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Article

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A cross-country examination on the relationship between cash holding, dividend policies, and the moderating role of ESG ratings

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ABSTRACT

This investigation delves into the intricate connection between dividend policy and cash holdings, while considering the joint influence of the Environmental, Social, and Governance (ESG) ratings. Our aim was to acquire a profound comprehension of how ESG impacts cash-dividends link. The analysis encompasses cross-country data spanning from 2010 to 2020. The conclusions drawn from this study align with the notion that cash holdings and dividend policy share a positive correlation. Furthermore, this study shows a significant moderation of the relationship between cash holdings and dividend policies by ESG. In companies that adopt moderate ESG practices, there exists a noteworthy positive correlation between cash holdings and dividends. However, for companies that embrace comprehensive ESG processes, the opposite holds true. This study elucidates the impact of a company's ESG policies on its dividend payout and cash reserves. Moreover, it furnishes invaluable insights that empower management and investors to make well-informed decisions and prospects, while duly considering the influence of ESG activities.

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1. Introduction

The effective management of financial resources within an organization plays a crucial role in ensuring its economic stability, strategic direction, and competitive advantage (Brealey et al., 2017). Cash management involves the skillful preservation of liquid assets, which refers to the monetary value that a company holds at any given point and is an essential aspect of corporate financial governance. The availability or insufficiency of cash reserves directly impacts a firm's ability to meet short-term obligations, sustain daily operations, and take advantage of profitable investment opportunities. However, determining the ideal level of cash holdings is highly significant for businesses as it requires careful evaluation of both the costs and benefits associated with maintaining specific amounts as reserve funds. These funds can be strategically utilized for various purposes such as promoting growth initiatives, financing capital expenditures, or distributing dividend payments.

Concurrently, it is manifest that dividends occupy a pivotal position within the intricate web of communication strategies employed by corporate entities. They function as an unequivocal barometer of the company's financial well-being, proffering a ray of optimism to stakeholders. Moreover, dividends exude a captivating allure that ensnares discerning investors in search of consistent returns on their

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investments via recurrent dividend disbursements (Allen et al., 2000). Accordingly, the formulation of a judicious dividend policy mandates meticulous consideration regarding the equitable apportionment of earnings among shareholders, all while safeguarding the company's fiscal robustness, charting a trajectory of growth, and aligning with investor expectations (Baker et al., 1985). Consequently, enterprises are compelled to adroitly navigate the delicate equilibrium between upholding ample cash reserves for liquidity imperatives and disbursing profits to shareholders in the guise of dividends (Gill et al., 2010).

Given that the decision to distribute dividends stands out as one of the paramount financial choices at a company's disposal, numerous scholarly inquiries have endeavored to scrutinize the multifaceted influences shaping this decision. This study, with a distinct focus on the moderating impact of ESG considerations, aims to delve into the intricacies of the relationship between cash reserves and a company's dividend policy.

The importance of sustainable and ethical business practices has become widely acknowledged which has led corporations to experience significant changes in the landscape of the corporate governance environment (Clark et al., 2015). The emergence of ESG elements as important considerations reflects this change. ESG factors have changed from being only ethical factors to essential factors that support a company's long-term existence and competitiveness (Al Amosh & Khatib, 2023). Investors and stakeholders now see ESG integration as more than just a moral need; rather, they see it as a strategic imperative with the ability to reduce risks, increase operational effectiveness, and boost financial performance (Khan et al., 2016).

According to recent statistics as indicated by Bernow et al. (2017), around 26% of all assets that are professionally managed in Europe, the United States, Canada, Australia, New Zealand, and Asia are investments in sustainable assets. In a similar vein, the HSBC/UK revealed that over USD 21.4 trillion had been dedicated to sustainability investments globally in 2019, demonstrating the importance of ESG in capital market decisions. This shift denotes a fundamental reevaluation of corporate performance, understanding that monetary success must be symbiotically connected with ethical company practices and significant benefits to society. Given that they are direct sources of a company's liquidity, it makes sense that these various possibilities may, if true, have an impact on the financial decisions made by the company.

Researchers have been drawn to study the economic impacts of ESG rating on firm value (Al Amosh et al., 2023a; Wong et al., 2021), cost of capital (Ng & Rezaee, 2015), firm performance (Elmghamez et al., 2023; Huang, 2021), risk management (Korinth & Lueg, 2022), and value of cash holdings (Perez de Toledo & Bocatto, 2014). There is a general agreement between these studies that the importance of ESG is on the rise. However, despite its importance, there is a notable lack of comprehension regarding the impact of ESG on the relationship between cash reserves and dividend policy. Cash reserves are crucial for a company's financial stability and ability to weather unforeseen challenges. Dividend policy, on the other hand, determines how a company distributes its profits to shareholders.

Traditionally, companies have focused on maximizing shareholder value through dividend payments. However, with the rise of ESG, there is a growing recognition that businesses need to consider a broader set of stakeholders, including employees, customers, communities, and the environment. This shift in behavior requires a reevaluation of how corporations manage to perceive cash, ensure dividend allocation, and uphold ESG practices. The study adds to the previous literature by exploring whether companies with higher ESG scores exhibit different cash holding and dividend policies compared to those with lower ESG scores.

The primary research question of this study is to investigate the moderating effect of ESG initiatives on the relationship between cash holdings and dividend policies in companies. Additionally, subsidiary questions aim to explore the moderating role of the three pillars of the ESG namely, social, governance, and environmental on the relationship between cash reserves and dividend distribution. Answering the research question provides nuanced insights into how companies navigate the confluence of maintaining appropriate cash reserves, equitable dividend distribution, and adherence to sustainable and responsible business practices. Despite the rising volume of research on dividends and cash holding, the area of intersection with ESG considerations is still relatively unexplored. Extensive research has been conducted on the determinants and consequences of cash holding and dividend policy. However, the influence of ESG factors on this relationship remains largely unexplored.

Using the Thomson Reuters Eikon database and a dataset over the period 2010 to 2020, the primary goal of the research is to accomplish three objectives motivated by the absence of evidence. Firstly, this study intends to fill the literature gap by investigating the ESG initiatives and their component on the link between cash reserves and dividend strategies. Secondly, it strives to determine if businesses with

better ESG ratings exhibit unique cash reserves and dividend policies in comparison to those with lower ESG ratings. Lastly, the study aims to provide factual proof of the current literature on corporate finance and ESG factors.

By conducting a comprehensive analysis of a large sample of companies across different industries and regions, this study contributes to the existing literature on corporate finance and ESG by; first, shedding light on the potential impact of ESG considerations on financial decision-making. Understanding the relationship between ESG factors, cash holding, and dividend policy is crucial. Financial decision-makers, investors, and other stakeholders who want to create a sustainable, moral, and profitable business environment must understand these dynamics to ensure that long-term financial objectives are in line with society's welfare. Second, this study sheds light on how two different components of ESG initiatives affect the link between cash holdings and dividend policy. Third, a theoretical contribution is also provided in this study, the findings of this study suggest that ESG practices can serve as a substitute for corporate dividends in mitigating agency costs. Furthermore, our research supports the signaling perspective, where corporations implement ESG initiatives to decrease dividend payouts. This is because ESG initiatives are utilized to demonstrate the company's commitment to aligning its interests with those of shareholders.

There is a clear indication that the more cash the company holds can positively affect its' dividends policies. The ESG initiatives are also found to have a negative moderation effect on the relationship between cash holdings and dividends. This conclusion remains true even when the ESG pillars, particularly the environmental and governance pillars, are examined independently. Our results indicate that the positive relationship between cash holdings and dividend policy is less pronounced for organizations with good ESG initiatives than for those with poor ESG initiatives. These findings provide support for the transactional motive behind holding cash, the substitution theory, and the signaling theory. The adoption of ESG practices demonstrates management's dedication to aligning their interests with those of shareholders. Furthermore, ESG results in a reduction in transactional costs, thereby diminishing the necessity for cash reserves to cover such expenses. This challenges the traditional association between cash and dividends as explained by agency theory. Instead, the substitution theory gains more significance. ESG practices have the potential to substitute the need for dividends in order to mitigate agency costs, despite the significant role played by dividends in this particular context. Added to this, the signaling theory proposes that investors may demand higher dividends from companies that have limited ESG information to compensate for the lack of information provided by these firms. Consequently, corporations may prioritize achieving a superior ESG rating and providing comprehensive information, rendering dividends unnecessary for addressing agency problems.

This study is organized as follows. The literature evaluation and hypothesis development are included in [Section 2](#), while the study methodology and data are covered in [Section 3](#). In [Section 4](#), the results and the paper's contributions are analyzed and discussed

2. Literature review

The integration of financial policies with ESG factors is gaining traction in the field of corporate finance. This field of study tries to understand how organizations use their financial resources strategically while aligning with sustainable goals. However, to the best of our knowledge, no current research has been conducted to investigate the interaction between cash holding, dividend policy, and ESG ratings. The purpose of this literature review is to offer a complete overview of the research in this rapidly growing topic.

2.1. Theoretical literature review

2.1.1. Theories on the relationship between ESG and cash holdings

Cash plays a crucial role in a firm's financial position as it directly affects its ability to meet short-term obligations, fund daily operations, and capitalize on investment opportunities (Brealey et al., 2017). There are two main theoretical justifications for managerial behavior regarding cash-holding decisions in the

literature (Chiu & Hsieh, 2021). According to Dimitropoulos et al (2020), the first argument is the precautionary motive, which aims to mitigate business uncertainty, handle unexpected events, and minimize the risk of illiquidity. The second argument is the transactional motive, which suggests that firms hold excess cash to reduce transactional costs and meet overdue payables without resorting to external financing or liquidating assets. The rationale behind holding cash, according to the transactional motive perspective, is to have sufficient funds to address any potential future uncertainties as well as risks associated with business operations and overdue payables (Han & Qiu, 2007). Research conducted by Boutin-Dufesne and Savaria (2004) as well as Huang et al. (2019) presents evidence that ESG-adhered firms experience lessened cost of equity. In addition, they have less systematic risk (Eratalay & Cortés Ángel, 2022), along with less costly external financing (Suto & Takehara, 2018). It then could be argued that lower operational costs would be incurred, thereby requiring less cash to cover these expenses (Limkriangkrai et al., 2017). Consequently, a negative relationship between ESG and cash holdings is expected according to this theory.

The positive relationship between ESG and cash could be explained by the precautionary motive view. Firms that prioritize ESG factors are more likely to hold more cash, as well as their equivalents (Dimitropoulos et al., 2020; Dimitropoulos & Koronios, 2021). This is due to managers' desire to maximize shareholder value while also meeting the needs of various stakeholders (Cheung et al., 2018). Instead of increasing payouts to shareholders, these managers choose to allocate more cash toward ESG activities to satisfy the demands of their stakeholders (Al Amosh et al., 2023b). Research conducted by Cheung et al. (2018) and Huang et al. (2019) provides evidence that socially responsible firms hold more cash to satisfy both shareholders and key stakeholders. The focus on ESG initiatives creates value for shareholders by fostering trust and reciprocity with stakeholders, thereby strengthening their support for the firm's operations. In addition, according to Zahid et al. (2023), companies that prioritize ESG performance often allocate a considerable portion of cash reserves. As a precautionary motive, this phenomenon can be attributed to the firms' inclination to mitigate ESG-related risks and uncertainties by enhancing their liquidity position. Additionally, companies with robust ESG performance may anticipate forthcoming regulatory changes pertaining to sustainability and, therefore, maintain higher cash balances to promptly adapt to new environmental or social compliance standards (Gao et al., 2021; Gholami et al., 2022). This proactive approach not only ensures compliance but also has the potential to negatively affect corporate dividends.

2.1.2. Theories on the relationship between ESG and dividends

Cash dividend payments, which represent a portion of the company's earnings distributed to shareholders, are closely tied to the firm's liquidity (Allen et al., 2000; Baker, et al., 1985; Gill et al., 2010). Distributing dividends is a crucial strategic choice made by corporations that has an impact on their market value, investor behavior, and level of uncertainty, as it is closely linked to cash flow (Gill et al., 2010). As per the research conducted by Hasan and Habib (2020) and Benlemlih (2019), dividend payments play a significant role in managing agency costs associated with free cash flows by limiting the resources available under managerial control and preventing the inefficient utilization of scarce corporate resources.

In terms of the relationship between ESG and dividends, two main theories were identified in the literature such as the agency theory and the substitution theory. Dividends are viewed by the agency theory as an important tool used to limit agency costs pertinent to the free cash flow argument (Jensen, 1986). Under this view, managers tend to make reckless decisions and overinvest, leading to inefficient use of the firm's resources when have excess cash flow. Dividends can help reduce the amount of free cash flows available to managers, limiting their discretion. If managers use ESG to gain private recognition by being seen as socially responsible, dividend payments can serve as an avenue to control or discipline managerial overinvestment and protect shareholders' wealth (Benlemlih, 2019; Dimitropoulos et al., 2020). Put differently, managers may finance ESG activities to appease the interest of stakeholder groups (Dimitropoulos et al., 2020; Dimitropoulos & Koronios, 2021). Thus, the ESG may mitigate the agency issue by reducing information asymmetries with shareholders, thereby improving their overseeing capabilities (Benlemlih 2019; Dimitropoulos & Koronios, 2021; Ellili, 2022). Also, reduced information asymmetry results in a firm being more scrutinized by stakeholders. This model enables building more trustworthy relationships which leads to improved performance and long-term profitability, ultimately raising the firm ability to distribute more cash dividends.

On the other hand, the substitution theory could be adopted to argue a negative association between ESG and cash dividends (Hasan & Habib, 2020). ESG is likely to be accompanied by valuable information, which reduces the necessity for managers to pay cash dividends to address information asymmetries with shareholders (Dimitropoulos & Koronios, 2021; Ellili, 2022; Hasan & Habib, 2020). In addition, the ESG rating is likely to provide a sign of management's commitment to aligning their interests with those of shareholders (Dimitropoulos & Koronios, 2021; Healy & Palepu, 2001). ESG efforts may therefore be a comparable alternative to corporate dividends, particularly for companies with high ESG ratings, although company dividends are crucial for reducing agency costs (Lloyd et al., 1985). In this sense, ESG substitutes the need to build a corporate reputation through cash dividend payments and managers of high ESG-performing firms may view dividend payments as having minimal advantage. This results in reduced motivation to distribute cash dividends. Additionally, as the firm integrates ESG activities into its code of conduct, improving its disclosure, the need to demonstrate commitment through expensive dividend payments is further diminished (Dimitropoulos & Koronios, 2021).

2.2. Empirical literature review and hypotheses

2.2.1. The relationship between cash holding and dividends

As mentioned earlier, cash management is an important part of a company's financial management strategy, impacting numerous financial choices including dividend distributions. The reason why firms hold cash is widely varied between transactional and precautionary motives. Cash holding is value-enhancing since cash reserves may be used to acquire additional companies, invest those funds in value-enhancing activities, and pay dividends to shareholders to return value to shareholders.

A firm's cash holdings can be determined by a variety of factors. Various studies have indicated that the primary factors influencing corporate cash holdings include firm size, growth prospects, cash flow uncertainties, asset liquidity, leverage, credit ratings, and bank debts (Al-Najjar & Belghitar 2011; Han & Qiu, 2007; Houque et al., 2023; Opler et al., 1999). According to Opler et al. (1999), in order to satisfy operational demands, alleviate financial distress, or take advantage of investment possibilities, businesses, particularly those in uncertain or unpredictable sectors, typically maintain bigger cash reserves. In addition, the financial constraints also may determine the level of cash that the company may hold. According to Bates et al. (2009), having cash reserves allows firms to fund investments internally rather than relying on external financing if they encounter financial constraints. In addition, the practice of holding more cash by firms is often used in order to minimize volatility in cash flow and manage risks effectively (Bates et al., 2009). Moreover, a company's cash holdings may be impacted by tax concerns (He & Tian, 2013). A study by Almeida et al. (2004) found that businesses with more investment prospects often maintain less cash because they choose to put their money toward ventures that would yield greater profits. Ownership structure and agency costs are important factors in determining cash holdings; organizations with better monitoring and fewer agency conflicts tend to store less cash (Denis & Sibilkov, 2010).

The link between cash holding and dividend policy is a crucial part of corporate finance. Jensen (1986) introduces the agency theory to explain the relationship between cash holding and dividends, which argues that extra cash that is not needed for investments might lead to agency costs since managers may use excess cash to engage in non-value maximizing activities. To reduce agency conflicts, shareholders may put pressure on the company to disperse surplus capital as dividends. On the other hand, the pecking order theory, proposed by Myers and Majluf (1984), contends that firms prefer internal funding, such as retained earnings and cash reserves, over external borrowing. In this context, excess cash is viewed as an indication of fewer investment alternatives and is related to greater dividend distributions in this context. Firms may also declare dividends or change dividend policy based on their appraisal of market circumstances and the availability of excess capital. According to Baker and Powell (1999), corporations tend to time the introduction of dividends to transmit good information about their prospects. Almeida et al. (2004) contend that extra cash decreases financial limitations, allowing enterprises to distribute cash to shareholders as dividends. Denis and Osobov (2008) provide evidence that companies in the US, Canada, UK, Germany, France, and Japan exhibit a greater tendency to distribute dividends when they possess larger cash reserves. This aligns with research conducted in Palestine (Kullab

et al., 2022), Poland (Chesini & Staniszewska, 2017), and Tanzania (Lotto, 2020). Based on this, the following has been hypothesized.

H1: There is a positive relationship between cash holdings and corporate dividends policy.

2.2.2. *The moderating role of ESG performance*

The link between cash holdings and dividends has long been a central topic of investigation in financial research, typically assuming a positive connection. Nevertheless, the advent of ESG considerations in recent times may instigate a departure from this conventional perception. ESG is now being acknowledged as a rich source of opportunity as well as a possible risk for today's firms, particularly by stakeholders (Al Amosh et al., 2023b; Limkriangkrai et al., 2017). As a result, investors are increasingly weighing ESG performance when deciding whether to invest in a firm (Verga et al., 2020; Ellili, 2022). Additionally, this has led to an increase in the number of stakeholders pushing for the inclusion of ESG in corporate codes of conduct.

The incorporation of ESG principles into a company's code of conduct has the potential to bring value to shareholders. The empirical findings indicate that this integration not only improves the economic performance of firms (Huang, 2021; La Torre et al., 2021), but also boosts the market value of the company (Aureli et al. 2020; Wong et al. 2021), enhances the efficiency of investments (Ellili, 2022), and predicts the volatility of financial assets (Capelli et al., 2021). Additionally, it lowers the cost of equity capital (Ng & Rezaee, 2015; Raimo et al., 2021) and has the potential to strengthen non-financial indicators like reputation and transparency (Murè et al., 2021). It appears probable that this disparate outcome will exert a noteworthy impact on the financial decisions pertinent to cash holdings and dividends. Consequently, an alternative approach to scrutinize the likelihood of ESG influencing the allocation of generated value is by analyzing the cash reserves and dividend policies (Ahmad et al., 2018; Verga et al., 2020). Nevertheless, it is astonishing that the extent to which corporate ESG initiatives can affect the relationship between cash holdings and dividends policy remains unknown. Therefore, we intend to address this gap through our contribution.

Drawing from the substitution theory, ESG initiatives could exert a negative moderating effect on the cash holdings and dividends relationship. ESG practices and corporate dividends can be regarded as effective mechanisms that companies can employ to mitigate agency problems (Ellili, 2022; Lloyd et al., 1985). Pérez (2015) suggests that ESG can serve to control managerial behavior while also signaling to the market that managers are adhering to best practices. As a result, a higher ESG rating can be regarded as a dependable indicator of management's dedication to aligning their interests with those of shareholders (Hasan & Habib, 2020; Healy & Palepu, 2001). Consequently, ESG practices can serve as a substitute for corporate dividends in mitigating agency costs, notwithstanding the substantial role played by corporate dividends in this context (Hasan & Habib, 2020; Lloyd et al., 1985).

This negative relationship is also consistent with the transactional motive of holding cash. According to this view, ESG-adhered firms are likely to experience less transactional costs (Boutin-Dufesne & Savaria 2004), resulting in a lessened cost of equity (Huang et al., 2019), less systematic risk (Eratalay & Cortés Ángel, 2022), as well as less costly external financing (Suto & Takehara, 2018). Thus, firms with superior ESG practices are seen to suffer less agency costs, thereby reducing the necessity for holding significant cash reserves to cover such expenses (Limkriangkrai et al., 2017). In light of these arguments, the positive relationship traditionally observed between cash and dividends, as per agency theory (Hujie, 2019; Jensen, 1986), may not be applicable. Instead, the substitution theory becomes more relevant. The substitution theory could be employed in this study to argue that ESG practices can replace the need for cash reserves to mitigate agency costs, reducing the need for dividend distribution.

This negative moderation is also in line with the signaling theory. The inadequate disclosure of information leads to investor concerns regarding information asymmetry (Ellili, 2022). Consequently, investors who lack sufficient information are more inclined to demand higher dividends from companies that possess transparency risks, as a means of compensating for the limited information provided by these firms (Dhaliwal et al., 2011). Thus, to address the prevailing issues of information asymmetry and mitigate the agency problem, corporations can focus on achieving a superior ESG rating instead of relying on

dividend payouts. Consequently, for companies with higher ESG ratings, dividends become unnecessary for mitigating agency issues, indicating a negative correlation between the two factors.

The alternative perspective posits that ESG factors can have a positive moderation impact. Drawing on the agency theory, dividends reduce agency costs related to excess cash flow by limiting managers' discretion over available cash (Jensen, 1986). Managers have control over cash reserves and can leverage their compensation; thus, may be inclined to excessively invest in ESG initiatives for personal benefit while disregarding the interests of shareholders (Barnea & Rubin, 2010; Verga et al., 2020). Here, Managers can utilize ESG to attain personal acknowledgment by being perceived as socially accountable. In this regard, dividend payments can act as a means to regulate or curb excessive investments by managers and safeguard the wealth of shareholders (Benlemlih, 2019; Dimitropoulos et al., 2020).

Put differently, prioritizing ESG initiatives is important for firms to appease the interest of stakeholder groups (Dimitropoulos et al., 2020; Dimitropoulos & Koronios, 2021). ESG initiatives generate value for shareholders by cultivating trust and cooperation with stakeholders, consequently bolstering their backing for the company's activities. Thus, the ESG may mitigate the agency issue by reducing information asymmetries with shareholders, thereby improving their overseeing capabilities (Benlemlih, 2019; Dimitropoulos & Koronios, 2021; Ellili, 2022). Also, reduced information asymmetry results in a firm being more scrutinized by stakeholders. This model enables building more trustworthy relationships which leads to improved performance and long-term profitability, ultimately raising the firm ability to distribute more cash dividends.

The signaling theory, as proposed by Benartzi et al. (1997) and Miller and Rock (1985), presents a similar viewpoint. According to Ellili (2022), a firm's heightened dedication to societal and environmental matters, as demonstrated through its ESG performance, can function as a favorable signal. This signal has the potential to enable companies to reap the benefits of an enhanced image and reputation in the capital markets, ultimately leading to more profitable operations and a sound dividend policy, as suggested by Bae et al. (2021). Additionally, the possession of substantial cash reserves can transmit a positive signal to investors regarding a company's future earnings growth potential. This signal may also indicate the firm's capacity to allocate supplementary resources to ESG initiatives without compromising its cash flow or returns (Verga et al., 2020).

H2: ESG moderates the relationship between cash holdings and dividend policy.

3. Research design

3.1. Study sample and data

As part of the conducted research, data was gathered from a sample of countries across different regions and the Thomson Reuters Eikon database, spanning over the period from 2010 to 2020. Our sample started in 2010 and ended in 2020 due to various factors. The choice of 2010 as the starting point enables the utilization of a relatively up-to-date and all-encompassing dataset for analysis. Furthermore, adopting a decade-long timeframe ensures consistency and comparability in the analysis. A 10-year period offers a well-rounded perspective of trends while remaining pertinent to prior research that may have examined similar periods. This methodology facilitates a more lucid comprehension of the fundamental trends and patterns that existed before the pandemic, which could be more representative of long-term dynamics.

The sample selection process is outlined in Table 1. At first, 40,363 firms were considered for investigation across 57 countries. Then, a substantial number of firms are excluded due to missing ESG data (36,075 firms) and financial data (2791 firms), resulting in a final sample of 1497 firms from 53 countries. The final dataset represents 16,467 firm-year observations over 11 years. The exclusion of firms with missing data ensures a more focused analysis and hence contributes to the reliability of the findings.

The specific countries included in the final sample are presented in Table 2. To ensure the sufficiency of the data, an initial step was taken to narrow down the sample by excluding countries with insufficient data. Table 2 presents a comprehensive summary of the distribution of the study sample, which was based on the countries that were included in our research. The sample comprised a total

Table 1. Sample selection.

Number of countries in the initial sample	57
Number of firms in the initial sample	40,363
Firms with missing ESG data	(36,075)
Firms with ESG data	4288
Firms with missing financial data	(2791)
Final sample	1497
Number of countries in the initial sample	53
Firm year observations (i.e. 1497 * 11 years)	16467

Table 2. Tabulation of the study sample.

Country of headquarters	Freq.	Percent	Cum.
Argentina	2	0.01	0.01
Australia	1190	7.23	7.24
Austria	84	0.51	7.75
Belgium	122	0.74	8.49
Bermuda	36	0.22	8.71
Brazil	265	1.61	10.32
Cambodia	1	0.01	10.33
Canada	396	2.41	12.73
Chile	85	0.52	13.25
China	1238	7.52	20.77
Colombia	32	0.19	20.96
Denmark	162	0.98	21.94
Egypt	19	0.12	22.06
Finland	158	0.96	23.02
France	472	2.87	25.89
Germany	496	3.01	28.90
Greece	57	0.35	29.25
Hong Kong	438	2.66	31.91
Hungary	17	0.10	32.01
India	411	2.50	34.51
Indonesia	166	1.01	35.51
Ireland; Republic of	157	0.95	36.47
Israel	31	0.19	36.66
Italy	121	0.73	37.39
Japan	1591	9.66	47.05
Kazakhstan	1	0.01	47.06
Korea; Republic (S. Korea)	561	3.41	50.47
Kuwait	1	0.01	50.47
Luxembourg	37	0.22	50.70
Malaysia	217	1.32	52.02
Malta	9	0.05	52.07
Mexico	194	1.18	53.25
Netherlands	198	1.20	54.45
New Zealand	119	0.72	55.17
Norway	107	0.65	55.82
Peru	17	0.10	55.93
Philippines	96	0.58	56.51
Poland	63	0.38	56.89
Portugal	37	0.22	57.12
Qatar	17	0.10	57.22
Russia	168	1.02	58.24
Saudi Arabia	35	0.21	58.45
Singapore	181	1.10	59.55
South Africa	428	2.60	62.15
Spain	134	0.81	62.97
Sweden	377	2.29	65.26
Switzerland	389	2.36	67.62
Taiwan	316	1.92	69.54
Thailand	74	0.45	69.99
Turkey	145	0.88	70.87
United Arab Emirates	17	0.10	70.97
United Kingdom	1440	8.75	79.72
United States of America	3339	20.28	100.00
Total	16464	100.00	

of 53 countries, which were selected based on the availability of ESG data reported by companies. The examination of the sample distribution revealed that the majority of companies were from the United States and the United Kingdom, while those from emerging economies constituted the smallest proportion of the sample.

3.2. Research models

In this study, similar to Model 1, the multiple regression model was utilized to examine the correlation between cash holdings and dividend policy. However, Model 2 of the study incorporates an interaction term between cash and ESG initiatives to assess the potential influence of ESG initiatives on the relationship between cash holdings and dividends policy. To test the research hypotheses, this study employs the Pooled Ordinary Least Squares (OLS) regression approach, which is clustered at the country level to mitigate the issue of heteroscedasticity. Additionally, the sector-fixed effect is incorporated to account for sector-specific variances, which may affect firm dividend payouts due to their unique characteristics. Moreover, a specific trend toward dividends may emerge during a particular period, and thus, this study introduces a dummy variable for each year to account for the time impact.

Before initiating the analysis, it is crucial to ensure that the Ordinary Least Squares (OLS) regression assumptions, specifically linearity, normality, and homogeneity, have not been violated. Furthermore, due to the possibility of multicollinearity, the current study has produced a comprehensive correlation matrix among the variables under investigation, as displayed in Table 3. The results of the correlation matrix can be utilized to deduce the presence of multicollinearity, with a coefficient of approximately eight indicating its existence. The findings suggest that the independent variables were not affected by multicollinearity.

(Model 1)

$$DV_{it} = \beta_0 + \beta_1 \text{Cash}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{PROF}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \text{NumberAnalysts}_{it} + \beta_6 \text{Liq}_{it} + \beta_7 \text{CapitalEx}_{it} + \beta_8 \text{BoardSize}_{it} + \beta_9 \text{CEO}_{it} + \text{Year} + \text{Sector} + \varepsilon_{it}$$

(Model 2)

$$DV_{it} = \beta_0 + \beta_1 \text{Cash}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{PROF}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \text{NumberAnalysts}_{it} + \beta_6 \text{Liq}_{it} + \beta_7 \text{CapitalEx}_{it} + \beta_8 \text{BoardSize}_{it} + \beta_9 \text{CEO}_{it} + \beta_9 \text{ESG}_{it} + \beta_{10} \text{Cash} * \text{ESG}_{it} + \text{Year} + \text{Sector} + \varepsilon_{it}$$

3.3. Measurement of the study variables

3.3.1. Independent variable

To proxy the level of cash reserves, we adopt a methodology employed in previous scholarly investigations (e.g. Al-Najjar & Belghitar, 2011; Atif et al., 2022). Specifically, we employ the cash-to-net assets ratio as a measure, whereby the term 'net assets' is operationally defined as the book value of total assets, less the aggregate value of cash and marketable securities.

3.3.2. Dependent variable

This study employed various indicators to assess a company's dividend policy, providing insights into how the company allocates its earnings to shareholders. Specifically, the study utilized the dividends payout ratio, dividends yield, and a binary variable indicating whether the company paid dividends or not.

The dividends payout ratio measures the proportion of earnings distributed to shareholders and was calculated by dividing the total dividends by the total net income, following the approach proposed by Ellili (2022). The dividend yield, which compares a company's stock price to its annual dividend income, was computed by dividing the annual dividends per share by the stock price per share, as suggested by Saeed and Zamir (2021).

3.3.3. Moderating variable

variable ESG rating scores, on the other hand, have gained substantial popularity within academic empirical research as a key indicator for measuring company sustainability (Rajesh, 2020; Verga et al., 2020). As a result, the ESG rating score is used as a substitute measure in this study to assess the extent of company sustainability.

Table 3. Matrix of correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
DV PAT	1.000														
DV YID	0.008	1.000													
Cash	-0.004	0.031*	1.000												
ESG_Combined	0.006	0.027*	-0.051*	1.000											
EPS	0.005	0.026*	-0.042*	0.868*	1.000										
SPS	0.012	0.014*	-0.047*	0.623*	0.393*	1.000									
GPS	-0.001	0.044*	-0.068*	0.825*	0.736*	0.363*	1.000								
Size	-0.006	0.028*	-0.192*	0.380*	0.374*	0.249*	0.500*	1.000							
PROF	-0.001	0.005	0.003	0.025*	0.022*	0.020*	0.017*	0.002	1.000						
Lev	0.006	-0.003	-0.115*	0.071*	0.081*	0.053*	0.069*	0.251*	0.028*	1.000					
Analysts	-0.010	-0.063*	-0.062*	0.328*	0.339*	0.194*	0.355*	0.469*	0.017*	0.017*	1.000				
Liq	-0.002	-0.008	0.052*	-0.125*	-0.123*	-0.066*	-0.151*	-0.203*	-0.006	-0.225*	-0.122*	1.000			
CapitalEx	0.005	-0.016*	-0.008	0.093*	0.094*	0.060*	0.095*	0.021*	-0.002	-0.019*	0.267*	-0.070*	1.000		
BoardSize	-0.008	-0.004	-0.104*	0.202*	0.218*	0.036*	0.298*	0.463*	-0.004	0.082*	0.224*	-0.110*	-0.009	1.000	
CEO	-0.014*	-0.066*	-0.075*	-0.001	0.037*	-0.079*	0.024*	0.108*	0.014*	0.058*	0.113*	0.006	0.017*	0.066*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Thomson Reuters offers an ESG score as a statistic for assessing a company's sustainability performance. This score is calculated using three distinct factors known as ESG pillars: environmental (E), social (S), and governance (G). The ESG score evaluates the overall performance of the company on a scale of 0–100 by examining the reported data within four pillars.

Thomson Reuters computes ESG indicators using a subset of 178 relevant fields arranged into ten main categories. The environmental category includes resource use, emissions, and innovation, whereas the social category includes workforce, human rights, community, and product responsibility. The governance category includes factors linked to the company's management and oversight. According to the ESG methodology, environmental factors carry a weight of 34.0%, social factors carry a weight of 35.5%, and governance factors carry a weight of 30.5%. Consequently, the ESG rating can be regarded as an indicator of a company's performance, commitment, and effectiveness in terms of its environmental, social, and governance practices. The ESG rating is assigned to over 7000 publicly listed companies, with a significant number of them being located in North America (more than 2900 companies) and Europe (more than 1200 companies). Moreover, the availability of small firm data extends back to the year 2002.

One crucial independent variable under consideration is the ESG score, which is essentially represented by the aggregate of its three constituent components (E, S, and G). Additionally, as an integral part of this research, we aim to replicate the primary analysis by disaggregating the ESG score into its subcomponents (E, S, and G) to derive distinct conclusions regarding the interplay between the various perspectives that influence the outcome variable.

3.3.4. Control variable

Consistent with prior scholarly investigations, we consider a range of risk indicators and business characteristics that are anticipated to exert an influence on dividend policy. A comprehensive overview of the variables employed in this study is presented in Table 4. Firm size is measured using the log value of the company's total assets (Al-Najjar & Belghitar, 2011). Large firms are more likely to pay dividends due to their financial ability, and maturity in the market and experience less risk (Benlemlih, 2019). Corporate profitability is measured using the net income to total equity. Companies with higher return on assets (ROA) have a greater capacity to generate free cash flows and distribute profits (Dimitropoulos & Koronios, 2021).

On the other hand, corporate financial leverage is measured using the ratio of total debt to total assets (Gyapong et al., 2021; Elmagrhi et al., 2017). Higher leverage indicates greater financial constraints from their lenders, resulting in increased limitations on their ability to distribute dividends (Dimitropoulos & Koronios, 2021). The natural logarithm of the number of analysts is measured using the total number of firm analysts (Li et al., 2022). Financial analysts lead to decreased information asymmetry between managers and shareholders, consequently resulting in a reduced inclination towards dividends (Basiddiq

Table 4. Measurement of the study variables.

Variable	Symbol	Measure
Dependent variables		
Dividend payout ratio	DV PAT	The ratio of total dividend to total net income
Dividend yield	DV YID	The ratio of the annual dividend per share to the stock price per share
Independent variables		
Cash	Cash	The ratio of cash to net assets
Moderating variables		
ESG score	ESG_Combined	The total ESG performance
Environmental Score	EPS	The environmental performance
Social Score	SPS	The social performance
Governance Score	GPS	The governance performance
Control variables		
Firm size	Size	The log value of the company's total assets
Return on equity	PROF	Net income to total equity
Leverage	Lev	Total debt to total assets
Number of analysts	Analysts	The natural logarithm of the total number of firm analysts
Liquidity	Liq	The ratio of current assets to current liabilities
Capital expenditure	CapitalEx	The ratio of total capital expenditure to total assets
Board size	BoardSize	The total number of board members
CEO Duality	CEO	A value of 1 is assigned if the CEO holds a dual function and 0 otherwise.

& Hussainey, 2012). Firm Liquidity is measured using the total current liabilities to total current assets (Ananzeh, Al Amosh, et al., 2022). Firms may be compelled to decrease their dividends if they lack sufficient cash, as dividends must be paid in cash. Consequently, it is anticipated that firms will reduce dividends during periods of inadequate liquidity (Adil et al., 2011).

Capital expenditure is measured using the ratio of total capital expenditure to total assets (Bolton & Zhao, 2022). We expect that firms with more capital expenditure allocate less profit to shareholders to maintain enough cash flow for future investments. Board size is measured using the number of directors on the board of directors (Elmagrhi et al., 2017). CEO Duality is measured using a value of 1 assigned if the CEO holds a dual function and 0 otherwise (Bolton & Zhao, 2022). According to Elmagrhi et al. (2017), poorly governed firms tend to have lower dividends. This is because having poor governance in place allows for prioritizing personal wealth over shareholder interests. Thus we expect a positive relationship for board size but a negative relationship for CEO duality.

4. Empirical results and discussion

4.1. Descriptive statistics

Table 5 presents the descriptive statistics of a dataset comprising 16,467 observations. The variable DV PAT exhibits a mean of .454, indicating a relatively low average value. This suggests that, on average, firms are not allocating a substantial proportion of their profits towards dividends. The range of data points spans from 0 to 1.384. Likewise, DV YD, or dividends yield, displays a mean of .025 and a range of 0 to .064.

The variable ESG_Combined represents the combined ESG score, with a mean value of 44.216 and a standard deviation of 19.583. These statistics indicate that firms possess a moderate ESG score, accompanied by considerable variability in their ESG performance. The range of ESG ratings observed among the firms spans from 5.404 to 85.418.

When examining the ESG pillars individually, namely SPS (Social Performance Score), GPS (Governance Performance Score), and EPS (Environmental Performance Score), the statistical analysis reveals distinct measures of central tendency and dispersion, underscoring the heterogeneous distribution across the dataset.

The mean value of Size is 22.198, whereas the mean value of PROF is 15.711. This indicates a significant variation in the size and profitability of the firms included in the sample. The mean value of lev is 0.234, with a standard deviation of 0.153, indicating a moderate variation of leverage throughout the sample. Additionally, the mean value of NumberAnalysts is 2.507, with a standard deviation of 0.648 indicating some diversity in analyst coverage. Liq has a mean value of 1.81, while CapitalEx has a mean value of 0.043. Concerning corporate governance variables, board size has a mean value of 9.999, while the CEO presents a mean value of 0.345.

Table 5. Descriptive statistics.

Variable	Mean	Std. dev.	Min	Max
Dependent variables				
DV PAT	.454	.361	0	1.384
DV YID	.025	.018	0	.064
Independent variable				
Cash	.254	.44	0	1.541
Moderating variables				
ESG_Combined	44.216	19.583	5.404	85.418
EPS	45.593	24.675	.053	98.637
SPS	50.859	22.246	.251	98.723
GPS	39.835	28.247	0	98.872
Control variables				
Size	22.198	1.34	19.804	24.744
PROF	15.711	11.522	.223	45.472
Lev	.23	.153	0	.524
Analysts	2.507	.588	1.386	3.401
Liq	1.81	.956	.679	4.351
CapitalEx	.043	.034	0	.125
BoardSize	9.999	2.846	6	16
CEO	.345	.475	0	1

4.2. Results and discussion

Table 6 presents the results of the regression analysis conducted to examine the correlation between cash holdings and corporate dividends. The dependent variables in this analysis are the cash holdings payout ratio (DV PAT) and the cash holdings yield (DV YD). The statistical significance of the positive coefficients for cash is evident in both DV PAT and DV YD. These findings suggest that companies with greater cash reserves are inclined to distribute a larger proportion of their earnings as dividends.

According to the agency theory, the presence of surplus cash that is not required for investments can potentially result in agency costs, as managers may utilize the excess funds for activities that do not maximize value (Jensen, 1986). To mitigate agency conflicts, shareholders may exert pressure on the company to distribute surplus capital in the form of dividends. Conversely, the pecking order theory posits that firms prefer internal sources of funding, such as retained earnings and cash reserves, over external borrowing. In this context, excess cash is perceived as an indication of limited investment alternatives and is consequently associated with higher dividend distributions (Myers & Majluf, 1984). Firms may also announce dividends or modify their dividend policy based on their evaluation of market conditions and the accessibility of surplus capital. As per the findings of Baker and Powell (1999), companies typically time the initiation of dividends to convey positive information regarding their prospects. Denis and Osobov (2008) present evidence that supports this finding. According to their research, companies in the US, Canada, UK, Germany, France, and Japan tend to have a higher inclination to pay dividends when they have larger cash reserves. In addition, our result is also consistent with a study conducted in Palestine (Kullab et al., 2022), Poland (Chesini & Staniszewska, 2017), and Tanzania (Lotto, 2020).

The coefficients of size exhibit a positive and statistically significant relationship with DV YD. Larger corporations, as determined by their size, tend to allocate a greater proportion of their earnings toward dividend distribution due to the limited potential for future growth (Benlemlih, 2019). The PROF coefficients exhibit positive and statistically significant associations with both dependent variables. This implies that corporations with greater profits are more inclined to allocate a larger proportion of their earnings towards dividends (Dimitropoulos & Koronios, 2021).

The variable Lev exhibits a statistically significant negative correlation with dividends policy. This suggests that higher levels of financial leverage are linked to lower dividend payouts, potentially due to corporations prioritizing debt repayment over dividends to maintain financial stability (Dimitropoulos & Koronios, 2021). Additionally, the variables NumberAnalysts, Liq, CapitalEx, and CEOdualty demonstrate

Table 6. The impact of cash holdings on corporate dividends.

Variables	(1)	(2)
	DV PAT	DV YD
Cash	0.168* [1.81]	0.248** [2.25]
Size	0.0443 [0.96]	0.179*** [4.63]
PROF	0.00528*** [3.49]	0.0116*** [5.67]
lev	-0.649*** [-6.48]	-0.580*** [-3.49]
NumberAnalysts	-0.0266 [-0.36]	-0.307*** [-5.02]
Liq	-0.0715*** [-3.37]	-0.0735*** [-3.66]
CapitalEx	-1.949*** [-3.04]	-1.231 [-1.70]
BoardSize	0.00786 [0.55]	0.000838 [0.07]
CEOdualty	-0.178*** [-3.36]	-0.256*** [-4.50]
Constant	-0.581 [-0.60]	-2.701*** [-3.18]
Year Fixed effect	Yes	Yes
Industry Fixed effect	Yes	Yes
Observations	16,467	16,467
R-squared	0.043	0.123

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7. The moderation role of ESG performance on cash holdings-dividends relationship.

Variables	(1)	(2)
	DV PAT	DV YD
Cash	0.0582 [1.76]	0.0561* [2.14]
ESG	0.00675*** [20.11]	0.00339*** [5.30]
ESG * Cash	−0.00182** [−2.73]	−0.00170** [−2.50]
Size	0.0232 [1.74]	0.168*** [11.93]
PROF	0.00483*** [6.52]	0.0119*** [13.81]
lev	−0.536*** [−11.18]	−0.441*** [−8.97]
NumberAnalysts	−0.00449 [−0.21]	−0.200*** [−5.98]
Liq	−0.0426*** [−4.14]	−0.0300*** [−4.21]
CapitalEx	−2.027*** [−11.17]	−1.457*** [−4.44]
BoardSize	0.0263*** [6.69]	0.0190*** [6.28]
CEOduality	0.0116 [0.77]	−0.000231 [−0.02]
Constant	−0.569 [−1.72]	−5.144*** [−18.12]
Year Fixed effect	Yes	Yes
Industry Fixed effect	Yes	Yes
Observations	16,467	16,467
R-squared	0.164	0.252

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

negative associations with both DV PAT and DV YD after controlling for other factors. Financial analysts lead to decreased information asymmetry between managers and shareholders, consequently resulting in a reduced inclination towards dividends (Basiddiq & Hussainey, 2012). In terms of corporate liquidity, Vinh Vo (2022) indicates that dividends may serve as an alternative to liquidity. Managers often rely on market signals when making dividend decisions, particularly when faced with lower liquidity levels or higher information asymmetries. In essence, managers utilize dividends as a means to signal the firm's future earnings potential, ultimately reducing information asymmetries. On the other hand, firms tend to allocate less profit to shareholders to maintain enough cash flow for future investments. Thus, we observe a negative relationship between dividends and corporate capital expenditure. Finally, according to Elmagrhi et al. (2017), poorly governed firms tend to have lower dividends. This is because having poor governance in place allows for prioritizing personal wealth over shareholder interests. This justifies the negative relationship for CEO duality.

According to the findings presented in Table 7, there exists a noteworthy and affirmative correlation between ESG rating and corporate dividends. It is observed that companies with a higher ESG score tend to allocate a greater proportion of their earnings toward dividend distribution.

Also, Table 7 introduces the interaction term ESG * Cash to examine the moderating impact of ESG ratings on the cash holdings-dividends relationship. The interaction term demonstrates that the joint effect of ESG and cash holdings is negative and statistically significant for DV PAT and DV YD. This implies that ESG practices mitigate the positive influence of cash holdings on corporate dividend payouts. Furthermore, our findings suggest that in companies with superior ESG initiatives, the influence of cash holdings on dividends is less pronounced. Conversely, there is a strong correlation between ESG ratings and cash holdings in firms with inadequate ESG practices.

According to the findings presented in Table 8, there exists a positive and significant correlation between the score of the social pillar and the policies regarding corporate dividends. The inclusion of the interaction term SP * Cash suggests that the presence of such initiatives may potentially moderate the relationship between cash holdings and dividends. The significant negative coefficients indicate that in companies with exceptional social initiatives, the impact of cash holdings on dividends is comparatively less pronounced.

Table 8. The moderation role of social performance on cash holdings-dividends relationship.

Variables	(1)	(2)
	DV PAT	DV YD
Cash	0.0416 [1.52]	0.0499* [1.90]
SP	0.00483*** [17.00]	0.00198** [3.09]
SP * Cash	-0.00141** [-2.32]	-0.00152** [-2.38]
Size	0.0280* [2.07]	0.174*** [11.46]
PROF	0.00482*** [6.57]	0.0120*** [14.19]
lev	-0.534*** [-10.84]	-0.441*** [-8.97]
NumberAnalysts	0.00393 [0.17]	-0.193*** [-5.81]
Liq	-0.0429*** [-4.20]	-0.0306*** [-4.38]
CapitalEx	-2.075*** [-11.89]	-1.476*** [-4.45]
BoardSize	0.0244*** [6.14]	0.0183*** [5.66]
CEOduality	0.00220 [0.15]	-0.00425 [-0.36]
Constant	-0.592 [-1.73]	-5.213*** [-16.93]
Year Fixed effect	Yes	Yes
Industry Fixed effect	Yes	Yes
Observations	16,467	16,467
R-squared	0.160	0.251

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In Table 9, our results indicate that stronger governance performance GP is associated with a higher allocation of earnings to dividends. The coefficients of the interaction term GP * Cash imply that the governance performance may have a moderating effect, with significant negative coefficients showing that in companies with superior governance performance, the influence of cash holdings on dividends is less pronounced.

Table 10 presents an analysis of the impact of environmental performance EP on a company's dividend policy, while also considering its moderating effect. The coefficients for all variables related to dividends indicate a significant positive correlation between environmental performance and the allocation of dividends. This suggests that better environmental performance is likely to result in a higher percentage of earnings being distributed as dividends. However, the interaction term EP * Cash has negative and significant coefficients, indicating that ESG practices can mitigate the positive influence of cash holdings on corporate dividend payouts. The influence of cash holdings on dividends is particularly pronounced in firms with weak environmental practices. Conversely, there is a strong association between dividends and cash holdings in less environmentally inclined firms.

Overall, the findings of this study imply that companies that prioritize sustainability tend to have a more consistent distribution of dividends. This conclusion holds true even when evaluating the various pillars of ESG, particularly the social, environmental, and governance aspects. According to agency theory, dividends are used to control agency costs associated with free cash flow (Jensen, 1986). Managers may make risky decisions and invest excessively when there is excess cash flow, leading to inefficient use of resources. Dividends can restrict managers' discretion by limiting the amount of free cash flow. Thus, in case ESG practices are employed to gain recognition for being socially responsible, dividend payments can curb managerial overinvestment and protect shareholders' wealth (Benlemlih, 2019; Dimitropoulos et al., 2020). Using another lens, managers may finance ESG activities to satisfy stakeholder interests and increase shareholders' value by reducing information asymmetries (Benlemlih 2019; Dimitropoulos & Koronios, 2021; Ellili, 2022). This leads to increased scrutiny of the firm by stakeholders, developing trustworthy relationships and improving performance and profitability as well as favor a more transparent dividend policy, as it reduces transaction costs (Cuadrado-Ballesteros et al., 2016). Additionally, it helps lower debt costs by reducing borrowing expenses (Cheung et al., 2018, Ellili, 2022). Moreover, signaling

Table 9. The moderation role of governance performance on cash holdings-dividends relationship.

Variables	(1)	(2)
	DV PAT	DV YD
Cash	0.0577* [2.14]	0.0474 [1.68]
GP	0.00414*** [14.55]	0.00267*** [8.15]
GP * Cash	−0.00155*** [−3.60]	−0.00127* [−2.16]
Size	0.0386*** [3.24]	0.172*** [13.13]
PROF	0.00525*** [7.38]	0.0121*** [13.54]
lev	−0.543*** [−11.04]	−0.444*** [−8.76]
NumberAnalysts	0.0108 [0.49]	−0.195*** [−5.79]
Liq	−0.0449*** [−4.26]	−0.0309*** [−4.25]
CapitalEx	−1.997*** [−10.91]	−1.439*** [−4.45]
BoardSize	0.0295*** [7.42]	0.0211*** [7.40]
CEOduality	0.0276 [1.71]	0.0105 [0.95]
Constant	−0.926** [−2.98]	−5.282*** [−19.66]
Year Fixed effect	Yes	Yes
Industry Fixed effect	Yes	Yes
Observations	16,467	16,467
R-squared	0.158	0.252

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 10. The moderation role of environmental performance on cash holdings-dividends relationship.

Variables	(1)	(2)
	DV PAT	DV YD
Cash	0.0581** [2.34]	0.0590** [3.15]
EP	0.00470*** [17.73]	0.00356*** [7.31]
EP * Cash	−0.00212*** [−4.05]	−0.00207*** [−4.14]
Size	0.0178 [1.37]	0.155*** [11.45]
PROF	0.00500*** [6.87]	0.0119*** [13.43]
lev	−0.529*** [−11.30]	−0.432*** [−9.08]
NumberAnalysts	0.00324 [0.15]	−0.203*** [−5.96]
Liq	−0.0425*** [−3.95]	−0.0290*** [−3.99]
CapitalEx	−2.214*** [−12.93]	−1.590*** [−5.04]
BoardSize	0.0239*** [5.96]	0.0172*** [5.31]
CEOduality	0.00206 [0.13]	−0.00646 [−0.57]
Constant	−0.254 [−0.78]	−4.770*** [−16.83]
Year Fixed effect	Yes	Yes
Industry Fixed effect	Yes	Yes
Observations	16,467	16,467
R-squared	0.162	0.255

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

theory suggests that corporations are more likely to benefit from an improved image and reputation in the capital markets, leading to more successful operations and larger dividend payouts (Bae et al., 2021). Our results are consistent with previous research (e.g. Dimitropoulos & Koronios, 2021; Saldi et al., 2023; Zahid et al., 2023), but inconsistent with (Niccolò et al., 2020).

In terms of the joint effect of ESG, our results indicate that companies that prioritize ESG initiatives are likely to affect the decision of allocating financial reserves between dividend payout and socially responsible investments. These findings provide further support for the transactional motive of holding cash and the substitution theory relevant to dividends. Both theories view ESG as a mechanism to address agency problems (Boutin-Dufesne & Savaria 2004; Ellili, 2022; Lloyd et al., 1985; Pérez, 2015). ESG demonstrates the management's dedication to aligning their interests with those of shareholders (Hasan & Habib, 2020; Healy & Palepu, 2001). Additionally, ESG implementation leads to reduced transactional costs (Boutin-Dufesne & Savaria 2004), reducing the level of cash reserves needed to cover such expenses (Limkriangkrai et al., 2017). That is, the conventional positive relationship between cash and dividends, as explained by agency theory (Hujie, 2019; Jensen, 1986), may not hold true. Instead, the substitution theory becomes more relevant. It could be argued that ESG practices can substitute the need for dividends to mitigate agency costs despite the significant role played by corporate dividends in this particular context (Hasan & Habib, 2020; Lloyd et al., 1985). On the other hand, the signaling theory suggests that investors may require higher dividends from companies that offer limited ESG information to compensate for the lack of information provided by these firms (Dhaliwal et al., 2011). Consequently, corporations can prioritize attaining a superior ESG rating, coupled with a comprehensive level of information, rendering dividends unnecessary for addressing agency problems.

4.3. Sensitivity test

4.3.1. Alternative measure of moderating variable

The flawed interpretation lies within the intricate interplay between ESG performance and cash holdings. The multiplication of these two continuous variables presents a challenge in disentangling the moderating effect on the dependent variable. It may suggest the moderating influence of ESG on the cash-dividend relationship, yet conversely, it could also imply the moderating role of cash on the ESG-dividend relationship. To rectify this issue and shed light on the moderating impact, the utilization of a dummy variable, specifically for high ESG firms, becomes imperative. This strategic approach will effectively address the conundrum and provide a clearer understanding of the moderating influence. Consequently, we replicate the measure of the ESG by using a dummy variable that equals 1 if the firm has an ESG score bigger than the mean and 0 otherwise. This method is also applied to the component of ESG separately. As indicated in Table 11, the results are consistent with the message conveyed earlier.

4.3.2. Endogeneity concern

It is imperative to test for potentiality of the presence of an endogeneity problem in our model. This has been done by utilizing the Instrumental Variable Method (IV) with Two-Stage Least Square regression (2SLS) to our main model. Nevertheless, the implementation of this technique necessitates the employment of a valid instrument - one that exhibits a robust correlation with the instrumented regressors while maintaining orthogonality with the error term in the second stage.

This regression has been applied by considering the overall ESG score as an endogenous variable¹. In our meticulous selection of the instrument, we have incorporated the lagged ESG variable from the previous period to control the autocorrelation issue (Ananzeh, Alshurafat, et al., 2022). Furthermore, we have employed the ESG score as an instrument, utilizing the industry/year mean as a benchmark. This approach acknowledges the possibility of a firm's practices being influenced by its industry peers, given the resemblance in their business structures. This industry/year mean is unlikely to have a direct impact on dividends payout. We also instrumented for the presence of CSR committee as it is expected to affect the ESG practices.

Several diagnostic tests were conducted to validate our instrument selection. Notably, our instruments exhibited a substantial correlation with ESG score at a 1% significance level, thereby affirming their relevance. Furthermore, the null hypothesis of exogeneity (i.e. instruments are valid instruments and not correlated with the error term) was not rejected through Hansen's over-identification test. However, the assumption regarding the exogeneity of the ESG variable did not pass the test, indicating the presence

Table 11. Alternative measure of ESG and its component.

Variables	(1) DV PAT	(2) DV YD	(3) DV PAT	(4) DV YD	(5) DV PAT	(6) DV YD	(7) DV PAT	(8) DV YD
Cash	0.0140 [0.66]	0.00918 [0.53]	−0.00334 [−0.21]	0.00246 [0.17]	0.0254 [1.01]	0.0318 [1.81]	0.0200 [0.97]	0.0184 [1.57]
ESG	0.216*** [17.45]	0.127*** [6.85]						
SP			0.177*** [8.39]	0.0490 [1.52]				
GP					0.163*** [9.10]	0.101*** [9.72]		
EP							0.208*** [17.83]	0.152*** [7.34]
ESG* Cash	−0.0724* [−2.20]	−0.0537* [−1.92]						
SP* Cash			−0.0375 [−1.21]	−0.0476 [−1.71]				
GP* Cash					−0.0694** [−2.26]	−0.0742** [−2.81]		
EP* Cash							−0.102** [−2.87]	−0.0888** [−3.10]
Size	0.0332** [2.60]	0.170*** [12.39]	0.0391** [2.87]	0.180*** [11.94]	0.0469*** [3.92]	0.178*** [13.68]	0.0309** [2.48]	0.165*** [12.87]
PROF	0.00499*** [6.80]	0.0120*** [13.85]	0.00507*** [6.91]	0.0121*** [14.03]	0.00530*** [7.38]	0.0122*** [13.58]	0.00519*** [7.23]	0.0121*** [13.67]
lev	−0.533*** [−11.30]	−0.438*** [−8.96]	−0.543*** [−10.68]	−0.445*** [−8.83]	−0.541*** [−10.68]	−0.443*** [−8.73]	−0.538*** [−10.98]	−0.440*** [−8.80]
NumberAnalysts	0.00748 [0.33]	−0.196*** [−5.83]	0.0125 [0.51]	−0.188*** [−5.65]	0.0140 [0.64]	−0.192*** [−5.67]	0.0120 [0.53]	−0.196*** [−5.73]
Liq	−0.0451*** [−4.15]	−0.0311*** [−4.28]	−0.0445*** [−4.24]	−0.0314*** [−4.44]	−0.0444*** [−4.18]	−0.0306*** [−4.18]	−0.0443*** [−4.06]	−0.0304*** [−4.23]
CapitalEx	−2.008*** [−11.17]	−1.446*** [−4.38]	−2.054*** [−11.80]	−1.463*** [−4.44]	−1.964*** [−10.57]	−1.421*** [−4.32]	−2.120*** [−11.98]	−1.521*** [−4.66]
BoardSize	0.0259*** [6.25]	0.0188*** [6.06]	0.0251*** [6.18]	0.0188*** [5.88]	0.0287*** [7.22]	0.0205*** [7.06]	0.0253*** [6.20]	0.0182*** [5.83]
CEOduality	0.00924 [0.60]	−0.00106 [−0.09]	0.00296 [0.19]	−0.00305 [−0.25]	0.0217 [1.32]	0.00574 [0.50]	0.00303 [0.20]	−0.00546 [−0.49]
Constant	−0.601* [−1.85]	−5.104*** [−18.07]	−0.705* [−2.04]	−5.299*** [−16.88]	−0.956** [−3.10]	−5.310*** [−19.90]	−0.532 [−1.70]	−4.986*** [−18.78]
Observations	16,467	16,467	16,467	16,467	16,467	16,467	16,467	16,467
R-squared	0.160	0.252	0.157	0.250	0.156	0.251	0.159	0.253

The number inside the brackets indicates the T-statistics. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

of endogeneity as a concern. Nevertheless, our results (not reported) obtained through the IV-2SLS method align with our fundamental model.

5. Summary and conclusion

This comprehensive cross-country study has yielded significant insights into the relationship between cash holdings, company dividend policy, and the moderating impact of ESG initiatives. The correlation between a company's cash reserves and its distribution of dividends has long been a central topic of investigation in financial research, typically assuming a positive connection. Nevertheless, the advent of ESG considerations in recent times has instigated a departure from this conventional perception. This shift motivates us to examine the link between cash reserves and dividend payouts, considering the potential moderating effect of a company's ESG performance on this relationship.

The comprehension of the interplay between cash holdings and company dividends while considering ESG performance is of paramount importance. This is owing to the intricate nature of balancing adequate cash reserves, dividend distributions, and sustainability commitments. Companies that exhibit robust ESG performance are likely to encounter the predicament of allocating financial reserves between dividend payout and socially responsible investments. A meticulous analysis of these strategic decisions and the associated trade-offs may yield noteworthy implications. Additionally, scrutinizing the effects of these decisions on both financial and sustainability performance metrics can assist organizations in optimizing their financial decisions while remaining aligned with their long-term sustainability objectives.

The analysis reveals a substantial positive correlation between cash holdings and dividend allocation, indicating that companies with high cash reserves tend to allocate a larger proportion of their earnings towards corporate dividends. According to the agency theory, the presence of surplus cash that is not required for investments may result in agency costs, as managers may utilize the excess funds for activities that do not maximize value. To mitigate agency conflicts, shareholders may exert pressure on the company to distribute surplus capital in the form of dividends. In addition, the pecking order theory posits that firms prefer internal sources of funding, such as retained earnings and cash reserves, over external borrowing. In this context, excess cash is perceived as an indication of limited investment alternatives and is consequently associated with higher dividend distributions.

Furthermore, the corporate ESG initiatives have a moderating effect on the cash holdings-dividends link, altering negatively how cash holdings affect corporate dividends. The interaction terms introduced in this study demonstrate that the joint effect of ESG and cash holdings is negatively and statistically correlated with corporate dividends. This implies that ESG practices mitigate the positive influence of cash holdings on corporate dividend payouts. Furthermore, our findings suggest that in companies with superior ESG initiatives, the influence of cash holdings on dividends is less pronounced. Furthermore, in companies with weaker environmental, social, and governance (ESG) practices, we find a strong connection between how much cash they hold and their dividend policies. Our research findings provide support for the transactional motive behind holding cash, the substitution theory, and the signaling theory. The adoption of ESG practices demonstrates management's dedication to aligning their interests with those of shareholders. Furthermore, ESG results in a reduction in transactional costs, thereby diminishing the necessity for cash reserves to cover such expenses. This challenges the traditional association between cash and dividends as explained by agency theory. Instead, the substitution theory gains more significance. ESG practices have the potential to substitute the need for dividends to mitigate agency costs, despite the significant role played by dividends in this particular context. Added to this, the signaling theory proposes that investors may demand higher dividends from companies that have limited ESG information to compensate for the lack of information provided by these firms. Consequently, corporations may prioritize achieving a superior ESG rating and providing comprehensive information, rendering dividends unnecessary for addressing agency problems.

This study highlights just how crucial it is to thoroughly evaluate a company's environmental, social, and governance practices when deciding corporate dividends. This becomes even more critical for companies striving to incorporate ESG factors into their financial strategies. Our study has emphasized the need for a delicate approach when incorporating sustainability initiatives into an existing code of conduct. Companies that give priority to and seamlessly blend ESG practices into their financial decision-making process tend to make well-informed and ethical choices regarding cash reserves and dividends. Not only does this resonate with the rising trend of companies embracing sustainability in their operations, but it also has the potential to enhance long-term value and satisfy stakeholders.

Our research strongly advocates that companies should not rely solely on financial numbers while determining dividend policies. Instead, a comprehensive approach that considers a company's environmental, social, and governance impact is essential. This research significantly enriches our understanding of how sustainability intertwines with financial decisions, particularly concerning cash reserves and corporate earnings. It provides invaluable insights for companies navigating the intricate landscape of integrating environmental, social, and corporate considerations into financial decision-making. Recognizing the potential advantages of robust ESG performance is crucial for companies, not just from a sustainability perspective but also concerning shareholder value. Effective resource management, sustainable practices, and proactive ESG measures have the potential to enhance a company's reputation, thereby positively influencing stakeholder perspectives. Conversely, investors should consider ESG performance as a valuable indicator of a company's long-term financial stability and dividend potential. By integrating such factors into their investment decisions, investors can promote environmentally responsible enterprises while potentially reaping the benefits of their investments.

The ESG moderating influence on the relationship between cash holdings and dividend policy is a noteworthy observation, emphasizing the necessity for flexible approaches. It is imperative to customize the cash holding policy in accordance with ESG initiatives. In periods of growth, where investment for

expansion is crucial, it is advisable to adopt a well-balanced strategy that combines cash holdings and ESG activities. Conversely, during mature phases, it is prudent to prioritize the distribution of dividends, particularly for companies that exhibit high ESG performance, as this can attract investors who seek both financial returns and alignment with sustainability. Implementing such ESG initiatives can enhance financial performance, meet the expectations of shareholders, and ensure long-term organizational sustainability.

The study's results have various implications for regulators, policymakers, investors, managers, government agencies, and other stakeholders. For regulators and policymakers, the study provides valuable insights into the impact of ESG factors on the capital markets. It highlights the importance of considering ESG initiatives when formulating regulations and policies that govern dividend distribution. By understanding the financial effects of ESG on dividends, regulators and policymakers can introduce strategies that encourage companies to align their dividend distribution with ESG initiatives. This can help promote sustainable and responsible business practices. Investors also stand to benefit from the study's findings. It highlights the trade-off between immediate returns through cash dividends and long-term capital gains. Investors who prioritize immediate returns may consider investing in companies with moderate ESG initiatives, as these companies are likely to have a balance between dividend distribution and investments in ESG initiatives. By considering ESG factors, investors can make more informed decisions and align their investments with their values. Furthermore, the study's findings have implications for managers and companies. It emphasizes the importance of incorporating ESG considerations into corporate strategies. By recognizing the impact of ESG on cash-dividend relationships, managers can develop strategies that prioritize both financial returns and ESG initiatives. This can help companies attract investors who value ESG performance and contribute to their long-term sustainability. Government agencies and other stakeholders can also benefit from the study's insights. The increasing investor interest in ESG means that stakeholders will assess how ESG affects markets. This provides valuable information for identifying the safest market for investment by evaluating ESG performance. Government agencies can use this information to support and promote ESG initiatives, creating a more sustainable and responsible business environment. In terms of theoretical implications, our research reveals that holding cash can serve as a transactional motive for investors. This implies that those who prioritize ESG may see them as a way to meet their short-term financial needs, such as regular income or liquidity. Additionally, our study supports the substitution theory, which proposes that corporate dividends and ESG can act as substitutes for each other. This means that companies with robust ESG initiatives have the potential to attract investors who prioritize sustainable and socially responsible investments.

It is important to recognize this study is not without limitations. Firstly, the ESG data was only obtained from Thomson Reuter's database despite that other sources, such as the Bloomberg database, are available. Secondly, corporate ownership structure factors were neglected, which may provide valuable insights. Thirdly, this study cannot offer a deep understanding since qualitative data such as perspectives of investors, shareholders, and senior management of companies were not collected. In contrast, a quantitative approach using regression analysis was employed, which may influence the results due to the potential of endogeneity. Fourthly, the inclusion of zero-dividend firms in this study presents another limitation, introducing the risk of sample selection bias. Lastly, it is crucial to acknowledge that the regional setting difference may restrict the generalizability of the findings to other settings not included in the sample.

There exists a multitude of potential avenues for research. By extending this study to examine specific industry sectors, a cross-sector analysis has the potential to uncover sector-specific patterns and dynamics. The effects of ESG ratings and business ESG initiatives on dividends policy may vary across industries. Additionally, a longitudinal approach could shed light on how these associations evolve over time. By tracking firms through different stages of ESG initiatives and analyzing changes in dividend policy in response to fluctuations in cash holdings and ESG ratings, valuable insights into this relationship could be gained. Furthermore, it would be valuable to explore how the legal and regulatory frameworks of different nations impact the connection between ESG criteria, company cash holdings, and dividend policy. Variations in legal and regulatory frameworks can significantly influence organizations' perspectives on sustainability and dividend policies.

Furthermore, a more comprehensive comprehension could be attained by augmenting quantitative data with qualitative perspectives on how organizations formulate and execute plans while considering ESG considerations and corporate ESG initiatives. Interviews, case studies, or surveys of business decision-makers may uncover strategic intricacies. Subsequent research in these domains will facilitate our understanding of the intricate interplay among the variables under study, thereby enabling organizations to make more informed and sustainable strategic decisions.

Notes

1. This research has regrettably refrained from employing the Instrumental Variable Method (IV-2SLS) to scrutinize the existence of endogeneity for the component of ESG score namely, Environmental, Social, and Governance.

Author contributions

Conceptualization, H.A. and M.O.S.; methodology, H.A.; software, H.AL.; validation, H.A., and H.AL.; formal analysis, M.O.S.; investigation, H.A., and M.O.S.; resources, H.AL.; data curation, M.O.S. and H.A.; writing—original draft preparation, M.O.S.; writing—review and editing, H.AL.; visualization, H.A.A. and H.A.A.; supervision, H.A.; project administration, H.A.A.; funding acquisition, H.A.A. All authors have read and agreed to the published version of the manuscript.

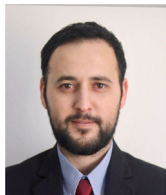
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Data availability statement

Data is available upon request.

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