relationship. The research's findings show that higher ESG hurts firms' financial performance, measured as EBIT, confirming the trade-off hypothesis and highlighting the inherent tension between short-term financial performance and long-term sustainability when investing in ESG practices. However, ESG positively influences firms' revenue, potentially because of improved brand image, customer loyalty, and stakeholder trust. The second objective is addressed by examining the moderating role of corporate cash holdings on the ESG and CFP nexus. The results reveal that firms with substantial

cash reserves can better manage the costs related to ESG activities, mitigate the impact on profitability, and enhance revenue generation. Indeed, this highlights the importance of financial flexibility because of the most liquid asset (cash holdings) in implementing sustainable business practices. Results of this research are consistent with stakeholder theory, as by investing in ESG practices, firms gain customer loyalty and goodwill, which leads to higher sales, but profitability may lag unless supported by resources (cash holdings).

Regarding policy implications, this study suggests that regulatory bodies should consider implementing or enhancing mandatory reporting standards, as transparent reporting can help investors make informed decisions and attain more sustainable investments. Regarding implications for managers, this study highlights the incentives for corporate managers to maintain sufficient cash reserves. Secondly, firms should adopt governance policies that balance short-run financial goals with long-run sustainability objectives. Third, active engagement with stakeholders (including customers, employees, investors, and society at large) on ESG issues can help to align business strategies with societal expectations, ultimately leading to increased revenue and long-term success. Policymakers and corporate leaders, by working together, can create an environment that balances sustainable practices and profitability with broad social and environmental goals.

Despite offering novel insights into the area of ESG, financial performance, and cash holdings, this research is not without limitations. Current research is based on aggregate scores for each dimension of ESG: environment, social, and governance. For example, the environmental score is a weighted average of various environmental sub-indicators, such as emission management, renewable energy adoption, water management, investment in green R&D, and eco-friendly product designs. Future research studies could consider specific sub-dimensions, e.g., emission management or sustainable sourcing, and investment in green R&D to identify which aspect could have a strong influence. Furthermore, a comparison between emerging markets and developed markets or high-tech industries and traditional manufacturing sectors could be considered for future research.

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