Balancing Sustainability and Financial Stability: Examining the Effect of ESG on Corporate Financial Distress with Dividend Payout Policy as a Moderator

An Analysis Across Different Stages of Country Development

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Abstract

This study examines how environmental, social and governance (ESG) affects corporate financial distress (CFD) and assesses the role of dividend payout policy (DPP) in moderating this relationship. Analysing a global dataset of 49,211 firm-year-observations from 2006 to 2023, we find that ESG is associated with increased CFD. Moreover, we find that a robust DPP may mitigate the increased distress risk. We also conduct an analysis across different stages of country development. Our findings further strengthen the statistically significant, positive link between ESG and CFD while revealing no clear statistical significance across different models for the moderating effect of DPP.

Keywords Sustainability · ESG Score · Corporate Financial Distress · Altman Z-Score · Dividend Payout Policy · Shareholder Theory · Stakeholder Theory · Developed Countries · Developing Countries · Emerging Countries

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List of Abbreviations

2SLS	Two-Stage-Least Squares
CFD	Corporate Financial Distress
CSR	Corporate Social Responsibility
DPP	Dividend Payout Policy
ESG	Environmental, Social and Governance
FE	Fixed Effects
GMM	Generalized Method of Moments
IMF	International Monetary Fund
IV	Instrumental Variable
NPV	Net Present Value
O Score	Ohlson O-Score
VIF	Variance Inflation Factors
Z Score	Altman Z-Score

A – Group Part

1 Introduction

Since the term *ESG* was first introduced in 2005, interest in the subject has grown rapidly (Pérez et al., 2022: 1). Increasing social awareness from both regulators and the broader public has pressured companies to consider ESG factors in their corporate strategies to fulfil regulatory and societal standards and report on their ESG performance. Ceccarelli et al. (2020) and Hartzmark and Sussman (2019) have shown that investors' interest seems to shift increasingly towards ESG investments, indicating that financial markets are evolving to value companies that align with societal and environmental goals. By 2023, nearly 100% of S&P 500 companies and nearly 93% of Russell 1000 companies were actively publishing some form of ESG report (G&A Institute, 2024), a significant increase from 2020, when only 92% of S&P 500 companies and 70% of Russell 1000 companies were engaged in such reporting (G&A Institute, 2021). Such growth highlights the increasing importance companies are placing on ESG reporting. This relatively new focus on ESG policies has drawn the attention of researchers to examine the effects of ESG practices on credit ratings (Jiraporn et al., 2014), financial performance (Friede et al., 2015), shareholder wealth (Krüger, 2015), and cost of equity capital (Chen et al., 2023). While the significance of ESG is progressively acknowledged in the literature, several aspects still have to be thoroughly examined.

One such aspect is the cause-effect relationship between ESG and CFD. This study aims to bridge this gap and provide an extensive overview of how a company's ESG engagement affects its likelihood of falling into financial distress. Several publications give reason to believe that there might be a negative relationship between ESG performance and the probability of CFD. Friede et al. (2015) released a summarizing literature review that compromised a total of two-thousand research papers. They identified that ESG has a generally positive effect on corporate financial performance. Godfrey (2005) argues that ESG can act as an insurance-like

protection for companies by creating a sort of goodwill that can protect a firm against idiosyncratic risks. Moreover, it seems to be the case that companies with better ESG performance have easier access to financing due to a higher perceived creditworthiness (Boubaker et al., 2020) and incur lower cost of debt (Jiraporn et al., 2014).

The results of all these studies are consistent with the *Stakeholder Theory* (Freeman, 1984), which argues that focusing on as many stakeholders as possible (e.g., by implementing beneficial ESG policies) enhances a corporation's chance of survival in the market. However, there is also a contrarian perspective. Believers in the *Shareholder Theory* argue that ESG measures are rather a "waste" of resources that increase the probability of CFD (Cooper & Uzun, 2019: 131; Friedman, 2007: 174-175). Habermann and Fischer (2023) for example have found that rising ESG engagement of a company in periods of economic upswing is associated with an increase in the probability of default in the following year since the benefits of these ESG policies are outweighed by its costs, lending support to the *Shareholder Theory*. Both shareholder and stakeholder views hold some merit, and only further empirical research will reveal which view is supported by the data.

In addition, previous research has mainly focused on the direct relationship between ESG and CFD, and only a few studies have examined an indirect relationship with a variable that moderates the ESG-CFD dynamic (Binesh et al., 2024; Javed et al., 2020; Shahrour et al., 2022; Suprabha et al., 2024, Shi et al., 2024). Therefore, building on the discussion of the relationship between ESG and CFD, we extend the current state of literature by examining the potential moderating role of a company's DPP. A robust DPP, like an ESG Score, acts as a signalling mechanism that reflects a company's financial stability and growth prospects, thereby increasing information transparency (reducing agency costs) for all stakeholders, but especially for its shareholders (El-Deeb & Allam, 2024; Benlemlih, 2019). Thus, a combination of ESG engagement and a robust DPP may be the optimal strategy to address the interests of

multiple stakeholders. While a strong dividend payout reassures shareholders of the company's immediate financial strength by signalling stability and consistent returns, ongoing ESG engagement enhances the company's broader value proposition by emphasising long-term sustainability and responsibility to key stakeholders (e.g. employees, communities and regulators). This balanced approach aligns shareholder interests with those of key stakeholders, suggesting that a strategy that integrates robust DPP with active ESG engagement might foster superior financial resilience, i.e., stronger decrease of the likelihood of CFD.

In the context of this work project, we analysed a global sample of 5,653 companies with overall 49,211 firm-year observations from 2006 to 2023. Hence, this analysis makes a significant contribution to the growing body of research on the relationship between ESG practices and CFD, besides the analysis of the moderating variable DPP, by utilizing the most extensive dataset currently available in the field, both in terms of coverage and the number of data points analysed. Our research adopts a comprehensive approach by examining how the impact of ESG on CFD varies across distinct contexts. Specifically, we differentiate the effects according to industry type, economic cycle and country development status, which are further analysed in the individual sections.

Our main findings from our panel data regression models are: (1) the ESG Score has a positive effect on CFD, i.e. ESG engagement increases the likelihood of bankruptcy risk, and (2) we examined a significant moderating effect of DPP on the ESG-CFD relationship, whereby a robust DPP in combination with ESG engagement may reduce the likelihood of bankruptcy risk. To ensure reliability of our findings and address endogeneity concerns, we examined several robustness checks, including one additional CFD accounting measure, additional control variables, and two instrumental variable approaches, namely a Two-Stage Least Squares (2SLS) regression and a Generalized Method of Moments (GMM).

To summarise, our study provides deeper insights into the effect of ESG on CFD as well as the moderating role of DPP on this relationship, offering valuable implications for both academia and practice. The target audience includes practitioners, investors, future researchers, and legislators. Practitioners, i.e., corporate managers, need to understand that incorporating ESG into corporate strategy could affect the likelihood of CFD and that the DPP incorporated might have a significant influence and moderates this relationship. As one of the first studies to explore the moderating influence of DPP, future research should build on these initial findings to validate their robustness. Thereby, scholars might examine the short-term versus long-term effects of DPP on the ESG-CFD relationship, as these effects may vary significantly over different time frames. Moreover, further research could explore how managerial behaviour influences the moderating role of DPP, particularly in balancing ESG priorities with financial stability in different organisational settings. Finally, legislators need to promote the establishment of legal requirements to ensure that companies conduct their operations ethically.

This work project is structured as follows. The second chapter discusses theoretical foundations and the current state of the literature and develops a series of hypotheses. The third chapter presents the data collection process, variable definitions, and analytical methodologies that were utilized to derive the results of this study. In the fourth chapter, descriptive statistics and the results of the hypotheses tests are presented. A discussion is provided in the fifth chapter, followed by a conclusion, as well as limitations and future research perspectives.

2 Literature Review and Hypotheses Development

2.1 Theoretical Underpinnings

The introduction of ESG criteria in the field of corporate governance represents a significant shift in the way in which companies are operated and evaluated (Yu et al., 2024: 520). ESG has emerged as a key framework for assessing a company's ethical impact and sustainability practices. Thereby, ESG comprises three critical pillars. The *Environmental Pillar* is designed

to assess a firm's ecological footprint, encompassing initiatives to mitigate climate change, promote energy efficiency, and prioritise biodiversity and deforestation (Radzi et al., 2023: 1113). As part of the *Social Pillar*, the relationships between the company and its stakeholders are evaluated, including considerations of gender equality and diversity, human rights, labour standards, and employee involvement (ibid.). Finally, the *Governance Pillar* assesses the structures and practices in place to ensure accountability and fairness in decision-making processes. This includes an evaluation of the composition of the board of directors, the structure of the audit committee, and the prevention of bribery and corruption (Radzi et al., 2023: 1114). This comprehensive approach enables a multidimensional evaluation of corporate practices, reflecting the broader expectations of society with regard to Corporate Social Responsibility (CSR). In line with the approach of Bilyay-Erdogan et al. (2023) and Gillan et al. (2021), we consider the terms CSR and ESG to be interchangeable and will henceforth use both terms. CSR and ESG emphasise the necessity for companies to assume responsibility for their societal impacts by minimising negative outcomes and maximising shared value for both shareholders and stakeholders (European Commission, 2011: 6).

With the growing significance of ESG, the concept of CFD has also gained in importance. Recent events such as the conflict in Eastern Europe, the ongoing geopolitical tensions in the Middle East, the global economic impact of the energy crisis, and the increasing frequency of extreme weather events due to climate change have highlighted how volatile and uncertain the economic environment has become. Accordingly, CFD is omnipresent and affects all corporate stakeholders, with global business insolvencies surging by 29% in 2023 and are expected to rise by another 9% in 2024 (Boata et al., 2024: 2). Although definitions of CFD vary across jurisdictions, this study adopts a general definition to ensure consistency. Thus, CFD refers to a company's inability to meet financial obligations due to factors like revenue disruptions or erroneous investment strategies (Altman & Hotchkiss, 2006: 4-5). It also

encompasses related terms like *insolvency*, *bankruptcy*, or *default*, and serves as a measure of *financial stability* (Al-Hadi et al., 2019: 963; Gong & Ho, 2018: 2292).

Despite the rise in global insolvency rates in past years, companies increasingly prioritise ESG engagement, driven by a growing number of long-term investors advocating for sustainable finance (OECD Paris, 2021: 3). This shift emphasizes the need for companies to align their practices with sustainable development, moving from a traditional focus on short-term profit maximization to a broader commitment to stakeholder value (Schoenmaker & Schramade, 2019: 20). On this basis, the transformation from traditional to sustainable financing reflects the change from shareholder value to stakeholder value.

Shareholder Theory, thereby, argues that a company's primary responsibility is to maximize shareholder value, often prioritizing short-term financial performance over long-term sustainability (Friedman 1970, 126; Tse, 2011: 52). In this view, ESG engagement should only be pursued if it contributes to enhancing shareholder returns. Otherwise, it can be seen as an additional cost that reduces shareholder returns and, consequently, financial performance. As a result, investors tend to prefer value-creating assets over those perceived as value-destroying (Cooper & Uzun, 2019: 131; Friedman, 2007: 174-175). A supplementary framework explaining the success of this theory lies within the concept of agency costs by Jensen and Meckling (1976). *Agency Theory* addresses the relationship between principals (i.e. shareholders) and agents (i.e. managers), emphasising the potential for conflicts of interest and the need for mechanisms to align their objectives (Jensen & Meckling, 1976; Tse, 2011: 52). Managers are compelled to maximise profits due to the financial incentives provided by the company's shareholders and, consequently, their participation in the company and the direct correlation between realised compensation and the performance of the company's share price (Jensen & Meckling, 1976: 308-310; Tse, 2011: 52). Critics focus on the "short-term" thinking of managers to maximise profits, which leads them to operate blindly and disregard

stakeholders such as employees, customers or suppliers, as well as ESG-related factors (Zhang, 2011: 91). As a result, many scholars have considered *Shareholder Theory* to be outdated because it fails to recognise that investors also have an interest in the positive side effects of ESG commitment (Grossman, 2005: 594-596; Jones & Felps, 2013: 226-228).

Hence, it is evident that managers are increasingly considering social engagement to gain strategic advantages through improved relationships with external parties such as suppliers, consumers, and institutions, leading to higher sales, better cost of equity capital, as well as higher profitability and growth per employee (Badayi et al., 2021: 3377-3378; Ghoul et al., 2011; Lins et al., 2017; Nickerson et al., 2021). Therefore, they use ESG efforts as a risk management tool due to the positive expected outcome. This shift highlights the need for the *Stakeholder Theory*, which includes all the neglected stakeholders in the *Shareholder Theory*.

Stakeholder Theory argues that management should consider the interests of various stakeholder groups, including employees, customers, suppliers, and communities, because it is not enough for managers to plan solely for the interests of shareholders in order to be successful in the current and future environment, even if such actions do not directly maximize shareholder value (Freeman, 1984: 44 and 52). In this way, companies can foster long-term success and mitigate the risks associated with financial distress. It owes its popularity to Edward Freeman, who developed a textbook outlining this framework and further papers refining the theory (Freeman, 1984; Post, 2003: 31). While some proponents argue that ESG can simultaneously benefit both stakeholders and shareholders, the core distinction lies in prioritising the well-being of all stakeholders, which may sometimes entail trade-offs with shareholder interests.

Many researchers have devoted themselves to developing and testing this framework, for example, Hillman and Keim (2001) confirmed that stronger stakeholder management provides a competitive advantage in terms of long-term value creation over a company's competitors through the creation of intangible and socially complex resources such as

reputation, intellectual property, or corporate culture (Hillman & Keim, 2001: 127). This finding is supported by the resource-based view, which posits that a company's unique resources and capabilities can serve as a source of competitive advantage by creating a unique selling proposition that other companies cannot imitate (Barney, 1991; Connor, 2002: 307-308; Lockett & Thompson, 2001: 724). Given the resource-based view approach, the integration of ESG practices should enhance the corporate financial performance, and investors would rather invest in relationship-building than relationship-destroying for the creation of long-term value to ensure financial stability.

In summary, ESG activities are perceived differently depending on the focus of interest satisfaction. The *Shareholder Theory* evaluates ESG engagement based on its contribution to shareholder value, often viewing it as an additional cost unless it directly yields measurable financial benefits. Conversely, the *Stakeholder Theory* advocates for ESG activities that prioritize broader stakeholder interests, even at the potential expense of shareholder value. The following subchapter presents an analysis of the existing literature on the relationship between ESG and CFD and seeks to examine whether ESG activities create or mitigate financial distress, rather than solely assessing their contribution to shareholder value, i.e. financial performance.

2.2 The Relationship between ESG and Corporate Financial Distress

As of today, most studies examining the relationship between ESG and CFD have found a negative relationship between the two. Particularly Boubaker et al. (2020), using a sample of 1,201 US-listed companies, found that companies with higher ESG performance tend to have a lower risk of default as expressed by the Altman Z-Score (Z Score). Studies of Zheng et al. (2019) and Cooper and Uzun (2019) on more samples of US-based companies confirmed the results of Boubaker et al. (2020). By examining 2,480 companies from around the world, Gangi et al. (2020) showed that the negative relationship between ESG Scores and CFD also holds in an international setting. A more recent research paper by Antunes et al. (2023) indicates that

companies that possess an ESG Score are less prone to experience financial distress. Moreover, several studies confirm that there is an inverse relationship between credit ratings and ESG ratings (e.g., Aslan et al., 2021; Devalle et al., 2017; Jiraporn et al., 2014; Zanin, 2022) indicating that rating agencies also perceive companies with high ESG performance as less risky.

In general, three lines of arguments are used to explain this apparent negative relationship between ESG engagement and CFD. One line of argument is that companies with better ESG engagement have better access to financing and on top of that lower cost of capital, which is rewarded with fewer financial defaults (Boubaker et al., 2020; Jiraporn et al., 2014; Chen et al., 2023). The proposed explanation for this is that a higher degree of ESG engagement usually results in improved relations with various debtholders resulting in a higher willingness to cooperate since ESG disclosures on the one hand reduce information asymmetries between companies and lenders/investors and on the other hand facilitate lenders in assessing the default risk of corporations (Song & Deng, 2023: 61f.; Raimo et al., 2021: 1418). Another line of argument proposes that companies with high ESG engagement accrue "social capital", which serves as an insurance-like protection for companies, safeguarding them against idiosyncratic risks (Godfrey, 2005). Social capital refers to relational-based intangible assets (e.g., brand name, loyalty of multiple stakeholders, social consent, etc.) that arise from the trust between a company and its stakeholders (Lin & Dong, 2018: 2). It is postulated that these relational-based intangible assets effectively act as a buffer in times of corporate crisis as it helps companies to better anticipate and reduce potential sources of risk (e.g., government regulation, labour unrest, environmental damages etc.), decreasing the probability of CFD (Lin & Dong, 2018: 1). Lastly, the positive relationship of ESG and corporate financial performance also stand as an argument for the negative effect of ESG on CFD. As financial performance is one of the key determinants in explaining CFD (Asyikin et al., 2018), rationally, improving financial performance should

yield a lower probability of CFD. Currently, the evidence points out that it is likely that ESG improves financial performance, with most studies to date reporting a positive relationship or at least no negative relationship (Coelho et al., 2023; Friede et al., 2015).

There is also a branch of study's that report a positive or mixed relationship between ESG and CFD. Using ESG Scores from LSEG, Habermann and Fischer (2023) discovered that ESG performance positively influences CFD (measured by the Z Score) in economic upswing periods. Lohmann et al. (2024) argued that the use of a linear regression model, which was often the statistical tool of choice by past papers that found a negative relationship (e.g., Boubaker et al., 2020; Do, 2022; Zheng et al., 2019), is suboptimal since they find that ESG and CFD are connected in a non-linear fashion. Using an additive regression model with polynomial splines, they discovered that financially distressed companies above a certain bankruptcy threshold exhibit rather high ESG scores, this effect subsides the more financially stable the company becomes and then increases again for companies that are perfectly healthy (Lohmann et al., 2024). Therefore, the relationship between ESG Scores can be described as U-shaped (using ESG as a dependent and bankruptcy risk as an independent variable) instead of a straight line (ibid). One argument brought forward to explain this phenomenon is the *Management Obfuscation Hypothesis*, which essentially states that managers have clear incentives to obfuscate financial failures (Bloomfield, 2002). In this case, excessive ESG reporting would be used to distract from bad financial performance. Evidence presented by Lohmann et al. (2024) supports this hypothesis. They found that companies with bad financial performance become more stakeholder-oriented in their financial reports and provide ESG disclosures to a greater extent. (Lohmann et al., 2024: 4f). Another reason that might explain the increased effort of financially distressed companies to attain higher ESG scores is that distressed companies want to lower their cost of capital and make financing more accessible to them, improving their financial condition (Lohmann et al., 2024: 2). As discussed before,

multiple studies indicate that higher ESG Score translates into better financing conditions (e.g., Aslan et al., 2021; Devalle et al., 2017; Jiraporn et al., 2014), thus this hypothesis seems rational.

Looking at the conflicting views on the relationship between ESG and CFD, this study proposes the following hypothesis, based on the majority of existing research, as a starting point for further empirical analysis:

H1 There is a negative relationship between ESG and CFD.

2.3 The Moderating Effect of Dividend Payout Policy on the Relationship between ESG and Corporate Financial Distress

Building on the discussion of the possible relationship between ESG and CFD, it is now the time to examine the current state of the literature on the moderating influence of DPP in this context. By consistently distributing dividends, providing valuable information about a company's financial well-being and growth potential, DPP acts as a tool employed by the management to deliver transparency to stakeholders outside the company (El-Deeb & Allam, 2024: 4). In this way, DPP has similar signalling effects to ESG engagement and acts as a mechanism to manage agency problems (Benlemlih, 2019). Thereby, the allocation of profits, i.e., how much capital remains in the company for investment and how much is returned to shareholders is influenced (El-Deeb & Allam, 2024: 4). In order to fund ESG initiatives, potential payouts to shareholders are reduced, which can raise potential doubts about financial stability and negatively impact the share price, which in turn may increase the risk of CFD (Brav et al., 2005). This can be explained by the study of Nissim and Ziv (2001), who analysed the relationship between dividend changes and future profitability, stating that dividend changes are positively related to earnings changes. In addition, Li and Lie (2006) stated that the decision to change the (amount of) dividend payout depends on the dividend premium set by the capital market. Thus, a company is more likely to cut its dividend when the dividend

premium is lower and vice versa, as financial constraints linked to a lower dividend premium signal potential risks to financial stability (Li & Lie, 2006: 295). However, following the studies of Cohen and Yagil (2009) and Kumar and Lee (2001), the payment of dividends by companies in financial distress may act as a tool to attract investors by preserving a part of the return. Thereby, dividends compensate for adverse factors such as low liquidity and earnings volatility (Kumar & Lee, 2001: 55f.). Thus, an even and consistent DPP can be beneficial in times of CFD, as it fosters investor confidence.

Given the stabilising effect of dividends during times of CFD, companies that prioritise ESG engagement and disclosure while continuing to pay dividends would show that they are committed to both stakeholder and shareholder value. In fact, past research shows that an increase in ESG engagement and its disclosure does not necessarily result in a waiver or reduction of dividend payouts. Rather, evidence suggests that non-financial reporting on ESG practices provides additional information about the company and helps investors assess the company's potential environmental and social commitments (Ghoul et al., 2011; Zahid et al., 2022: 353). Thus, a positive relationship between CSR and dividends is observed (Benlemlih, 2019; Rakotomavo, 2012), with sustainability practices associated with more stable dividend policies (Cheung et al., 2018; Samet & Jarboui, 2017; Zahid et al., 2022: 353). Moreover, as the disclosure of ESG commitments reduces asymmetric information, the costs associated with signalling and agency problems are reduced (Cuadrado-Ballesteros et al., 2016). This, in turn, further increases investor confidence and access to financing, thereby reducing the cost of capital (Ghoul et al., 2011). As a result, managers are more likely to pay higher dividends, as the reduction in financial constraints allows companies to distribute dividends without facing the risk of liquidity problems (Cao et al., 2017; Cheung et al., 2018; Zahid et al., 2022: 353: 12). Moreover, supported by the resource-based view approach, ESG activities drive the generation of earnings due to the establishment of intangible and socially complex resources

(Dhaliwal et al., 2011; Ghoul et al., 2011; Goss & Roberts, 2011; Ould Daoud Ellili, 2020). Combined with the reduced, perceived risk level mentioned above, companies are in a better position to maintain higher potential dividend payout levels (Badru & Qasem, 2021; Bilyay-Erdogan et al., 2023: 2).

From another perspective, Sun et al. (2023) and Farooq et al. (2024) investigated the positive influence of dividend payout on CSR performance. Thereby, dividend-paying companies demonstrate higher social commitment compared to non-paying companies (Sun et al., 2023: 3). This, for instance, can be explained by the shift from shareholder to stakeholder orientation, whereby a company should not only focus on shareholder value creation but also maintain an implicit commitment to its stakeholders (Sun et al., 2023: 2). In doing so, managers further increase their investments in ESG activities to strengthen their relationships with stakeholders (Abeysekera & Fernando, 2020; Servaes & Tamayo, 2013), rather than simply cutting dividends (Brav et al., 2005: 484f.; Sun et al., 2023: 2). Nonetheless, it should be noted that managers may overinvest in CSR activities, for example to improve their personal image, which at a certain point may be value-destroying and lead to a decline in financial performance and an increase in the risk of financial distress (Cohen et al., 2023; Masulis & Reza, 2015). In this context, it can be argued that a consistent DPP acts as a mechanism to limit excessive ESG spending by managers and thereby mitigate liquidity issues. Consequently, it can be posited that a robust DPP may have a positive influence on the Z Score, potentially reducing the likelihood of CFD.

As a result of the above discussion, we developed the following hypothesis regarding the moderating influence of DPP on the relationship between ESG and CFD (the whole conceptual structure of this study is illustrated in **Figure 1**):

H2 *DPP significantly moderates the relationship between ESG and CFD.*

3 Data and Methodology

3.1 Sample Derivation

In order to test the hypotheses, this study retrieves all ESG as well as financial data from the LSEG Database, formerly Thomson Reuter's Asset4 database inside Refinitiv. This database is widely used (Badayi et al., 2021; Cheng et al., 2014; Do, 2022; Ghoul et al., 2017; Gangi et al., 2020), provides more comprehensive coverage, and allows the ESG indicator to be decomposed into its constituent parts (see **Figure 2** for a full decomposition of the ESG score). To enable a comprehensive and globally representative analysis of the relationship between ESG and CFD and to ensure the robustness of our results, our initial sample encompasses 200,160 firm-year observations for 11,119 unique companies in 95 countries.

Since we require all companies in our sample to have complete information for at least three or more fiscal years between 2006 and 2023 for all our variables specified, firm-year-observations with missing data are eliminated from the dataset. Furthermore, as has been common practice in previous studies, financial companies are excluded from the sample as they have their own specific debt requirements and thus are not comparable to other companies (Badayi et al., 2021; Gangi et al., 2020, Shahrour et al., 2021). This leaves us with a final sample of 49,211 firm-year observations for 5,653 unique companies from 2006 to 2023 in 64 different countries. Following the approach of Rizwan et al. (2017), Do (2022), and Habermann and Fischer (2023), we applied winsorisation to extreme outliers in our regression variables at the 1st and 99th percentile of their respective distribution. Additionally, we ensured that the sample was not restricted by the entry and exit of observations throughout the observation period to mitigate the risk of a survivorship bias (Rizwan et al., 2017: 49).

3.2 Variable Definitions and Measurements

To assess a company's level of CFD, this study employs the Z Score (Altman, 1968), an accounting-based metric, as the primary measure. The Z Score essentially measures how likely

it is that a company files for bankruptcy in the next two years, using a set of weighted financial ratios that are deemed as good indicators of a company's financial health (Altman, 1968: 609). Lower scores are associated with a higher probability of default and vice versa. In the literature studying financial distress, the Z Score is a wildly used proxy for the risk of default (see, e.g., Boubaker et al., 2020; Campbell et al., 2008; Megginson et al., 2019). Agarwal and Taffler (2008) found that Z Score outperforms the market-based model in reliably predicting bankruptcy. Altman et al. (2017), reevaluating the performance of the classical Z Score model in an international context, determined that despite not accounting for country-specific variables, the model still performs very well with an accuracy of approximately 75%. Thus, we deem the Z Score as an appropriate bankruptcy proxy. The calculation of our dependent variable is done as follows:

(Eq. 1) $$Z\ Score = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Where: $X_1 = \frac{Working\ Capital}{Total\ Assets}$; $X_2 = \frac{Retained\ Earnings}{Total\ Assets}$; $X_3 = \frac{EBIT}{Total\ Assets}$;

$X_4 = \frac{MV\ Equity}{Total\ Liabilities}$; $X_5 = \frac{Sales}{Total\ Assets}$

Additionally, this study employs a validation score for bankruptcy risk to confirm the effect of ESG on CFD. For this purpose, the Ohlson O-Score (O Score; Ohlson, 1980) is applied. This score represents an alternative accounting-based bankruptcy measure, whereby a higher score relates to a higher bankruptcy risk and vice versa. The score is derived as follows:

(Eq. 2) $$O\ Score = -1.32 - 0.407\log(X_1) + 6.03X_2 - 1.43X_3 + 0.0757X_4$$
$$-1.72X_5 - 2.37X_6 - 1.83X_7 + 0.285X_8 - 0.521X_9$$

Where: $X_1 = \frac{Total\ Assets}{Gross\ National\ Product}$; $X_2 = \frac{Total\ Liabilities}{Total\ Assets}$; $X_3 = \frac{Working\ Capital}{Total\ Assets}$;

$X_4 = \frac{Current\ Liabilites}{Current\ Assets}$; X_5 = Dummy that is 1 $if\ Total\ Liabilities > Total\ Assets$;

$X_6 = \frac{Net\ Income}{Total\ Assets}$; $X_7 = \frac{Funds\ from\ operations}{Total\ Liabilities}$; X_8 = Dummy that is 1 $if\ loss\ in\ last\ 2\ years$;

$X_9 = \frac{Net\ Income_t - Net\ Income_{t-1}}{|Net\ Income_t| + |Net\ Income_{t-1}|}$

Our main independent variable is the ESG engagement of a company that is gauged by the ESG Score, and its sub-scores (**Figure 2**), obtained from the LSEG database. These scores are based on the relative performance of ESG factors with the company's sector (for environmental and social) and country of incorporation (for governance) (LSEG, 2023: 4). Annual reports, company websites, CSR reports, NGO websites, and stock exchange filings are used to compute the ESG Scores for individual companies, which range between 0 and 100 (100 indicating high performance and 0 indicating low performance) (LSEG, 2023: 6).

Finally, the DPP variable serves as our moderating factor in the ESG-CFD relationship. DPP is measured by each company's dividend payout ratio, which represents the proportion of net sales paid out as dividends to shareholders (Jabbouri, 2016). We use net sales rather than operating profit or net income because it is less dependent on accounting practices, i.e. subject to manipulation or smoothing (La Porta et al., 2000), and less affected by macroeconomic events (Baker et al., 2011). By including DPP as a moderating variable, we aim to capture how the relationship between companies' ESG and CFD might vary depending on the level of shareholder compensation.

3.3 Methodology

To explore the effects of ESG on CFD, this study uses a panel data regression model with fixed effects (FE). In this study, we build on prior research conducted by Boubaker et al. (2020), Habermann and Fischer (2023), and Do (2022). Moreover, several control variables (see **Table 1**) have been identified to ensure that the effect of ESG is not biased or confounded by other factors. *Volatility* (VOL) is defined as the standard deviation of stock price over a specified period. Investors generally view VOL as an indicator of the risk associated with a company. Thus, we expect a positive relationship between VOL and CFD. *Market to Book Ratio* (MTB) sets the equity market value of a company in relation to the book value of equity. A higher market-to-book ratio indicates that the market has higher growth expectations for these

companies. Hsu et al. (2015) state that such companies appear more attractive to investors, hence one would expect that these companies have easier access to financing and thus higher MTB should mitigate the risk of CFD. *Financial Slack* (SLACK) is the ratio of cash and cash equivalents to total assets. Companies with more cash on hand have more liquidity, which reduces the likelihood of CFD (Cooper & Uzun, 2019: 141). This study measures the size of a company, *Company Size* (log_SIZE), using the natural logarithm of its total revenue from business operations. It can be expected that size has a negative effect on the probability of CFD, as larger companies are generally more diversified and have more resources to serve their financial liabilities (Dirman, 2020: 24). *Return on Assets* (ROA) is utilized to evaluate a company's financial performance. Several studies stipulate that financial performance increases a company's ability to meet debt obligations (Asyikin et al., 2018), thus we expected that better financial performance is accompanied by a lower probability of CFD. *Leverage* (LEV) compares the book value of debt to the book value of assets. Companies with more debt in general have a higher likelihood of falling into financial distress, as leverage is one of the key causes of CFD (Giarto & Fachrurrozie, 2020). Thus, we expect a positive relationship between leverage and CFD. *Dividend Payout Ratio* (DIV) is calculated by dividing dividend payments by net sales, as explained in Chapter 3.2. We assume that companies that pay higher dividends are in general less financially constrained and should therefore exhibit a lower risk of CFD (Verwijmeren and Derwall, 2010: 959). *Capital Expenditures* (CAPEX) is measured by dividing capital expenditures for the current year by total assets. We assume that companies with higher maintenance capital expenditure requirements are more financially restrained and thus more likely to fall into financial distress.

To control for unobserved, time-invariant factors at the firm level, we employ both time and firm level FE, as outlined by Do (2022). The applicability of the FE model was validated by conducting a Hausmann test to confirm the superiority of an FE approach over a Random

Effects model. In terms of heteroskedasticity, we performed a Breusch-Pagan test to confirm that the use of robust standard errors is appropriate. Additionally, in order to account for potential cross-sectional and serial correlations, standard errors are clustered at the firm level. Finally, we estimate the following regression design:

(1) $$\boldsymbol{Z\ Score_{ij}} = \beta_0 + \beta_1\ ESG\ Score_{ij} + \beta_2\ DIV_{ij} + \beta_3\ ROA_{ij} + \beta_4\ VOL_{ij} + \beta_5\ MTB_{ij} + \beta_6\ SLACK_{ij} + \beta_7\ log\_SIZE_{ij} + \beta_8\ LEV_{ij} + \beta_9\ CAPEX_{ij} + \gamma_{ij} + \delta_{ij} + \varepsilon_{ij},$$

where the Z Score represents the risk of CFD and thereby serves as the dependent variable, while the ESG Score serves as the independent variable. Combining findings from previous literature, the control variables explained above have been included. As already outlined, we control for firm (γ_{ij}) and year (δ_{ij}) FE. Finally, i represents the firm dimension and *j* the year dimension, β each of the coefficients (whereby β_0 represents the constant), and ε_{ij} the error term. The main interest lies in the value of the coefficient β_1, as it captures the effect of the ESG Score on CFD.

To test the hypotheses concerning the moderating effect of DPP on the ESG-CFD relationship, we will use the same panel data regression model with firm and time FE, adding an interaction term between ESG and DIV named *ESG x DIV* (following the approach of Gharbi and Jarboui (2023)). This design allows us to assess whether companies with more consistent or higher dividend payouts have a different ESG effect on CFD, capturing the mediating role of a robust DPP. The model can be described by the following expression with main interest being now on β_1 and β_2:

(2) $$\boldsymbol{Z\ Score_{ij}} = \beta_0 + \beta_1\ ESG\ Score_{ij} + \beta_2\ ESG\ x\ DIV_{ij} + \beta_3\ DIV_{ij} + \beta_4\ ROA_{ij} + \beta_5\ VOL_{ij} + \beta_6\ MTB_{ij} + \beta_7\ SLACK_{ij} + \beta_8\ log\_SIZE_{ij} + \beta_9\ LEV_{ij} + \beta_{10}\ CAPEX_{ij} + \gamma_{ij} + \delta_{ij} + \varepsilon_{ij}$$

4 Empirical Results and Robustness Testing

4.1 Descriptive Statistics

The final dataset employed for the empirical analysis comprises 49,211 firm-year observations. **Table 2** (see appendix) contains the descriptive statistics of these observations. Panels A, B and C thereby represent the distribution and trends by country, industry and year respectively. The dataset includes 64 different countries of which 29 (36,385 firm-year-observations) are developed countries and 35 (12,826 firm-year-observations) are developing/emerging countries, according to the International Monetary Fund (IMF; International Monetary Fund, 2024). The *Manufacturing* sector is by far the most represented with 43.64%, followed by *Real Estate* (7.70%) and *Information* (7.42%). Lastly, it is apparent from the time frame chosen, that the dataset includes two major economic events that influence the global economy, the 2008-2009 global financial crisis (3,837 firm-year-observations) and the COVID-19 pandemic (20,184 firm-year-observations).

Moreover, from the data in **Table 2**, we can see the growing acceptance of ESG practices as the ESG Score increases from a mean value of 36.26 in 2006 to 52.98 in 2023, explaining that ESG is a widely used business tool in modern economy (Diwan & Sreeraman, 2024). In addition, the time variance of the ESG Score further confirms the importance of utilizing time FE. It is also worth noting that companies in developing countries have some of the highest ESG Scores, including Cambodia (70.52) and Kazakhstan (64.45). In the context of developed countries, companies in Spain (62.68) and Portugal (62.38) rank third and fourth, respectively, in terms of their ESG Scores on average. The high scores in developing/emerging countries may stem from the need to appeal to international standards and to attract foreign investment, especially if these countries have substantial export-based economies (Ding & Lee, 2024; Eccles et al., 2014; Porter & Kramer, 2006). In line with the 2008-2009 global financial crisis, we identify a shrinking Z Score for the financial year 2008 (2.76), but we also identify a

rising Z Score ranging between 4.04 and 5.42 in the corona pandemic years of 2020 to 2023. This may be due to robust government interventions, which mitigated potential financial pressure on companies, resulting in higher average Z Scores. Finally, Panel B shows that companies in the *Utilities* sector have the highest risk of distress, with a Z Score of 1.56, despite having one of the highest ESG Scores on average. The high Z Score despite strong ESG performance may be due to the high capital intensity and strict regulatory standards in this sector, which can cause financial stability issues (Beecher, 2013; Kovvali & Macey, 2023).

Table 3 contains the summary statistics for all non-dummy variables in this study. On average, the Z Score for all our observations is 4.06, while the average ESG Score is 46.82. Both scores show a high standard deviation (Z Score: 5.75; ESG Score: 20.90), but we do not observe any problems that could lead to computational errors. Furthermore, looking at the other independent variables, we can conclude that the statistics are in line with previous studies such as Antunes et al. (2023), Do (2022), Habermann and Fischer (2023), Lohmann et al. (2024), and Rizwan et al. (2017).

Table 3: Summary Statistics

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	49,211	4.06	5.75	-0.08	1.54	2.58	4.30	74.99
ESG Score	49,211	46.82	20.90	0.08	30.24	46.94	63.29	95.37
Environmental Score	49,211	41.77	27.93	0.00	17.06	42.27	65.06	99.10
Social Score	49,211	46.75	24.56	0.05	26.98	46.05	66.51	98.65
Governance Score	49,211	51.38	22.37	0.04	33.70	52.31	69.50	99.41
DIV	49,211	0.07	0.20	0.00	0.01	0.03	0.07	20.09
ROA	49,211	0.06	0.06	-0.41	0.02	0.05	0.08	0.34
VOL	49,211	3.74	7.55	0.01	0.32	1.30	3.77	95.62
MTB	49,211	3.09	3.82	0.11	1.09	1.87	3.43	34.66
SLACK	49,211	0.10	0.10	-0.04	0.03	0.07	0.14	0.96
log_SIZE	49,211	0.96	1.61	-3.37	-0.12	0.98	2.05	5.13
LEV	49,211	0.52	0.19	0.08	0.40	0.53	0.66	0.96
CAPEX	49,211	0.05	0.04	0.00	0.02	0.04	0.07	0.30

This table presents summary statistics for the non-dummy variables included in the analysis. The Z Score indicates financial health, with higher values corresponding to lower levels of financial distress. The table provides the mean, standard deviation, minimum, first quartile, median, third quartile, and maximum values for each variable, offering a comprehensive view of the distribution and variability within the dataset. The sample includes 51,022 firm-year observations, capturing a wide range of values from 2006 to 2023.

Finally, to detect statistical concerns due to multicollinearity, **Table 4** (see appendix) represents the Pearson Pairwise Correlation Matrix and **Table 5** (see appendix) shows the Variance Inflation Factors (VIF) of all variables except for the ESG pillars. From the VIF table,

it can be inferred that none of the variables exceed the VIF maximum of 10, and all variables (except ESG Score and LEV) are also below the stricter limit of 5 (Kutner et al., 2005: 409; Sheather, 2009: 203). Furthermore, following the suggestions of Evans (1996), we can note that no correlation of variables other than the ESG pillars scores with the ESG Score exceeds a Pearson Correlation Coefficient of 0.39 (except for log_SIZE), indicating a weak correlation between all the independent variables (moderate correlation for log_SIZE). To summarise, it is unlikely that multicollinearity is a problem among our independent variables.

4.2 The Effect of ESG on Corporate Financial Distress

Table 6 shows the regression results for the effect of ESG on CFD in terms of the regression coefficients of the independent variables. The model estimates a significant negative relationship at the 1% level between the ESG Score and the Z Score, suggesting that a higher ESG Score may be associated with a higher risk of financial distress. Thus, companies with higher social engagement are more likely to face CFD compared to other companies. This result rejects our **Hypothesis H1** in Chapter 2.2 stating that there is a negative effect of ESG on CFD. Hence, our study contradicts the previous literature that finds a negative relationship, such as Antunes et al. (2023), Binesh et al. (2024), Cooper and Uzun (2019), etc. Regarding the control variables, we observe that ROA, VOL, MTB and SLACK have a significant positive relationship with the Z Score, while LEV has a significant negative relationship and DIV, log_SIZE and CAPEX have no significant effect on the Z Score.

In addition, **Table 6** reports the sub-pillars of the ESG Score, namely the environmental, social and governance pillars. All show a significant (at the 1% level, except for Governance, which is significant at the 5% level) negative coefficient, in line with the overall ESG Score effect, although the magnitude is less negative. This suggests that each pillar individually contributes to an increased likelihood of financial distress. However, the weaker significance

of the governance pillar may indicate that governance-related investments have a less direct impact on financial distress compared to environmental and social efforts.

Table 6: The Relationship between ESG and CFD

Variable	(1)	(2)	(3)	(4)
Constant	8.3816***	8.2702***	8.2634***	8.2592***
	(0.2735)	(0.2597)	(0.2712)	(0.2612)
ESG Score	-0.0064***			
	(0.0022)			
Environmental Score		-0.0045***		
		(0.0016)		
Social Score			-0.0036**	
			(0.0017)	
Governance Score				-0.0033**
				(0.0013)
DIV	0.6164	0.6189	0.6136	0.6137
	(0.4166)	(0.4162)	(0.4163)	(0.4169)
PERF	6.6533***	6.6561***	6.6904***	6.6949***
	(0.5105)	(0.5102)	(0.5117)	(0.5105)
VOL	0.0142*	0.0141*	0.0142*	0.0144*
	(0.0083)	(0.0083)	(0.0083)	(0.0083)
MTB	0.4332***	0.4335***	0.4334***	0.4335***
	(0.0292)	(0.0292)	(0.0292)	(0.0292)
SLACK	3.2475***	3.2424***	3.2546***	3.2478***
	(0.8113)	(0.8110)	(0.8114)	(0.8120)
log_SIZE	0.0957	0.0966	0.0816	0.0761
	(0.0826)	(0.0827)	(0.0820)	(0.0832)
LEV	-12.0021***	-11.9971***	-12.0060***	-11.9908***
	(0.4882)	(0.4881)	(0.4886)	(0.4885)
CAPEX	0.9965	0.9526	1.0272	1.0016
	(0.7818)	(0.7826)	(0.7833)	(0.7819)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.4186	0.4188	0.4188	0.4182

This table shows the results of the entity and year fixed effects PanelOLS of the Z Score on different ESG dimensions. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. (1) showcases the effect of the overall ESG score on the Z Score whereas (2) - (4) depict the effect of the enviromental, social and governances subpillars respectivly. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

4.3 The Moderating Effect of Dividend Payout Policy

Having examined the direct relationship between ESG and CFD, we now tested for the moderating effect of DPP, using the same regression model as in Chapter 4.2, but with the additional moderating variable *ESG x DIV*. Therefore, **Table 7** reports the results of the moderating effect of DPP on the relationship between ESG and CFD. The results show that DPP has a significant positive impact on the relationship between ESG and CFD at the 10% level, indicating that the interaction effect moderates the negative ESG-CFD relationship. Thus, a positive interaction term means that the effect of ESG on insolvency risk is weaker when DPP

is higher. In other words, companies with higher dividend payouts may be less vulnerable to the negative effects of ESG through this policy, which is reflected in a smaller increase in insolvency risk despite higher ESG Scores. This could suggest that a strong dividend policy acts as a kind of buffer that increases investor confidence, thus easing access to capital and in turn increasing the financial stability of the company. This result supports our **Hypothesis H2** expressed in Chapter 2.3 that DPP significantly moderates the ESG-CFD relationship.

Table 7: The Moderating Effect of Dividend Payout Policy

Variable	(1)	(2)	(3)	(4)
Constant	8.3838***	8.2710***	8.2602***	8.2662***
	(0.2729)	(0.2597)	(0.2710)	(0.2606)
ESG Score	-0.0063***			
	(0.0022)			
Environmental Score		-0.0045***		
		(0.0016)		
Social Score			-0.0036**	
			(0.0017)	
Governance Score				-0.0032**
				(0.0013)
ESG x DIV	0.0453*			
	(0.0274)			
E x DIV		0.0099		
		(0.0131)		
S x DIV			0.0307	
			(0.0231)	
G x DIV				0.0224
				(0.0175)
DIV	0.5831	0.6073	0.6349	0.5557
	(0.3932)	(0.4143)	(0.4190)	(0.3995)
ROA	6.6547***	6.6590***	6.6822***	6.6971***
	(0.5102)	(0.5100)	(0.5121)	(0.5100)
VOL	0.0142*	0.0141*	0.0142*	0.0144*
	(0.0083)	(0.0083)	(0.0083)	(0.0083)
MTB	0.4334***	0.4335***	0.4334***	0.4337***
	(0.0292)	(0.0292)	(0.0292)	(0.0292)
SLACK	3.2345***	3.2337***	3.2537***	3.2521***
	(0.8051)	(0.8099)	(0.8093)	(0.8097)
log_SIZE	0.0929	0.0958	0.0828	0.0721
	(0.0832)	(0.0828)	(0.0819)	(0.0836)
LEV	-12.0020***	-11.9969***	-12.0022***	-11.9951***
	(0.4881)	(0.4881)	(0.4884)	(0.4884)
CAPEX	1.0064	0.9555	1.0177	1.0192
	(0.7811)	(0.7823)	(0.7837)	(0.7817)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.1942	0.1942	0.1942	0.1942

This table shows the results of the entity and year fixed effects PanelOLS of the Z Score on different ESG dimensions with the addition of the interaction term ESG x DIV to investigate the effect of DPP on this relationship. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. (1) showcases the effect of the overall ESG score on the Z Score whereas (2) - (4) depict the effect of the enviromental, social and governances subpillars respectivly. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Moreover, this is consistent with the findings of other papers such as Gharbi and Jarboui (2023)

or Kanakriyah (2020). However, this result should be interpreted with caution, as the significance level of the interaction term is only at the 10% level. This suggests that the moderating effect of DPP on the ESG-CFD relationship, while notable, should be considered tentative. In the robustness section, we will further test the reliability of this finding to assess whether the observed relationship holds under different model specifications and conditions.

With respect to the individual ESG pillars, the relationship between each and CFD remains consistent with the findings presented in **Table 6**. Nevertheless, the moderating effect of DPP on each of the ESG pillars - environmental (*E x DIV*), social (*S x DIV*) and governance (*G x DIV*) - does not yield statistically significant results. Given the insignificance of these pillar-specific interactions, we will not present the results for each pillar in the following chapters, as these analyses are included primarily for illustrative purposes and do not represent the core findings of this study.

4.4 Robustness Check

A major concern within the analysis performed thus far is endogeneity as well as omitted variable bias concerns. To control for omitted variable bias, following Boubaker et al. (2020) and Habermann and Fischer (2023), we perform our FE regression models (1) and (2) with additional control variables that are correlated with both the ESG Score and CFD as well as the interaction term *ESG x DIV*. We believe control variables that share this characteristic are: (1) the market value of the company's equity, (2) its return on equity, (3) its current ratio as well as (4) whether the company incurred a loss in the given period. **Tables 8 and 9** (see appendix) present and support our findings, as we observe that by including each of the variables separately in our regressions, the coefficient of the ESG Score remains similar in direction, magnitude, and significance. However, this is not the case for the *ESG x DIV* interaction term for all the additional control variables, except for regression (4) where the interaction term is positive, significant at the 10% significance level.

To address concerns related to the validity of the Z Score as a measure of CFD, we also perform the analysis with another measure of CFD risk, the O Score. In contrast to the Z Score, it is apparent that the higher the O Score, the higher the risk of bankruptcy. Our results in **Tables 10 and 11** (see appendix) support our previous findings that there is a small, positive but statistically significant relationship between ESG and CFD, as ESG has a positive effect on the O Score. Furthermore, the result of the interaction term *ESG x DIV* is statistically insignificant yet exhibits a similar direction of effect.

We also perform two tests to further address endogeneity concerns, namely reverse causality and correlation of the independent variable with the error term. (1) being the 2SLS and (2) the GMM approach. Considering studies performed by Aouadi and Marsat (2018), Cheng et al. (2014), and Habermann and Fischer (2023), we construct the instrumental variables (IVs) for the 2SLS regression by regressing our desired proxy on the mean ESG Score of the industry and country. The IVs used should be highly correlated with the ESG Score, as they capture industry norms and peer influences through the industry average and social and regulatory pressures through the geography average (Shahrour et al., 2021: 990). Regarding the GMM approach, leaning on work done by Boubaker et al. (2020) and Shahrour et al. (2021), we conduct a GMM regression using lagged values of the previous two periods of the ESG Score as IVs.

Tables 12 and 13 (see appendix) show that both approaches indicate a statistically significant and negative association between the ESG Score and the Z Score. Furthermore, our interaction term is negative in the 2SLS and positive in the GMM regression, indicating a lack of consistency in the moderating effect of DPP on the relationship between ESG and CFD across the two IV approaches. The interaction term is statistically significant at the 1% level in the 2SLS regression and not statistically significant in the GMM regression. Concluding, the inconsistency in the statistical significance and direction of the interaction term may reflect

model dependencies, possibly influenced by the different IVs used in each approach. The results of both 2SLS and GMM were validated for overidentification using the Sargan test for the 2SLS regressions and the Hansen-J test for the GMM regressions. The results of all tests conducted confirm that the IVs we have implemented are reasonable exogenous proxies.

In summary, our robustness tests generally show a consistent negative relationship between ESG and CFD, which is confirmed across different specifications as well as an alternative measure. However, the interaction term showed different significance and directionality depending on the model implemented. This discrepancy highlights that the moderating effect of DPP is model-dependent, suggesting that the GMM results highlight a potential sensitivity in our findings. Moreover, bearing in mind the significance level of 10% for this variable, these results should in general be interpreted with caution. Finally, while our robustness tests provide substantial support against reverse causality, it cannot be completely ruled out. The use of instrumental variables and lagged values strengthens the argument by mitigating endogeneity concerns. However, given the complexities inherent in assessing causality within observational data, some residual risk remains and requires a cautious interpretation of these results.

4.5 Reconciliation of Results

Our findings on the ESG-CFD relationship stand in contrast to most prior studies on this topic to date. This raises the question about the underlying factors driving these contrasting results. To investigate this discrepancy, we have analysed previous studies that have examined the relationship between ESG and CFD, particularly the structure of the dataset they use and the methodology they employ, in order to find the reasons for this discrepancy in results. One of the most notable differences between our data and that of previous papers is the country focus. While this study uses an international dataset that includes companies from all over the world, most previous studies have focused on only one country at a time. Most researchers have

focused on only six countries, namely Australia, Canada, China, Malaysia, South Korea and the USA. In an attempt to reconcile our results with these studies, we ran various FE regressions on subsamples containing only data from each of these countries. **Table 14** (see appendix) shows the results of these regressions. For Canada, China, Malaysia and South Korea, the direction of the coefficient implies that the findings of previous studies on the ESG-CFD relationship can be confirmed for these countries. However, the significance levels cannot be confirmed as none of the coefficients appear to be significant, so only the direction of the coefficient can be reconciled. For the USA and Australia, our results are still at odds with the findings of most other papers using data from these countries, as the direction of the coefficient is negative. However, both coefficients are insignificant, which casts doubt on the meaningfulness of these results. To further analyse the cases of Australia and the US, we replicated the time periods used by some of these studies in an attempt to reconcile our results. **Table 15** (see appendix) provides an overview of all the studies that we attempted to replicate in terms of country focus and time period used. It should be noted that not all studies could be replicated, as the dataset lacked sufficient data for certain countries (e.g., Pakistan, Iran, Russia, etc.) or the time frames of the studies in question commenced prior to 2006. Looking at our results when we replicate the time frame of previous studies, we are able to verify the coefficient direction of three of the four studies we examined for Australia and the US, namely Habib (2023), Habermann and Fischer (2023) and Al-Hadi (2019). Furthermore, not all previous studies have focused only on specific countries, and some have used more international datasets. The studies that could be reviewed are also listed in **Table 15** (see appendix). In each case (Badayi et al., 2021; Gangi et al., 2020), we were able to replicate the results when considering the time frame used.

Overall, our attempt at reconciliation indicates that the results of previous studies can be confirmed when adjusting for country and time period. We may therefore conclude that the

direction of the ESG-CFD relationship is strongly dependent on the country and time period under consideration. Nevertheless, while there is a general concordance with the majority of prior findings on this basis, the question of statistical significance remains unresolved. The lack of significance in our results may be attributed to several factors. With respect to individual countries, the majority of studies included a greater number of firm-year observations for those countries than we did. Additionally, many studies employed different proxies for CFD and ESG. Finally, the model design used to analyse the relationship between ESG and CFD varies considerably across studies.

5 Discussion

The purpose of this study was to examine how ESG influences a company's likelihood of falling into financial distress and how this relationship is moderated by the company's DPP. Previous literature has delivered inconclusive results regarding the direction of the effect. Much of the previous research done on the topic points towards a negative relationship between ESG and CFD (see e.g., Badayi et al., 2021; Boubaker et al., 2020; Zheng et al., 2019). Nevertheless, there are also studies that indicate that there is a positive ESG-CFD relationship (see Habermann & Fischer, 2023). The findings of this study confirm the latter results, although it is also evident that the direction of the ESG-CFD relationship is contingent upon the specific country and time period under consideration. After having run a multiple FE regression and testing for robustness, our findings point towards a positive association between ESG and CFD, supporting the hypothesis that more ESG engagement increases the risk of a company falling into financial distress.

One explanation for the positive effect could be the fact that the periods we looked at were mostly non-crisis periods. Habermann and Fischer (2023) suggest that ESG benefits cannot fully materialize in times of economic upswing, as good stakeholder relationships only really become important in times of financial difficulties (e.g. to retain key employees or to get more

favourable terms from suppliers). Thus, the benefits of ESG investments are outweighed by the costs in economic upswing periods. Another reason relates to the fact that ESG investments overall might not be a positive net present value (NPV) investment (Bing & Li, 2019; Marsat & Williams, 2013), meaning that companies investing in ESG actively miss out on positive NPV projects and invest their resources in value-destroying investments, which might also have implications for the risk of falling into financial distress (e.g., due to loss of investor confidence and/or more restricted financing). This would lead to the question of why managers would still decide to pursue ESG investments if that were the case. *Agency Theory* provides a possible explanation. Managers (agents) could pursue ESG investments against shareholders' (principal) best interests if they either believe they could obtain private benefits (e.g. social recognition for investing responsibly) or they are pressured by non-invested stakeholders (Dyck et al., 2019: 693). Findings of Masulis and Reza (2015) lend support to this study. They found that managers seem to abuse corporate giving schemes for their own personal benefit, which results in decreased stock performance, with this effect being particularly pronounced for companies with less aligned management-shareholder interests. Thus, *Agency Theory* could serve as a potential explanation as to why managers would still invest in ESG even if it has negative implications on performance and the likelihood of financial distress. The *Management Obfuscation Hypothesis,* which essentially states that managers have clear incentives to obfuscate financial failures (Bloomfield, 2002), can also serve as a possible explanation for a positive ESG-CFD relationship. Under this hypothesis, managers would use ESG to distract from their own failures, thus making purposeful investments that do not necessarily have a positive NPV. Also from a reverse causality perspective, this would indicate that companies with bad financial performance are more likely to invest in ESG activities, leading to a positive relationship between ESG and CFD (Lohmann et al., 2024: 4f.). Another line of argument related to *Agency Theory* states that since companies increasingly incorporate ESG objectives into their

management incentive systems (Salzbank et al., 2023), managers focus more on ESG objectives that might be easier to achieve to maximize their compensation. Cohen et al. (2023) provide empirical evidence supporting this hypothesis, concluding that companies incorporating ESG incentives into management compensation plans demonstrated improved ESG performance but experienced a decline in financial performance, implying that managers overinvest in ESG for their own benefit even though it goes against shareholder interests.

Beyond the direct impact of ESG on CFD, our study also highlights the moderating role of DPP in this relationship. While previous studies have often focused on the stand-alone effects of ESG on financial distress, our results provide new insights by showing that companies with a strong DPP can partially offset the associated financial distress. However, it is important to note that the observed effect of DPP on the ESG-CFD relationship is model-dependent and may vary across different model specifications. As such, further research is needed to rigorously test the robustness of this moderating effect, and the subsequent interpretations should be treated with caution. Nevertheless, in light of our results, it can be argued that a strong DPP can act as a buffer against the challenges mentioned above associated with intensive ESG engagement. First, the moderating effect may be understood in terms of signalling theory, where dividends express management's confidence in a company's financial outlook, reassuring stakeholders of the company's resilience despite potential cash flow redirections to ESG projects (El-Deeb & Allam, 2024). Thus, in cases where ESG investments might otherwise raise concerns about resource allocation and profitability, a robust DPP appears to provide assurance, signalling that the company remains financially stable and able to meet shareholder expectations despite ESG commitments. Therefore, investor confidence may be maintained by reducing the perceived risks associated with high ESG Scores, which would be in line with Cohen and Yagil's (2009) and Kumar and Lee's (2001) findings on dividends as an indicator of stability. Secondly, by maintaining a stable dividend, companies not only reaffirm their financial stability. Stable

dividend payments provide predictability for investors by preserving part of the return, further strengthening investor confidence or even acting as a tool to attract new investors, both during and after periods of financial distress (Cohen & Yagil, 2009; Kumar & Lee, 2001). Hence, the link between DPP and financial stability while pursuing ESG engagement strengthens investor loyalty and demonstrates to stakeholders that the company is managing both its financial and ESG commitments responsibly. Third, DPP may reduce the potential for agency conflicts, where managers seek to pursue ESG objectives that are not directly aligned with maximising shareholder wealth, potentially exacerbating the risks of financial distress. A strong DPP commitment thereby promotes managerial financial discipline by requiring managers to maintain sufficient cash flow for both ESG activities and consistent dividend payments, which mitigates excessive ESG spending and aligns it with shareholder interests (Masulis & Reza, 2015). In this context, liquidity issues may be mitigated by this limitation, which would potentially positively influence the Z Score, i.e., reducing the likelihood of CFD.

In summary, our study suggests that while ESG investments are intended to create sustainable, long-term financial stability, they might increase financial distress risks in the short term, as measured by the Z Score, if not managed carefully. While there are clear benefits for ESG investments, companies should not blindly invest into everything that has ESG to its name. Companies should focus on a balanced and financially integrated approach to ESG, rather than a focus on obtaining high ESG Scores alone, to achieve long-term financial stability. As Edmans (2023) succinctly states: “We want great companies, not just companies that are great at ESG.” Furthermore, DPP provides a strategic financial framework that might counterbalance the complexities associated with high ESG engagement, thereby supporting financial stability, enhancing investor confidence and mitigating agency conflicts. The beneficial interplay between DPP and ESG demonstrates that dividend policy plays a supporting role in maintaining corporate resilience while promoting a balanced approach to stakeholder and shareholder

priorities. These findings suggest that while ESG initiatives in isolation may increase the risk of financial distress, a well-managed dividend policy may act as an effective moderator, providing critical insights into how financial strategies can support sustainability goals within a robust governance structure.

6 Conclusion and Future Perspectives

This study examined the relationship between ESG and CFD with DPP as a moderator. Our findings indicate that increased ESG engagement elevates the probability of financial distress for a company as measured by the Z Score. DPP on the other site reduces the positive effect ESG has on CFD. Our study makes a significant contribution to the current literature on the relationship between ESG investments and financial distress by employing the largest sample size to date, enhancing the statistical robustness of our findings. Additionally, unlike many previous studies who focused on single-country analyses, our research incorporates a diverse, international dataset, allowing for broader generalizability across different regulatory environments and economic contexts. Furthermore, we introduce a novel aspect by examining a company's DPP as a moderating variable, providing new insights into how a company's financial policies interact with ESG investments to influence its likelihood of financial distress.

While our study provides valuable insights into the impact of ESG investments on financial distress, it also highlights several avenues for future research. The growing importance of ESG will most likely lead to changes in the regulatory environment and public perception, thus it is possible that over time changes in the cost and benefits of ESG occur. Consequently, we expect the effect of ESG on CFD not to be static but rather dynamic, making continuous research necessary to effectively keep track of the magnitude and direction of the effect. The results of the study deviate from the results of most prior literature. Our attempts at reconciliation thereby suggest that the direction of the ESG-CFD relationship is strongly

dependent on the country and time period under consideration, making it clear that more thorough research is needed to define the definite relationship between ESG and CFD.

Several limitations burden this study. Due to the structure of our bankruptcy measure and control variables, we were only able to use publicly listed companies, limiting the generalizability of our results across all types of companies, especially smaller and medium-sized companies. With respect to our bankruptcy proxy, it must be mentioned that the Z Score and O Score only measure the likelihood of a company filing for bankruptcy and not whether a company actually filed for bankruptcy. Furthermore, to approximate the ESG engagement of a company, we use the ESG scores provided by LSEG. Even though LSEG uses an algorithmic and human evaluation of over 400 ESG metrics to derive its score, and its scores are wildly used in prior literature, doubts about their reliability cannot be fully discarded. There might be some level of deliberate distortion reflected in ESG Scores due to conflicts of interest by rating agencies regarding revenue generation (Agrawal et al., 2023). Finally, despite addressing endogeneity with IV approaches, some degree of reverse causality cannot be ruled out and the choice of instruments may still influence the results. ESG activities could be adopted more by companies already in financial distress, potentially biasing the results.

B – Country Development State and its Influence

It is well-established that research on the effects of ESG on various company aspects is considerably more extensive in developed countries than in developing countries (Jamali & Karam, 2018: 32). Most studies lack a nuanced analysis of how ESG practices manifest in markets outside the developed core (ibid). When it comes to ESG practices, companies in developed and developing countries face a different magnitude of pressure from distinct stakeholder sources (Ali & Mahmood, 2017). Developing countries are shaped by a lack public pressure when it comes to ESG initiatives, the presence of institutional voids, and weak capital markets, all of which are aspects that impact the effects of ESG and companies' ESG strategy (Ali & Mahmood, 2017; Do, 2022: 6). Hence the current development state of a country might have a material impact on the benefits and costs of ESG measures and consequently impact how ESG initiatives affect the financial stability of companies in this country. As a consequence of this potentially varying effect of ESG on CFD, companies should adjust their ESG strategy according to the development state of their country to reap the full benefits. This chapter aims to investigate how the current development state of a country influences the ESG-CFD relationship and whether the moderating effect of DPP also varies across development classifications.

To facilitate a comprehensive analysis, the following chapter reviews the current literature on the role of ESG in influencing CFD across countries in different development stages, and formulates the relevant hypotheses, with a focus on the potential moderating effect of DPP in this relationship. Building on this foundation, Chapter 2 outlines the dataset structure and details the methodology employed for the empirical analysis. Chapter 3 then summarizes the results, and Chapter 4 discusses the primary findings. Finally, this part of the project concludes with a summary of limitations and closing remarks.

1 Motivation and Hypotheses Development

As stated before, most previous studies examining the relationship between ESG and CFD have put their emphasis on developed countries (see e.g., Al-Hadi et al., 2019; Boubaker et al., 2020; Habermann & Fischer, 2023; Lohmann et al., 2024). While some studies examine the ESG-CFD relationship in the context of countries that are classified as developing countries (see e.g., Gong & Ho, 2018), to our knowledge, only one directly compares the effects of ESG on CFD in developed and developing countries. Looking at 50 manufacturing companies from Pakistan and Australia for a time spanning from 2005 to 2018, Javed et al. (2020) concluded that for both countries, ESG has no significant effect on CFD in either country. However, it must be noted that the sample size is extremely small, and the authors concede that further research on larger samples is needed to deliver conclusive results on the disparities in ESG influence in developing and developed countries. Do (2022) indirectly compared developing and developed countries, by contrasting the ESG-CFD relationship in countries with institutional voids to the relationship in countries with functioning institutions. The author stipulates that ESG decreases the risk of CFD and finds that this effect is more pronounced in countries with institutional voids (Do, 2022). Unfortunately, it is not apparent which countries are deemed as functional institution countries and which are labelled as countries with institutional voids, making it impossible to check whether institutional void countries serve as a proper proxy for developing countries.

There are several reasons to assume that ESG decreases the probability of CFD more in developing countries than in developed countries. ESG initiatives can potentially decrease transaction cost and improve access to resources, especially in the context of absent sufficient capital markets (Ghoul et al., 2017). Transaction costs encompass the expenses associated with negotiation, monitoring, and enforcement incurred for an exchange between two parties to take place (Jones & Hill, 1988). To mitigate such cost, specialized intermediaries or institutions have

emerged over time that secure the effective functioning markets by allowing companies and individuals "to engage in market transactions without incurring undue costs or risks" (Meyer et al., 2009: 63). Classical examples of such institutions or intermediaries are financial analysts, investment banks, legal institutions or the financial press (Ghoul et al., 2017: 362). However, in developing countries, such facilitating intermediaries or institutions are oftentimes missing or insufficient, leading to companies located in developing countries incurring relatively higher transaction cost since they cannot for example raise funds as easily due to information asymmetries (ibid). ESG measures might be one way to overcome this shortcoming by facilitating the development of close relationships with stakeholders that provide resources (e.g., capital, labour, or products) that are vital to a company's survival (Miller et al., 2013: 802). Ghoul et al. (2017) and Miller et al. (2013) both found evidence that supports the claim that transaction cost can indeed be reduced via ESG engagement and that this cost reduction is more pronounced in countries with a higher degree of void institutions (usually developing countries). Lower transaction costs imply that companies get easier access to financing, labor, and products for daily operations, which in turn should also have a positive effect on a company's stability. Thus, since the cost reduction effect is greater for companies located in developing countries, the negative effect ESG has on CFD should also be more pronounced for such companies, which brings us to our first hypothesis:

H1.1 The negative effect of ESG on CFD is more pronounced for companies in developing countries than for companies in developed countries.

Contrary to the hypothesis above, the argument could also be made that ESG effect is less amplified in developing countries than in developed countries. There are several factors unique to developing countries that might decrease the advantages ESG brings. In developed countries, consumers and investors appear to be more sensitive towards ESG issues than in developing countries (Arli & Lasmono, 2010; Ali et al., 2017). Consequently, it could be argued

that if key stakeholders such as consumers, banks, domestic investors, suppliers, etc care less about the aspect of ESG, they will not reward ESG measures undertaken by companies as much as stakeholders in developed countries do. According to this view, ESG should not be as beneficial in developing countries as it is in developed countries. The resource-based view further strengthens this argument. According to the resource-based view, companies in developed countries should have more resources at their disposal, which they can use for investments in ESG (Baughn et al., 2007). Due to this relative lack of resources, developing country companies must focus their attention on securing basic amenities of livelihood rather than on investing in or caring about societal affairs (Bhatia & Makkar, 2020). This view holds an important implication. Companies cannot focus as much on ESG (e.g., they cannot focus on buying from ESG-compliant suppliers, Banks cannot focus on giving loans to green companies, etc.), which reduces the benefits of ESG for compliant companies. Looking at the arguments above, a second hypothesis can be created:

H1.2 The positive effect of ESG on CFD is more pronounced for companies in developing countries than for companies in developed countries.

We also compare the moderating effect of DPP on the ESG-CFD relationship in developed and developing/emerging countries. Such a distinction is important to understand how the different institutional frameworks and market developments in these country development states might influence the moderating factor. This is necessary because the results in Chapter 4.3 of the Group Part show that DPP has an impact at the 10% significance level, although the robustness of the results varies depending on the model variation. This raises the question of the extent to which the impact of the DPP is consistent across different contexts, which would indicate whether the effectiveness of DPP as a moderating factor depends on the country development state in question, thus providing insights into its contextual robustness. Therefore, the following approach examines whether the influence of DPP differs between

developed and developing/emerging countries. It is hypothesised that in developing/emerging countries, where companies face heightened systematic risks and weaker institutional frameworks, DPP can serve as an important tool to attract and retain investors by compensating for the negative effects of earnings volatility and rather low liquidity (Cohen & Yagil, 2009; Kumar & Lee, 2001). By ensuring a steady return through dividends, companies signal stability and reduce investors' concerns about the risks associated with increased ESG-related financial distress. As a result, the positive moderating effect of DPP may be more pronounced in developing/emerging countries. Conversely, in developed countries, where ESG compliance is more strongly rewarded due to greater stakeholder sensitivity (Arli & Lasmono, 2010; Ali et al., 2017), the moderating effect of DPP may be less significant, as investors in these markets may prioritize ESG-related returns over dividend stability, reducing the need for such compensatory mechanisms. Thus, we propose the following hypothesis:

H2 *The positive moderating effect of DPP on the ESG-CFD relationship is stronger in developing/emerging countries compared to developed countries.*

2 Data Derivation and Empirical Methodology

In examining how a country's development state affects the magnitude and direction of the ESG impact on CFD, this analysis uses the dataset specified in Chapter 3.1 of the Group Part. The dataset is an unbalanced panel with 49,211 firm-year observations covering 5,653 unique companies from 66 countries, spanning the years 2006 to 2023 (refer to **Table 2** for descriptive statistics).

To conduct this analysis, we have subdivided the dataset discussed above into two sub-datasets. Companies have been assigned to each dataset according to the development status of the country in which the company's headquarters are located (developing vs developed country). To classify which country is developing or developed, we used the IMF classification

system (International Monetary Fund, 2024). **Tables 16** and **17** (see appendix) present further descriptive statistics regarding country, sector, and year distribution per sample.

We conduct the analysis in line with the methodology from group part 3.4, running a panel data regression model with firm and time FE for developing and developed countries separately. As done before in terms of heteroskedasticity, we performed a Breusch-Pagan test to confirm that the use of robust standard errors is appropriate. Additionally, in order to account for potential cross-sectional and serial correlations, standard errors are clustered at the firm level. Lastly, a Hausman test was used to validate that the fixed effects regression model is the most appropriate regression model.

3 Empirical Results and Robustness Testing

3.1 Summary Statistics

Table 18 presents the summary statistics for each subsample. On average, companies in developing countries tend to have lower ESG scores compared to those in developed, suggesting stronger alignment with ESG criteria in the latter. However, companies in developed countries also exhibit a lower mean Z Score, indicating a higher risk of financial distress compared to their developing country peers. Furthermore, the sample size for developed countries is significantly larger, potentially allowing for more robust statistical analysis. These findings highlight the differences in ESG performance and financial stability between countries in varying development stages, a key focus of this study.

To evaluate potential multicollinearity issues, **Table 19** (see appendix) displays the Pearson Pairwise Correlation Matrix, while **Table 20** (see appendix) reports the Variance Inflation Factor (VIF) for all variables across each subsample. The VIF values reveal that none of the variables exceed the critical threshold of 10, and most (excluding ESG Score and LEV) fall below the more conservative limit of 5 (Kutner et al., 2005; Sheather, 2009) in both samples. Additionally, the correlation matrix shows Pearson coefficients between the

independent variables used in the analysis. Nearly all correlations are below 0.39 (Evans, 1996), with none exceeding 0.5, indicating weak inter-variable relationships. These findings suggest that multicollinearity is unlikely to significantly affect the analysis of the relationship between ESG and CFD in both developed and developing countries.

Table 18: Summary Statistics – Subsample Developed Countries / Developing/Emerging Countries

Panel A: Developed Countries

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	36,385	3.54	4.10	-0.08	1.53	2.55	4.03	74.99
ESG Score	36,385	48.14	21.09	0.40	31.54	48.60	65.04	95.37
Environmental Score	36,385	43.17	28.59	0.00	17.60	44.50	67.40	99.10
Social Score	36,385	48.49	24.28	0.15	29.11	47.95	68.14	98.65
Governance Score	36,385	51.91	22.58	0.10	34.25	53.19	70.13	99.41
DIV	36,385	0.07	0.21	0.00	0.01	0.03	0.07	20.09
ROA	36,385	0.05	0.06	-0.41	0.02	0.05	0.08	0.34
VOL	36,385	4.72	8.33	0.01	0.72	2.05	4.94	95.62
MTB	36,385	2.95	3.62	0.11	1.09	1.84	3.27	34.66
SLACK	36,385	0.10	0.10	-0.02	0.03	0.07	0.13	0.96
log_SIZE	36,385	1.05	1.63	-3.37	-0.04	1.09	2.18	5.13
LEV	36,385	0.54	0.18	0.08	0.41	0.55	0.67	0.96
CAPEX	36,385	0.05	0.04	0.00	0.02	0.04	0.06	0.30

Panel B: Developing/Emerging Countries

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	12,826	5.51	8.74	-0.08	1.56	2.71	5.51	74.99
ESG Score	12,826	43.09	19.88	0.08	27.26	42.68	58.05	94.23
Environmental Score	12,826	37.80	25.56	0.00	16.05	36.46	58.32	98.88
Social Score	12,826	41.83	24.69	0.05	20.68	40.60	61.15	98.02
Governance Score	12,826	49.88	21.71	0.04	32.39	50.00	67.69	98.68
DIV	12,826	0.07	0.16	0.00	0.02	0.04	0.08	9.09
ROA	12,826	0.07	0.07	-0.22	0.03	0.05	0.10	0.34
VOL	12,826	0.98	3.37	0.01	0.09	0.24	0.71	72.59
MTB	12,826	3.47	4.31	0.11	1.09	1.99	3.98	34.66
SLACK	12,826	0.11	0.10	-0.04	0.04	0.08	0.15	0.86
log_SIZE	12,826	0.69	1.50	-3.37	-0.31	0.66	1.68	5.08
LEV	12,826	0.49	0.19	0.08	0.36	0.50	0.63	0.94
CAPEX	12,826	0.05	0.04	0.00	0.02	0.04	0.07	0.28

This table presents summary statistics for the non-dummy variables included in the analysis. The Z Score indicates financial health, with higher values corresponding to lower levels of financial distress. The table provides the mean, standard deviation, minimum, first quartile, median, third quartile, and maximum values for each variable, offering a comprehensive view of the distribution and variability within the dataset. The sample includes 49,211 firm-year observations, capturing a wide range of values from 2006 to 2023, splitted into Panel A and B for the different sub-samples.

3.2 The Effect of ESG on Corporate Financial Distress

Table 21 reports the results of the baseline regression conditioned to whether the company's headquarters are located in a developing or developed country. One can see that for both country development states, the effect of ESG on the Z Score is negative. However, the impact of ESG is less negative in developed than in developing countries, disproving the hypothesis that ESG measures in developing countries are more beneficial than in developed countries. It is

noteworthy to mention that for developed countries, the effect of ESG on CFD appears to be not significant at any conventional confidence level, while in developing countries, the effect is significant at the 5% level. Finally, the results indicate that **Hypothesis H1.1** seems to be false and that ESG has a more positive effect on CFD in developing/emerging countries.

Table 21: The Relationship between ESG and CFD – Subsample Developed Countries / Developing/Emerging Countries

Variable	Developed Countries	Developing/Emerging Countries
	(1)	(2)
ESG Score	-0.0014	-0.0133**
	(0.0020)	(0.0061)
Constant	6.8687***	10.5756***
	(0.2658)	(0.6752)
DIV	0.6418	0.7822
	(0.4594)	(0.8717)
ROA	6.5895***	7.7862***
	(0.4453)	(1.7025)
VOL	0.0291***	0.1698***
	(0.0083)	(0.0596)
MTB	0.2572***	0.7971***
	(0.0214)	(0.0792)
SLACK	4.1090***	2.4159
	(0.9375)	(1.4792)
log_SIZE	0.1590*	-0.3052
	(0.0915)	(0.1924)
LEV	-9.6050***	-16.7751***
	(0.4943)	(1.1617)
CAPEX	1.0358	3.3451
	(0.6426)	(2.2609)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	36,385	12,826
Adj. R-squared	0.4352	0.4814

This table shows the results of the linear regression of the Z Score on different ESG dimensions in two different economic cycles. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. Column (1) showcases the effect of the ESG Score on the Z Score in developed countries whereas column (2) reports the effect of the ESG Score on the Z Score in developing/emerging countries. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

3.3 The Moderating Effect of Dividend Payout Policy

When taking into account the moderating effect of DPP, the results discussed previously remain stable. **Table 22** displays the regression with the interaction term *ESG X DIV*. As displayed in the analysis above, the ESG effect on the Z Score is more positive in developed countries than in developing countries, essentially disproving **Hypothesis H1.1**. As before, the developed country coefficient is insignificant while the developing country coefficient is significant at the 5% level. The interaction term for the moderating effect of DPP is positive for

both country development states, implying that DPP moderates the relationship between ESG and the Z Score, however, neither coefficient is significant. The coefficient is higher for developing than for developed countries, indicating that the moderating effect of DPP depends on the development state of the country the company is located in. However, due to a lack of significance in column (2) **Hypothesis H2** is not supported.

Table 22: The Moderating Effect of Dividend Payout Policy – Subsample Developed Countries / Developing/Emerging Countries

Variable	Developed Countries	Developing/Emerging Countries
	(1)	(2)
ESG Score	-0.0013	-0.0133**
	(0.0021)	(0.0061)
Constant	6.8653***	10.5951***
	(0.2650)	(0.6751)
ESG x DIV	0.0476	0.0539
	(0.0315)	(0.0476)
DIV	0.6061	0.7492
	(0.4332)	(0.8553)
ROA	6.5927***	7.7815***
	(0.4448)	(1.7024)
VOL	0.0291***	0.1701***
	(0.0083)	(0.0596)
MTB	0.2573***	0.7974***
	(0.0214)	(0.0792)
SLACK	4.0969***	2.4002
	(0.9297)	(1.4771)
log_SIZE	0.1581*	-0.3146
	(0.0920)	(0.1932)
LEV	-9.5995***	-16.7958***
	(0.4938)	(1.1625)
CAPEX	1.0472	3.3575
	(0.6409)	(2.2614)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	36,385	12,826
Adj. R-squared	0.4355	0.4816

This table shows the results of the linear regression of the Z Score on different ESG dimensions in two different economic cycles with the addition of the interaction term ESG x DIV to analyse the moderating effect of DPP. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. Column (1) showcases the effect of the ESG Score on the Z Score in developed countries whereas column (2) reports the effect of the ESG Score on the Z Score in periods of developing/emerging countries. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

3.4 Robustness Check

To address potential endogeneity concerns, we applied the same measures as outlined in Chapter 4.3 of the Group Part. First, additional control variables were introduced to mitigate omitted variable bias. The results are presented in **Tables 23 and 24** (see appendix). These tables largely confirm the varying effects of ESG on CFD across different country development

stages. The direction of the effect and its significance remain consistent, even with the added control variables. As observed previously, the moderating variable *ESG x DIV* reduces the negative impact of ESG on the Z Score, but this effect is not significant for either developing or developed countries.

For the robustness check of the CFD measurement, **Table 25** (see appendix) demonstrates that the direction of the ESG effect remains consistent when using the O Score as an alternative measure for CFD. As with the Z Score, the magnitude of the positive effect ESG has on CFD is greater for developing countries than for developed countries. One difference that can be observed is that for the O Score, the coefficient for ESG is now significant at the 5% level, whereas it was insignificant for the Z Score. The direction of the moderating variable's coefficient is confirmed by **Table 26** (see appendix), but as demonstrated before, it does not reach significance regardless of the country's development stage.

The 2SLS and GMM models employed the same instrumental variables specified in Chapter 4.3 of the Group Part, with results detailed in **Tables 27 and 28** (see appendix). The coefficients for ESG in developing countries all confirm the negative relationship with the Z Score, however only the coefficient of the 2SLS model appears to be statistically significant. Thus, the robustness of the ESG-CFD relationship for developing countries is limited. For developed countries, only the GMM without DPP x ESG records some degree of statistical significance for the ESG factor (at the 5% level), while the rest all deem the effect to be insignificant, which is roughly in line with prior results. Regarding the validity of the moderating effect of DPP, the results from the 2SLS and GMM models contradict those from the initial regressions for both developing and developed countries, as the direction of the DPP effect changes as well as the significance of the coefficients. As a result, while we can somewhat reasonably address endogeneity concerns for the effect of ESG on CFD in developing countries and developed countries, we cannot make the same claim for the moderating effect of DPP. The

robustness checks indicate that the impact of DPP on the ESG-CFD relationship is subject to endogeneity concerns, preventing a reliable interpretation of DPP's effect.

4 Discussion

In this chapter we explored how the impact of ESG on CFD varies based on the development status of the country in which a company is located. Our findings suggest that ESG has a significantly stronger positive effect on CFD for companies in countries considered developing countries. As a result, we reject **Hypothesis H1.1** and accept **Hypothesis H1.2**. The results align with the view that companies in developing countries are less able to fully realize the benefits of ESG policy implementation, likely due to less rewards by key stakeholders. Stakeholders in developing countries seemingly do not have the luxury to care as much about issue of ESG as stakeholders in developed countries due to their lack of basic amenities. It seems reasonable that stakeholders first want to fulfil the threshold of securing basic livelihood before drawing their attention to matters that are not "instantly" vital to their direct survival.

Regarding the moderating influence of DPP on the ESG-CFD relationship, we noted in Chapter 4.3 of the Group Part, that while the was statistically significant at the 10% level, its reliability was somewhat dependent on the model specifications used. On further analysis, we found that the effect of DPP varied across the country development context. This variability suggests that the moderating effect of DPP on the ESG-CFD relationship may be highly sensitive to external factors that may either increase or decrease the influence of ESG on financial distress. However, the inconsistency of the results raises questions about the robustness and generalisability of this effect. Therefore, while DPP may act as a conditional moderator, the evidence does not support a consistent or universal moderating role, and its stabilising effect remains uncertain. Overall, our results suggest that companies in developing countries face more challenges in leveraging ESG investments for financial benefits compared to developed country companies, given the limited emphasis placed on ESG by key

stakeholders. In these contexts, stakeholders tend to prioritize basic needs and economic stability over ESG concerns, making it harder for companies to gain recognition or financial rewards for their sustainability efforts. This obviously raises the question of how much sense it makes for developing country companies to invest in ESG if stakeholders do not properly reward their efforts. While in the short-term financial impact of ESG investments may be more negative, ESG investments can help developing country companies mitigate long-term risks related to future regulations, legal issues, and changing consumer preferences. As awareness of ESG grows among regulators and consumers, companies already aligned with these principles are likely to have a competitive advantage over those that lag behind. However, companies in developing countries may need to adopt tailored strategies that align ESG initiatives with immediate economic needs to bridge this gap ESG rewards, to enhance the perceived value of their policies.

5 Conclusion

Our empirical findings indicate that companies located in developing countries face greater challenges in implementing ESG policies that do not compromise their financial stability. We stipulate that this mainly attributed to their limited ability to fully capture the benefits of ESG initiatives. Our study contributes a novel perspective to the existing body of literature on corporate sustainability and financial risk. While most prior research has concentrated on the broad relationship between ESG performance and financial stability, few studies have considered how specific country characteristics, especially development status, influence this dynamic. Our analysis highlights the need to account for country-specific factors when evaluating the financial impact of ESG strategies, providing fresh insights into the complex relationship between ESG and CFD.

Future research could build on this country-focused approach by exploring how the ESG-CFD relationship varies across a wider range of country attributes beyond current

development status. For example, studies might examine whether the impact differs based on factors like country-specific regulatory pressures, government incentives or exposure to environmental and social risks. By delving into the diverse characteristics of countries, future research could offer a more comprehensive understanding of the circumstances in which ESG investments are most likely to positively affect financial stability, thereby providing more targeted guidance for corporate managers and investors.

This chapter of our study is not without limitations. Beyond the constraints already discussed in Chapter 6 of the Group Part, the classification of countries into *developed* and *developing* categories, though based on established criteria from previous research, involves a degree of subjectivity. This approach could introduce bias, as perceptions of what constitutes a developing country can vary and may not fully capture the complexities across different contexts. Additionally, there are vast differences between individual developing countries when it comes to economic conditions and regulatory requirements. Thus, our results may not be completely generalizable across all developing countries. Lastly, the robustness tests indicate that our results are not entirely consistent across multiple models, particularly in terms of statistical significance and the DPP effect, suggesting that the findings should be interpreted with some caution.

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Appendix – Group Part

Figure 1: Conceptual Structure of this Study

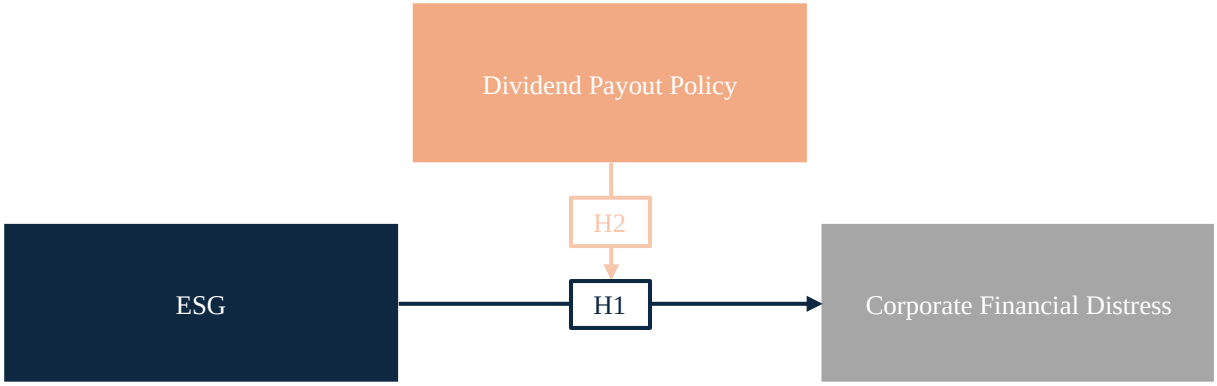

Figure 2: Overall ESG Score Composition

Illustration inspired by LSEG (2023).

Table 1: Variable Description

Variables	Abbreviation	Description	Source
Dependent Variables			
Altman Z-Score	Z Score	The Z Score essentially measures how likely it is that a firm files for bankruptcy in the next two years using a set of weighted financial ratios that are deemed as good indicators of a company's financial health (Altman, 1968). Lower scores are associated with a higher probability of default and vice versa.	Own Calculation; LSEG
Ohlson O-Score	O Score	The O Score estimates the probability that a firm will default within one year based on a weighted set of financial ratios, including liquidity, profitability and firm size (Ohlson, 1980). Higher scores indicate a greater likelihood of financial distress.	Own Calculation; LSEG
Independent Variables			
ESG Score		The ESG Score assesses a company's performance in Environmental, Social, and Governance areas, reflecting its commitment to sustainable practices and responsible management (LSEG, 2023). Higher scores suggest strong ESG practices, potentially reducing long-term financial risk and enhancing company reputation.	LSEG
Environmental Pillar Score	Environmental Score	The Environmental Score assesses a company's commitment to sustainable environmental practices by examining factors such as carbon emissions, resource use and waste management. Higher scores indicate more robust environmental stewardship, signalling reduced environmental risk (LSEG, 2023).	LSEG
Social Pillar Score	Social Score	The Social Pillar Score evaluates a company's social impact, focusing on areas like labor practices, diversity, and community relations. Higher scores reflect stronger social responsibility, suggesting positive engagement with employees, consumers, and communities (LSEG, 2023).	LSEG
Governance Pillar Score	Governance Score	The Governance Score measures the effectiveness of a company's management and board structure, as well as practices such as executive compensation and shareholder rights. Higher scores represent strong governance standards, which can improve corporate accountability. (LSEG, 2023).	LSEG
Control Variables			
Dividend Payout Ratio	DIV	Dividend payout ratio is calculated by dividing dividend payments by net sales. Firms that pay higher dividends are in general less financially constrained and should therefore exhibit a lower risk of CFD (Verwijmeren and Derwall, 2010: 959).	Own Calculation; LSEG
Financial Performance	ROA	The Return on Assets measure is utilized to evaluate a firm's financial performance. Several studies stipulate that financial performance increases a company's ability to meet debt obligations (Asyikin et al., 2018), thus we expected that better financial performance is accompanied by a lower probability of CFD.	Own Calculation; LSEG
Volatility	VOL	Defined as the standard deviation of stock price over a specified period. Investors in general believe VOL to be an indicator of risk associated with a company. Thus, we expect a positive relationship between volatility and CFD.	Own Calculation; LSEG
Market-to-Book Ratio	MTB	Sets the equity market value of a company in relation to the book value of equity. A higher market-to-book ratio indicates that the market has higher growth expectations for these firms. Hsu et al. (2015) state that such firms appear more attractive to investors, hence one would expect that these firms have easier access to financing and thus higher MTB should mitigate the risk of CFD.	Own Calculation; LSEG
Financial Slack	SLACK	The ratio of cash and cash equivalents to total assets. Companies with more cash on hand are less reliant on external financing according to the pecking order theory and therefore should take on less debt (Verwijmeren and Derwall, 2010: 959). Hence a negative relationship between Slack and CFD is expected.	Own Calculation; LSEG
Size	log_SIZE	This paper measures the size of a company using the natural logarithm of total revenue from business operations. It can be expected that size has a negative effect on the probability of CFD, as larger companies are generally more diversified and have more resources to serve their financial liabilities (Dirman, 2020: 24).	LSEG
Leverage	LEV	Compares the book value of debt to the book value of equity. Companies with more debt in general have a higher likelihood of falling into financial distress as leverage is one of the key causes of CFD (Giarto & Fachrurrozie, 2020). Thus, we expect a highly positive relationship between leverage and CFD.	Own Calculation; LSEG
Capital Expenditures	CAPEX	Measured by dividing capital expenditures for the current year by total assets. We assume that companies with higher maintenance capital expenditure requirements are more financially restrained and thus more likely to fall into financial distress.	LSEG
Additional Variables			
Market Value of Equity	log_MV Equity	The market value of equity represents the natural logarithm of the total value of a company's outstanding shares. It provides an indication of the market's perception of the company, with higher values generally indicating greater investor confidence in the company's growth potential.	LSEG
Return on Equity	ROE	ROE measures the capability of a company to generate profits from its equity. It is calculated by dividing net profit by shareholders' equity. A higher ROE indicates a more efficient use of equity to generate income and reflects higher profitability.	Own Calculation; LSEG
Current Ratio		The current ratio measures a company's ability to meet its short-term obligations with its short-term assets. It's calculated by dividing current assets by current liabilities. A higher ratio typically indicates greater liquidity, suggesting that the company is well positioned to meet its immediate obligations.	Own Calculation; LSEG
Net Loss		Net loss is a dummy variable that is set to one if a company has a negative net result in the reporting period. This may signal underlying problems in profitability or operational efficiency, indicating a greater likelihood of financial distress.	LSEG

Table 2: Sample Distribution

Panel A: Distribution by Country

#	Country	No.	Share	Z Score	ESG Score	DIV
1	Argentina	131	0.27%	2.23	39.80	0.06
2	Australia	2,170	4.41%	3.74	42.70	0.13
3	Austria	268	0.54%	2.16	53.76	0.05
4	Azerbaijan	3	0.01%	3.65	12.15	0.08
5	Bahamas	3	0.01%	1.70	28.65	0.01
6	Bahrain	19	0.04%	9.46	28.35	0.17
7	Belgium	333	0.68%	2.85	51.59	0.10
8	Bermuda	99	0.20%	1.82	39.35	0.14
9	Brazil	765	1.55%	2.47	52.79	0.07
10	Cambodia	3	0.01%	4.01	70.52	0.21
11	Canada	2,146	4.36%	2.75	42.89	0.08
12	Cayman Islands	35	0.07%	6.97	34.75	0.06
13	Chile	333	0.68%	1.86	44.92	0.08
14	China	5,152	10.47%	6.33	36.26	0.06
15	Colombia	107	0.22%	2.63	56.85	0.07
16	Cyprus	29	0.06%	1.99	28.16	0.10
17	Egypt	73	0.15%	2.65	20.57	0.08
18	France	1,244	2.53%	2.92	59.84	0.06
19	Germany	1,431	2.91%	3.09	54.03	0.04
20	Greece	167	0.34%	4.08	47.66	0.06
21	Hong Kong	1,414	2.87%	2.77	42.78	0.14
22	India	1,573	3.20%	8.87	50.08	0.04
23	Indonesia	411	0.84%	5.82	44.87	0.07
24	Israel	132	0.27%	3.13	36.80	0.07
25	Italy	544	1.11%	2.77	60.05	0.06
26	Japan	5,188	10.54%	3.90	46.51	0.03
27	Kazakhstan	17	0.03%	4.01	64.45	0.15
28	Kenya	9	0.02%	10.80	46.29	0.20
29	Kuwait	57	0.12%	2.27	38.85	0.12
30	Luxembourg	139	0.28%	2.48	51.69	0.07
31	Macau	31	0.06%	4.53	46.24	0.18
32	Malaysia	834	1.69%	5.25	44.69	0.09
33	Malta	12	0.02%	5.33	41.26	0.09
34	Mexico	354	0.72%	3.52	48.58	0.06
35	Morocco	60	0.12%	5.01	37.64	0.11
36	Netherlands	443	0.90%	2.91	60.67	0.06
37	New Zealand	425	0.86%	2.92	39.00	0.15
38	Nigeria	3	0.01%	1.44	56.98	0.08
39	Oman	20	0.04%	2.01	20.03	0.07
40	Pakistan	17	0.03%	2.91	28.92	0.08
41	Panama	10	0.02%	2.65	21.99	0.05
42	Peru	134	0.27%	2.36	40.89	0.08
43	Philippines	267	0.54%	2.23	43.41	0.07
44	Portugal	132	0.27%	1.80	62.38	0.06
45	Puerto Rico	7	0.01%	3.38	26.69	0.03
46	Qatar	88	0.18%	4.67	20.05	0.22
47	Saudi Arabia	145	0.29%	8.27	34.38	0.18
48	Singapore	605	1.23%	3.19	42.92	0.12
49	Slovenia	7	0.01%	5.88	58.68	0.09
50	South Africa	960	1.95%	3.56	50.19	0.09
51	South Korea	1,220	2.48%	3.28	47.58	0.02
52	Spain	521	1.06%	2.52	62.68	0.08
53	Sri Lanka	14	0.03%	1.81	57.08	0.02
54	Sweden	1,188	2.41%	4.86	53.76	0.09
55	Switzerland	1,004	2.04%	5.19	50.81	0.07
56	Taiwan	1,487	3.02%	3.90	45.87	0.07
57	Thailand	690	1.40%	4.14	52.40	0.11
58	Turkey	378	0.77%	5.96	56.22	0.04
59	United Arab Emirates	102	0.21%	3.42	39.16	0.12
60	United Kingdom	3,242	6.59%	3.83	51.17	0.07
61	United States of America	10,753	21.85%	3.57	46.93	0.07
62	Uruguay	14	0.03%	4.61	46.18	0.01
63	Vietnam	43	0.09%	3.29	33.45	0.04
64	Zimbabwe	6	0.01%	9.61	28.63	0.86
	Total	**49,211**	**100.00%**			

Table 2: Continued

Panel B: Distribution by Industry

#	Industry	No.	Share	Z Score	ESG Score	DIV
1	Agriculture	235	0.48%	3.07	35.55	0.06
2	Arts & Recreation	263	0.53%	4.24	39.68	0.08
3	Construction	2,558	5.20%	1.99	45.84	0.06
4	Educational Services	158	0.32%	4.05	36.26	0.06
5	Health Care	543	1.10%	4.77	43.63	0.05
6	Holdings	8	0.02%	24.84	12.34	0.61
7	Hospitality	861	1.75%	3.72	48.11	0.05
8	Information	3,649	7.42%	4.74	45.14	0.08
9	Manufacturing	21,477	43.64%	5.11	48.26	0.04
10	Mining & Extraction	2,614	5.31%	3.23	48.52	0.07
11	Other Services	156	0.32%	3.26	38.52	0.03
12	Professional Services	1,930	3.92%	4.96	48.32	0.05
13	Public Services	805	1.64%	3.94	45.54	0.04
14	Real Estate	3,788	7.70%	1.65	44.66	0.28
15	Retail Trade	2,886	5.86%	4.38	46.30	0.03
16	Transportation	2,464	5.01%	2.45	45.15	0.08
17	Utilities	3,007	6.11%	1.56	48.93	0.11
18	Wholesale	1,809	3.68%	4.24	39.83	0.02
	Total	**49,211**	**100.00%**			

Panel C: Distribution by Fiscal Year

#	Fiscal Year	No.	Share	Z Score	ESG Score	DIV
1	2006	673	1.37%	3.88	36.26	0.06
2	2007	743	1.51%	3.51	38.63	0.06
3	2008	873	1.77%	2.76	42.70	0.07
4	2009	1,338	2.72%	3.29	42.37	0.05
5	2010	1,626	3.30%	3.66	42.64	0.05
6	2011	1,859	3.78%	3.26	42.98	0.06
7	2012	2,005	4.07%	3.45	43.39	0.06
8	2013	2,102	4.27%	3.55	43.91	0.06
9	2014	2,202	4.47%	3.54	44.26	0.06
10	2015	2,349	4.77%	3.43	44.84	0.07
11	2016	2,639	5.36%	3.42	45.50	0.07
12	2017	3,043	6.18%	3.89	45.69	0.07
13	2018	3,497	7.11%	3.66	46.44	0.08
14	2019	4,078	8.29%	4.20	47.01	0.08
15	2020	4,612	9.37%	5.15	47.67	0.07
16	2021	5,189	10.54%	5.42	48.60	0.07
17	2022	5,230	10.63%	4.17	51.14	0.08
18	2023	5,153	10.47%	4.04	52.98	0.08
	Total	**49,211**	**100.00%**			

The table presents the distribution and average values of Z Scores and ESG scores, along with the average value of DIV across various countries, industries and fiscal years.

Table 3: Summary Statistics

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	49,211	4.06	5.75	-0.08	1.54	2.58	4.30	74.99
ESG Score	49,211	46.82	20.90	0.08	30.24	46.94	63.29	95.37
Environmental Score	49,211	41.77	27.93	0.00	17.06	42.27	65.06	99.10
Social Score	49,211	46.75	24.56	0.05	26.98	46.05	66.51	98.65
Governance Score	49,211	51.38	22.37	0.04	33.70	52.31	69.50	99.41
DIV	49,211	0.07	0.20	0.00	0.01	0.03	0.07	20.09
ROA	49,211	0.06	0.06	-0.41	0.02	0.05	0.08	0.34
VOL	49,211	3.74	7.55	0.01	0.32	1.30	3.77	95.62
MTB	49,211	3.09	3.82	0.11	1.09	1.87	3.43	34.66
SLACK	49,211	0.10	0.10	-0.04	0.03	0.07	0.14	0.96
log_SIZE	49,211	0.96	1.61	-3.37	-0.12	0.98	2.05	5.13
LEV	49,211	0.52	0.19	0.08	0.40	0.53	0.66	0.96
CAPEX	49,211	0.05	0.04	0.00	0.02	0.04	0.07	0.30

This table presents summary statistics for the non-dummy variables included in the analysis. The Z Score indicates financial health, with higher values corresponding to lower levels of financial distress. The table provides the mean, standard deviation, minimum, first quartile, median, third quartile, and maximum values for each variable, offering a comprehensive view of the distribution and variability within the dataset. The sample includes 51,022 firm-year observations, capturing a wide range of values from 2006 to 2023.

Table 4: Pearson Pairwise Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ESG Score	1.00***											
(2) Environmental Score	0.87***	1.00***										
(3) Social Score	0.91***	0.75***	1.00***									
(4) Governance Score	0.66***	0.37***	0.42***	1.00***								
(5) DIV	-0.03***	-0.03***	-0.01*	-0.02***	1.00***							
(6) ROA	-0.03***	-0.06***	-0.01**	-0.01**	0.05***	1.00***						
(7) VOL	0.07***	0.06***	0.09***	0.01	-0.02***	0.10***	1.00***					
(8) MTB	0.02***	-0.03***	0.04***	0.03***	0.00	0.40***	0.20***	1.00***				
(9) SLACK	-0.08***	-0.08***	-0.09***	-0.06***	-0.04***	0.23***	0.00	0.16***	1.00***			
(10) log_SIZE	0.43***	0.45***	0.36***	0.24***	-0.22***	-0.03***	0.11***	-0.04***	-0.08***	1.00***		
(11) LEV	0.18***	0.17***	0.18***	0.10***	-0.13***	-0.29***	0.04***	0.13***	-0.25***	0.39***	1.00***	
(12) CAPEX	-0.03***	-0.03***	-0.03***	0.01***	0.03***	0.09***	-0.00	0.04***	-0.12***	-0.02***	-0.02***	1.00***

This table displays the Pearson Pairwise Correlation coefficients between the ESG Score, its individual Environmental, Social, and Governance components, and various financial control variables. The significance levels are indicated by *, *, and *** for the 10%, 5%, and 1% levels, respectively.

Table 5: Variance Inflation Factors

Variables	VIF	Tolerance (1/VIF)
ESG Score	5.80	0.17
DIV	1.19	0.84
PERF	2.26	0.44
VOL	1.31	0.76
MTB	2.23	0.45
SLACK	1.92	0.52
log_SIZE	1.85	0.54
LEV	6.00	0.17
CAPEX	2.29	0.44

This table presents the Variance Inflation Factors (VIF) and Tolerance (1/VIF) values for each variable included in the analysis, assessing multicollinearity within the regression model. VIF values exceeding 10 suggest potential multicollinearity concerns. The Tolerance value, which is the inverse of VIF, indicates the proportion of variance in each predictor not explained by the other variables.

Table 6: The Relationship between ESG and CFD

Variable	(1)	(2)	(3)	(4)
Constant	8.3816***	8.2702***	8.2634***	8.2592***
	(0.2735)	(0.2597)	(0.2712)	(0.2612)
ESG Score	-0.0064***			
	(0.0022)			
Environmental Score		-0.0045***		
		(0.0016)		
Social Score			-0.0036**	
			(0.0017)	
Governance Score				-0.0033**
				(0.0013)
DIV	0.6164	0.6189	0.6136	0.6137
	(0.4166)	(0.4162)	(0.4163)	(0.4169)
ROA	6.6533***	6.6561***	6.6904***	6.6949***
	(0.5105)	(0.5102)	(0.5117)	(0.5105)
VOL	0.0142*	0.0141*	0.0142*	0.0144*
	(0.0083)	(0.0083)	(0.0083)	(0.0083)
MTB	0.4332***	0.4335***	0.4334***	0.4335***
	(0.0292)	(0.0292)	(0.0292)	(0.0292)
SLACK	3.2475***	3.2424***	3.2546***	3.2478***
	(0.8113)	(0.8110)	(0.8114)	(0.8120)
log_SIZE	0.0957	0.0966	0.0816	0.0761
	(0.0826)	(0.0827)	(0.0820)	(0.0832)
LEV	-12.0021***	-11.9971***	-12.0060***	-11.9908***
	(0.4882)	(0.4881)	(0.4886)	(0.4885)
CAPEX	0.9965	0.9526	1.0272	1.0016
	(0.7818)	(0.7826)	(0.7833)	(0.7819)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.4186	0.4188	0.4188	0.4182

This table shows the results of the entity and year fixed effects PanelOLS of the Z Score on different ESG dimensions. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. (1) showcases the effect of the overall ESG score on the Z Score whereas (2) - (4) depict the effect of the enviromental, social and governances subpillars respectivly. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Table 7: The Moderating Effect of Dividend Payout Policy

Variable	(1)	(2)	(3)	(4)
Constant	8.3838***	8.2710***	8.2602***	8.2662***
	(0.2729)	(0.2597)	(0.2710)	(0.2606)
ESG Score	-0.0063***			
	(0.0022)			
Environmental Score		-0.0045***		
		(0.0016)		
Social Score			-0.0036**	
			(0.0017)	
Governance Score				-0.0032**
				(0.0013)
ESG x DIV	0.0453*			
	(0.0274)			
E x DIV		0.0099		
		(0.0131)		
S x DIV			0.0307	
			(0.0231)	
G x DIV				0.0224
				(0.0175)
DIV	0.5831	0.6073	0.6349	0.5557
	(0.3932)	(0.4143)	(0.4190)	(0.3995)
ROA	6.6547***	6.6590***	6.6822***	6.6971***
	(0.5102)	(0.5100)	(0.5121)	(0.5100)
VOL	0.0142*	0.0141*	0.0142*	0.0144*
	(0.0083)	(0.0083)	(0.0083)	(0.0083)
MTB	0.4334***	0.4335***	0.4334***	0.4337***
	(0.0292)	(0.0292)	(0.0292)	(0.0292)
SLACK	3.2345***	3.2337***	3.2537***	3.2521***
	(0.8051)	(0.8099)	(0.8093)	(0.8097)
log_SIZE	0.0929	0.0958	0.0828	0.0721
	(0.0832)	(0.0828)	(0.0819)	(0.0836)
LEV	-12.0020***	-11.9969***	-12.0022***	-11.9951***
	(0.4881)	(0.4881)	(0.4884)	(0.4884)
CAPEX	1.0064	0.9555	1.0177	1.0192
	(0.7811)	(0.7823)	(0.7837)	(0.7817)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.1942	0.1942	0.1942	0.1942

This table shows the results of the entity and year fixed effects PanelOLS of the Z Score on different ESG dimensions with the addition of the interaction term ESG x DIV to investigate the effect of DPP on this relationship. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. (1) showcases the effect of the overall ESG score on the Z Score whereas (2) - (4) depict the effect of the enviromental, social and governances subpillars respectivly. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Table 8: The Relationship between ESG and CFD using Additional Control Variables

Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.9209***	7.7623***	8.1591***	8.2072***
	(0.2906)	(0.2701)	(0.3621)	(0.2726)
ESG Score	-0.0067***	-0.0061***	-0.0065***	-0.0064***
	(0.0022)	(0.0022)	(0.0022)	(0.0022)
DIV	0.2757	0.6562	0.5723	0.6240
	(0.4199)	(0.4153)	(0.3589)	(0.4181)
ROA	4.6548***	15.6889***	6.7181***	9.0232***
	(0.5358)	(1.1310)	(0.5119)	(0.6258)
VOL	-0.0122	0.0136*	0.0141*	0.0143*
	(0.0089)	(0.0082)	(0.0083)	(0.0083)
MTB	0.3445***	0.4576***	0.4328***	0.4275***
	(0.0286)	(0.0300)	(0.0292)	(0.0291)
SLACK	3.3550***	3.1032***	2.7937***	3.1081***
	(0.8041)	(0.8130)	(0.7635)	(0.8110)
log_SIZE	-0.6032***	0.0954	0.1207	0.1133
	(0.1147)	(0.0825)	(0.0800)	(0.0822)
LEV	-10.1548***	-11.0327***	-11.7928***	-12.0313***
	(0.5011)	(0.4619)	(0.5263)	(0.4872)
CAPEX	-0.0791	1.0178	1.1335	1.0485
	(0.7807)	(0.7824)	(0.7859)	(0.7813)
Additional Control Variable	1.3015***	-3.8136***	0.0703	0.6970***
	(0.1283)	(0.4459)	(0.0739)	(0.0575)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.4020	0.4331	0.4260	0.4214

This table presents entity and year fixed PanelOLS regression results assessing the robustness of the relationship between ESG Score and CFD by introducing additional control variables. Standard errors, clustered and heteroskedasticity-robust, are shown in parentheses. Statistical significance at the 10%, 5%, and 1% levels is marked by *, **, and ***, respectively.

Table 9: The Moderating Effect of Dividend Payout Policy using Additional Control Variables

Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.9225***	7.7649***	8.1622***	8.2093***
	(0.2899)	(0.2695)	(0.3605)	(0.2720)
ESG Score	-0.0066***	-0.0060***	-0.0064***	-0.0063***
	(0.0022)	(0.0022)	(0.0022)	(0.0022)
ESG x DIV	0.0481*	0.0442*	0.0411*	0.0460*
	(0.0298)	(0.0274)	(0.0257)	(0.0275)
DIV	0.2402	0.6237	0.5424	0.5902
	(0.3979)	(0.3931)	(0.3417)	(0.3947)
PERF	4.6551***	15.6851***	6.7190***	9.0271***
	(0.5357)	(1.1310)	(0.5117)	(0.6257)
VOL	-0.0122	0.0136*	0.0141*	0.0143*
	(0.0089)	(0.0082)	(0.0083)	(0.0083)
MTB	0.3446***	0.4577***	0.4330***	0.4276***
	(0.0286)	(0.0300)	(0.0292)	(0.0291)
SLACK	3.3412***	3.0906***	2.7841***	3.0948***
	(0.7973)	(0.8070)	(0.7601)	(0.8046)
log_SIZE	-0.6065***	0.0927	0.1180	0.1105
	(0.1154)	(0.0831)	(0.0804)	(0.0828)
LEV	-10.1537***	-11.0331***	-11.7937***	-12.0311***
	(0.5007)	(0.4618)	(0.5257)	(0.4871)
CAPEX	-0.0692	1.0275	1.1418	1.0586
	(0.7801)	(0.7817)	(0.7854)	(0.7805)
Additional Control Variable	1.3022***	-3.8114***	0.0699	0.6977***
	(0.1283)	(0.4459)	(0.0737)	(0.0575)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	49,211	49,211	49,211	49,211
Adj. R-squared	0.4023	0.4332	0.4261	0.4216

This table presents entity and year fixed PanelOLS regression results assessing the robustness of the relationship between ESG Score and CFD by introducing additional control variables with the addition of the interaction term ESG x DIV to investigate the effect of DPP on this relationship. Standard errors, clustered and heteroskedasticity-robust, are shown in parentheses. Statistical significance at the 10%, 5%, and 1% levels is marked by *, **, and ***, respectively.

Table 10: The Relationship between ESG and CFD using O Score as an Alternative Proxy

Variable	O Score
Constant	-0.8698***
	(0.0322)
ESG Score	0.0007***
	(0.0002)
DIV	-0.0109
	(0.0522)
ROA	-6.9789***
	(0.0946)
VOL	0.0012**
	(0.0005)
MTB	-0.0022
	(0.0015)
SLACK	-1.8014***
	(0.0673)
log_SIZE	-0.1340***
	(0.0113)
LEV	7.2817***
	(0.0511)
CAPEX	0.7652***
	(0.1069)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	49,211
Adj. R-squared	0.8204

This table reports robustness checks on the relationship between ESG Score and Z Score, using O Score as an alternative proxies. A higher value correspond to an elevated level of financial distress risk. Entity and time fixed effects are included. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Table 11: The Moderating Effect of Dividend Payout Policy using O Score as an Alternative Proxy

Variable	O Score
Constant	-0.8703***
	(0.0322)
ESG Score	0.0007***
	(0.0002)
ESG x DIV	-0.0109*
	(0.0067)
DIV	-0.0029
	(0.0478)
ROA	-6.9792***
	(0.0946)
VOL	0.0012**
	(0.0005)
MTB	-0.0022
	(0.0015)
SLACK	-1.7983***
	(0.0671)
log_SIZE	-0.1333***
	(0.0114)
LEV	7.2816***
	(0.0511)
CAPEX	0.7628***
	(0.1067)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	49,211
Adj. R-squared	0.8205

This table reports robustness checks on the relationship between ESG Score and Z Score along with the interaction term ESG x DIV, using O Score as an alternative proxies. A higher value correspond to an elevated level of financial distress risk. Entity and time fixed effects are included. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Table 12: The Relationship between ESG and CFD using 2SLS and GMM

Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	3.6569	9.8573***	8.1727***
	(3.6911)	(0.6404)	(0.2702)
Industry_Mean_ESG	0.4653***		
	(0.0745)		
Country_Mean_ESG	0.3918***		
	(0.0284)		
ESG Score		-0.0399***	-0.0053**
		(0.0127)	(0.0022)
DIV	0.4483	0.6357	-1.5309**
	(0.6484)	(0.4158)	(0.6902)
ROA	-10.9656***	6.2663***	11.5681***
	(1.4975)	(0.5428)	(1.0062)
VOL	0.0188	0.0135	0.0050
	(0.0191)	(0.0084)	(0.0074)
MTB	-0.0534	0.4305***	0.6587***
	(0.0366)	(0.0291)	(0.0343)
SLACK	-0.4993	3.2358***	5.8668***
	(1.3754)	(0.8101)	(0.6788)
log_SIZE	4.3545***	0.2472**	0.0213
	(0.3207)	(0.1087)	(0.0374)
LEV	-0.6915	-12.0315***	-13.3699***
	(1.2454)	(0.4898)	(0.4250)
CAPEX	-0.7221	0.9494	-0.8850
	(2.7099)	(0.7803)	(0.8985)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	49,211	49,211	37,903
R^2	0.0537	0.1943	0.4497
Sargan Test (p-value)		0.3981	
Hansen-J Test (p-value)			0.3650

This table presents robustness checks for the relationship between ESG Score and CFD, addressing potential endogeneity concerns by employing Two-Stage Least Squares (2SLS) and Generalized Method of Moments (GMM) regressions. In the 2SLS approach, the first stage (1) regresses ESG on its country and industry mean values (usage as Instrumental Variables). Subsequently, the coefficients are then used to compute an instrumental ESG Score.The second stage (2) then estimates the effect of the instrumental ESG Score on CFD. In the GMM model (3), the one and two-time lagged ESG Scores are used as instrumental variables. Due to the usage of lagged ESG Scores as instrumental variables, only entity fixed effects are applied across the GMM. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

Table 13: The Moderating Effect of Dividend Payout Policy using 2SLS and GMM

Variable	2SLS	2SLS	GMM
	(1) First Stage ESG	(2) Second Stage	(3)
Constant	3.6569	9.6016***	8.1750***
	(3.6911)	(0.6714)	(0.2705)
Industry_Mean_ESG	0.4653***		
	(0.0745)		
Country_Mean_ESG	0.3918***		
	(0.0284)		
ESG Score		-0.0293**	-0.0053**
		(0.0123)	(0.0022)
ESG x DIV		0.1814***	-0.0198
		(0.0249)	(0.0612)
DIV	0.4483	0.6726	-1.5528**
	(0.6484)	(0.4123)	(0.6677)
ROA	-10.9656***	6.9192***	11.5761***
	(1.4975)	(0.5458)	(1.0052)
VOL	0.0188	0.0178**	0.0050
	(0.0191)	(0.0084)	(0.0074)
MTB	-0.0534	0.4464***	0.6586***
	(0.0366)	(0.0295)	(0.0343)
SLACK	-0.4993	3.7648***	5.8637***
	(1.3754)	(0.8280)	(0.6820)
log_SIZE	4.3545***	-0.1808	0.0207
	(0.3207)	(0.1307)	(0.0370)
LEV	-0.6915	-12.8590***	-13.3700***
	(1.2454)	(0.5279)	(0.4251)
CAPEX	-0.7221	1.3107*	-0.8881
	(2.7099)	(0.7782)	(0.8985)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	49,211	49,211	37,903
R^2	0.0537	0.4275	0.4496
Sargan Test (p-value)		0.1282	
Hansen-J Test (p-value)			0.8365

This table presents robustness checks for the relationship between ESG Score and CFD along with the interaction term ESG x DIV, addressing potential endogeneity concerns by employing Two-Stage Least Squares (2SLS) and Generalized Method of Moments (GMM) regressions. In the 2SLS approach, the first stage (1) regresses ESG on its country and industry mean values (usage as Instrumental Variables). Subsequently, the coefficients are then used to compute an instrumental ESG Score. The second stage (2) then estimates the effect of the instrumental ESG Score and interaction term ESG x DIV on CFD. In the GMM model (3), the one and two-time lagged ESG Scores are used as instrumental variables. Due to the usage of lagged ESG Scores as instrumental variables, only entity fixed effects are applied across the models. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

Table 14: Discrepancy Analysis against Previous Research

Variable	(1) Australia	(2) Canada	(3) China	(4) Malaysia	(5) South Korea	(6) USA
Constant	7.0926***	5.2752***	11.3095***	8.2096***	4.2023***	6.9708***
	(0.6939)	(0.6611)	(1.3106)	(1.5254)	(0.5005)	(0.4700)
ESG Score	-0.0046	0.0035	0.0054	-0.0149	0.0041	-0.0030
	(0.0058)	(0.0125)	(0.0117)	(0.0148)	(0.0053)	(0.0033)
DIV	-0.8605	1.5761	-0.7340	6.4354***	10.2914***	2.0421**
	(0.7471)	(1.8698)	(0.8715)	(0.4381)	(2.6467)	(0.9834)
ROA	8.4706***	6.5433***	2.0019	13.0379	4.9188***	7.5332***
	(1.2819)	(1.5202)	(3.0476)	(8.1570)	(1.5360)	(0.6139)
VOL	0.0837	0.0159	0.6401**	0.8581	0.0042	0.0156***
	(0.0698)	(0.0193)	(0.2739)	(0.8058)	(0.0072)	(0.0051)
MTB	0.2357***	0.2894***	1.3655***	0.2640	0.7173***	0.1426***
	(0.0591)	(0.0873)	(0.1405)	(0.1869)	(0.1621)	(0.0150)
SLACK	5.0477**	4.6825**	3.1015	-0.1009	3.0818**	5.1237**
	(2.0638)	(2.1718)	(2.2752)	(2.1299)	(1.3172)	(2.0026)
log_SIZE	-0.0623	0.2990	-0.3761	-0.3095	0.2273	-0.2114
	(0.2116)	(0.2154)	(0.3819)	(0.8321)	(0.2365)	(0.2419)
LEV	-10.3047***	-7.8171***	-22.0866***	-11.2487***	-6.9491***	-8.2643***
	(1.1878)	(1.7799)	(2.2955)	(2.9174)	(1.1218)	(0.5685)
CAPEX	0.0056	-1.4150	2.1014	1.6258	0.5628	3.8968***
	(1.6436)	(2.6857)	(3.9947)	(6.0065)	(2.1633)	(0.9417)
Entity Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,170	2,146	5,152	834	1,220	10,753
R^2	0.4558	0.3146	0.5723	0.3728	0.6707	0.4027
Effect Direction of Prior Research	Positive	Positive	Positive	Negative	Positive	Positive
Confirmation	No	Yes	Yes	Yes	Yes	No

This table presents the results of the entity and year fixed-effects PanelOLS regressions analyzing the Z Score to examine the impact of ESG on CFD across six country-specific subsamples: (1) Australia, (2) Canada, (3) China, (4) South Korea, (5) Malaysia, and the (6) USA. The bottom two rows provide a comparison with the results of previous studies for each country. The first row indicates the direction of the ESG effect on CFD in previous literature. The second row indicates whether our results are consistent with previous findings. A positive coefficient signifies a higher Z Score, which indicates a reduced risk of financial distress. Values in parentheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance levels are denoted by *, **, and *** for 10%, 5%, and 1%, respectively.

Table 15: Replication Analysis of Previous Research

Variable	(1) Al-Hadi et al. (2019)	(2) Habib (2023)	(3) Habermann & Fischer (2023)	(4) Cooper & Uzun (2019)	(5) Badayi et al. (2021)	(6) Gangi et al. (2020)
Constant	5.4800***	6.9470***	7.2953***	5.7158***	8.1146***	6.8796***
	(0.8254)	(0.8473)	(0.6063)	(0.5220)	(0.8530)	(0.3942)
ESG Score	0.0088	0.0071	-0.0058	-0.0020	0.0036	0.0031
	(0.0087)	(0.0091)	(0.0041)	(0.0034)	(0.0045)	(0.0023)
DIV	-0.8163	3.3882	-0.2515	1.0765	0.9934	1.1306**
	(1.2581)	(2.2741)	(0.1952)	(0.7317)	(1.0329)	(0.5520)
ROA	9.5861***	4.1015***	7.4223***	4.7068***	11.1206***	7.5523***
	(2.0231)	(1.1194)	(0.9126)	(0.8419)	(1.8244)	(0.8037)
VOL	0.0400	0.0030	0.0020	0.0301*	0.0139	0.0100
	(0.0602)	(0.0094)	(0.0072)	(0.0165)	(0.0260)	(0.0068)
MTB	0.2839***	0.1325***	0.1453***	0.1456***	0.3039***	0.2581***
	(0.0798)	(0.0393)	(0.0185)	(0.0266)	(0.0475)	(0.0227)
SLACK	7.4423**	2.3200*	3.2094**	2.3285***	0.5891	3.4667***
	(3.2229)	(1.2374)	(1.4770)	(0.8634)	(1.1958)	(0.7103)
log_SIZE	-0.3536	0.2896	0.0610	0.3711***	-0.0342	0.1647
	(0.3581)	(0.3788)	(0.1809)	(0.1237)	(0.2059)	(0.1589)
LEV	-8.7412***	-9.2724***	-8.5212***	-7.2950***	-11.9223***	-10.0992***
	(1.8705)	(0.9027)	(0.6528)	(1.0201)	(1.4880)	(0.6132)
CAPEX	3.0533	4.4658**	3.6564**	5.9310***	-0.1419	0.8807
	(1.9012)	(2.2357)	(1.5434)	(1.8821)	(1.1533)	(0.7674)
Entity Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	511	4,242	5,793	2,878	3,572	12,143
R^2	0.5934	0.3356	0.5241	0.4827	0.5674	0.6207
Effect Direction of Specified Paper	Positive	Positive	Negative	Positive	Positive	Positive
Confirmation	Yes	Yes	Yes	No	Yes	Yes

This table presents an overview of our attempts to replicate the findings of previous studies that examined the ESG-CFD relationship for Australia (column (1)), the USA (column (2) to (4)), as well as worldwide (column (5) and (6)), focusing on the specific time periods and country samples used in these studies. The bottom rows summarize whether the coefficient direction of ESG on CFD in our replication aligns with the results reported in the original studies. The first row indicates the direction of the ESG effect on CFD in the specific paper. The second row indicates whether our results are consistent with the findings of the specific paper. A positive coefficient signifies a higher Z Score, which indicates a reduced risk of financial distress. Values in parentheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance levels are denoted by *, **, and *** for 10%, 5%, and 1%, respectively.

Appendix – Single Part

Table 16: Sample Distribution – Developed Countries

Panel A: Distribution by Country

#	Country	No.	Share	Z Score	ESG Score	DIV
1	Australia	2,170	5.96%	3.74	42.70	0.13
2	Austria	268	0.74%	2.16	53.76	0.05
3	Belgium	333	0.92%	2.85	51.59	0.10
4	Bermuda	99	0.27%	1.82	39.35	0.14
5	Canada	2,146	5.90%	2.75	42.89	0.08
6	Cayman Islands	35	0.10%	6.97	34.75	0.06
7	Cyprus	29	0.08%	1.99	28.16	0.10
8	France	1,244	3.42%	2.92	59.84	0.06
9	Germany	1,431	3.93%	3.09	54.03	0.04
10	Greece	167	0.46%	4.08	47.66	0.06
11	Hong Kong	1,414	3.89%	2.77	42.78	0.14
12	Israel	132	0.36%	3.13	36.80	0.07
13	Italy	544	1.50%	2.77	60.05	0.06
14	Japan	5,188	14.26%	3.90	46.51	0.03
15	Luxembourg	139	0.38%	2.48	51.69	0.07
16	Malta	12	0.03%	5.33	41.26	0.09
17	Netherlands	443	1.22%	2.91	60.67	0.06
18	New Zealand	425	1.17%	2.92	39.00	0.15
19	Portugal	132	0.36%	1.80	62.38	0.06
20	Puerto Rico	7	0.02%	3.38	26.69	0.03
21	Singapore	605	1.66%	3.19	42.92	0.12
22	Slovenia	7	0.02%	5.88	58.68	0.09
23	South Korea	1,220	3.35%	3.28	47.58	0.02
24	Spain	521	1.43%	2.52	62.68	0.08
25	Sweden	1,188	3.27%	4.86	53.76	0.09
26	Switzerland	1,004	2.76%	5.19	50.81	0.07
27	Taiwan	1,487	4.09%	3.90	45.87	0.07
28	United Kingdom	3,242	8.91%	3.83	51.17	0.07
29	United States of America	10,753	29.55%	3.57	46.93	0.07
	Total	**36,385**	**100.00%**			

Panel B: Distribution by Industry

#	Industry	No.	Share	Z Score	ESG Score	DIV
1	Agriculture	119	0.33%	3.22	37.20	0.06
2	Arts & Recreation	233	0.64%	3.82	41.11	0.08
3	Construction	1,549	4.26%	2.24	48.34	0.05
4	Educational Services	95	0.26%	3.94	35.11	0.05
5	Health Care	380	1.04%	3.24	42.66	0.05
6	Hospitality	608	1.67%	3.20	49.11	0.05
7	Information	2,670	7.34%	4.21	46.33	0.07
8	Manufacturing	15,542	42.72%	4.24	50.59	0.04
9	Mining & Extraction	1,841	5.06%	3.11	47.84	0.07
10	Other Services	156	0.43%	3.26	38.52	0.03
11	Professional Services	1,524	4.19%	4.19	47.46	0.05
12	Public Services	741	2.04%	3.77	46.29	0.03
13	Real Estate	3,407	9.36%	1.62	45.43	0.28
14	Retail Trade	2,182	6.00%	4.26	46.96	0.03
15	Transportation	1,822	5.01%	2.34	45.01	0.07
16	Utilities	2,113	5.81%	1.49	50.98	0.10
17	Wholesale	1,403	3.86%	4.12	39.55	0.02
	Total	**36,385**	**100.00%**			

Table 16: Continued

Panel C: Distribution by Fiscal Year

#	Fiscal Year	No.	Share	Z Score	ESG Score	DIV
1	2006	668	1.84%	3.83	36.24	0.06
2	2007	725	1.99%	3.42	38.56	0.07
3	2008	808	2.22%	2.69	43.09	0.06
4	2009	1,188	3.27%	3.15	43.15	0.05
5	2010	1,384	3.80%	3.45	43.82	0.05
6	2011	1,515	4.16%	3.12	44.43	0.05
7	2012	1,601	4.40%	3.29	44.59	0.06
8	2013	1,670	4.59%	3.47	45.07	0.05
9	2014	1,737	4.77%	3.44	45.43	0.06
10	2015	1,860	5.11%	3.39	45.84	0.07
11	2016	2,124	5.84%	3.40	45.95	0.07
12	2017	2,362	6.49%	3.77	46.83	0.07
13	2018	2,680	7.37%	3.51	47.62	0.08
14	2019	2,936	8.07%	3.66	49.22	0.08
15	2020	3,183	8.75%	3.95	50.33	0.07
16	2021	3,307	9.09%	4.05	51.93	0.08
17	2022	3,339	9.18%	3.41	53.89	0.09
18	2023	3,298	9.06%	3.48	55.25	0.08
	Total	**36,385**	**100.00%**			

The table presents the distribution and average values of Z Scores and ESG Scores, along with the average value of DIV across various countries, industries and fiscal years.

Table 17: Sample Distribution – Developing Countries

Panel A: Distribution by Country

#	Country	No.	Share	Z Score	ESG Score	DIV
1	Argentina	131	1.02%	2.23	39.80	0.06
2	Azerbaijan	3	0.02%	3.65	12.15	0.08
3	Bahamas	3	0.02%	1.70	28.65	0.01
4	Bahrain	19	0.15%	9.46	28.35	0.17
5	Brazil	765	5.96%	2.47	52.79	0.07
6	Cambodia	3	0.02%	4.01	70.52	0.21
7	Chile	333	2.60%	1.86	44.92	0.08
8	China	5,152	40.17%	6.33	36.26	0.06
9	Colombia	107	0.83%	2.63	56.85	0.07
10	Egypt	73	0.57%	2.65	20.57	0.08
11	India	1,573	12.26%	8.87	50.08	0.04
12	Indonesia	411	3.20%	5.82	44.87	0.07
13	Kazakhstan	17	0.13%	4.01	64.45	0.15
14	Kenya	9	0.07%	10.80	46.29	0.20
15	Kuwait	57	0.44%	2.27	38.85	0.12
16	Macau	31	0.24%	4.53	46.24	0.18
17	Malaysia	834	6.50%	5.25	44.69	0.09
18	Mexico	354	2.76%	3.52	48.58	0.06
19	Morocco	60	0.47%	5.01	37.64	0.11
20	Nigeria	3	0.02%	1.44	56.98	0.08
21	Oman	20	0.16%	2.01	20.03	0.07
22	Pakistan	17	0.13%	2.91	28.92	0.08
23	Panama	10	0.08%	2.65	21.99	0.05
24	Peru	134	1.04%	2.36	40.89	0.08
25	Philippines	267	2.08%	2.23	43.41	0.07
26	Qatar	88	0.69%	4.67	20.05	0.22
27	Saudi Arabia	145	1.13%	8.27	34.38	0.18
28	South Africa	960	7.48%	3.56	50.19	0.09
29	Sri Lanka	14	0.11%	1.81	57.08	0.02
30	Thailand	690	5.38%	4.14	52.40	0.11
31	Turkey	378	2.95%	5.96	56.22	0.04
32	United Arab Emirates	102	0.80%	3.42	39.16	0.12
33	Uruguay	14	0.11%	4.61	46.18	0.01
34	Vietnam	43	0.34%	3.29	33.45	0.04
35	Zimbabwe	6	0.05%	9.61	28.63	0.86
	Total	**12,826**	**100.00%**			

Panel B: Distribution by Industry

#	Industry	No.	Share	Z Score	ESG Score	DIV
1	Agriculture	116	0.90%	2.90	33.85	0.06
2	Arts & Recreation	30	0.23%	7.52	28.55	0.08
3	Construction	1,009	7.87%	1.60	42.00	0.07
4	Educational Services	63	0.49%	4.23	37.99	0.07
5	Health Care	163	1.27%	8.33	45.91	0.06
6	Holdings	8	0.06%	24.84	12.34	0.61
7	Hospitality	253	1.97%	4.96	45.72	0.06
8	Information	979	7.63%	6.19	41.88	0.10
9	Manufacturing	5,935	46.27%	7.37	42.15	0.06
10	Mining & Extraction	773	6.03%	3.49	50.14	0.09
11	Professional Services	406	3.17%	7.87	51.57	0.05
12	Public Services	64	0.50%	5.90	36.82	0.09
13	Real Estate	381	2.97%	1.84	37.74	0.25
14	Retail Trade	704	5.49%	4.77	44.25	0.03
15	Transportation	642	5.01%	2.78	45.56	0.10
16	Utilities	894	6.97%	1.73	44.08	0.12
17	Wholesale	406	3.17%	4.65	40.80	0.03
	Total	**12,826**	**100.00%**			

Table 17: Continued

Panel C: Distribution by Fiscal Year

#	Fiscal Year	No.	Share	Z Score	ESG Score	DIV
1	2006	5	0.04%	11.29	37.96	0.06
2	2007	18	0.14%	7.26	41.39	0.04
3	2008	65	0.51%	3.62	37.91	0.08
4	2009	150	1.17%	4.35	36.20	0.08
5	2010	242	1.89%	4.86	35.92	0.07
6	2011	344	2.68%	3.87	36.58	0.07
7	2012	404	3.15%	4.06	38.61	0.07
8	2013	432	3.37%	3.83	39.44	0.08
9	2014	465	3.63%	3.91	39.90	0.08
10	2015	489	3.81%	3.56	41.01	0.08
11	2016	515	4.02%	3.50	43.64	0.08
12	2017	681	5.31%	4.33	41.72	0.08
13	2018	817	6.37%	4.14	42.58	0.08
14	2019	1,142	8.90%	5.58	41.34	0.07
15	2020	1,429	11.14%	7.80	41.74	0.07
16	2021	1,882	14.67%	7.83	42.74	0.07
17	2022	1,891	14.74%	5.53	46.30	0.07
18	2023	1,855	14.46%	5.03	48.95	0.07
	Total	**12,826**	**100.00%**			

The table presents the distribution and average values of Z Scores and ESG Scores, along with the average value of DIV across various countries, industries and fiscal years.

Table 18: Summary Statistics – Developed Countries / Developing Countries

Panel A: Developed Countries

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	36,385	3.54	4.10	-0.08	1.53	2.55	4.03	74.99
ESG Score	36,385	48.14	21.09	0.40	31.54	48.60	65.04	95.37
Environmental Score	36,385	43.17	28.59	0.00	17.60	44.50	67.40	99.10
Social Score	36,385	48.49	24.28	0.15	29.11	47.95	68.14	98.65
Governance Score	36,385	51.91	22.58	0.10	34.25	53.19	70.13	99.41
DIV	36,385	0.07	0.21	0.00	0.01	0.03	0.07	20.09
ROA	36,385	0.05	0.06	-0.41	0.02	0.05	0.08	0.34
VOL	36,385	4.72	8.33	0.01	0.72	2.05	4.94	95.62
MTB	36,385	2.95	3.62	0.11	1.09	1.84	3.27	34.66
SLACK	36,385	0.10	0.10	-0.02	0.03	0.07	0.13	0.96
log_SIZE	36,385	1.05	1.63	-3.37	-0.04	1.09	2.18	5.13
LEV	36,385	0.54	0.18	0.08	0.41	0.55	0.67	0.96
CAPEX	36,385	0.05	0.04	0.00	0.02	0.04	0.06	0.30

Panel B: Developing/Emerging Countries

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	12,826	5.51	8.74	-0.08	1.56	2.71	5.51	74.99
ESG Score	12,826	43.09	19.88	0.08	27.26	42.68	58.05	94.23
Environmental Score	12,826	37.80	25.56	0.00	16.05	36.46	58.32	98.88
Social Score	12,826	41.83	24.69	0.05	20.68	40.60	61.15	98.02
Governance Score	12,826	49.88	21.71	0.04	32.39	50.00	67.69	98.68
DIV	12,826	0.07	0.16	0.00	0.02	0.04	0.08	9.09
ROA	12,826	0.07	0.07	-0.22	0.03	0.05	0.10	0.34
VOL	12,826	0.98	3.37	0.01	0.09	0.24	0.71	72.59
MTB	12,826	3.47	4.31	0.11	1.09	1.99	3.98	34.66
SLACK	12,826	0.11	0.10	-0.04	0.04	0.08	0.15	0.86
log_SIZE	12,826	0.69	1.50	-3.37	-0.31	0.66	1.68	5.08
LEV	12,826	0.49	0.19	0.08	0.36	0.50	0.63	0.94
CAPEX	12,826	0.05	0.04	0.00	0.02	0.04	0.07	0.28

This table presents summary statistics for the non-dummy variables included in the analysis. The Z Score indicates financial health, with higher values corresponding to lower levels of financial distress. The table provides the mean, standard deviation, minimum, first quartile, median, third quartile, and maximum values for each variable, offering a comprehensive view of the distribution and variability within the dataset. The sample includes 49,211 firm-year observations, capturing a wide range of values from 2006 to 2023, splitted into Panel A and B for the different sub-samples.

Table 19: Pearson Pairwise Correlation Matrix –Developed Countries / Developing Countries

Panel A: Developed Countries									
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESG Score	1.00***								
(2) DIV	-0.02***	1.00***							
(3) ROA	-0.03***	0.02***	1.00***						
(4) VOL	0.05***	-0.02***	0.13***	1.00***					
(5) MTB	0.03***	-0.00	0.39***	0.23***	1.00***				
(6) SLACK	-0.08***	-0.04***	0.24***	0.02***	0.16***	1.00***			
(7) log_SIZE	0.48***	-0.23***	-0.00	0.11***	0.00	-0.10***	1.00***		
(8) LEV	0.18***	-0.13***	-0.25***	0.03***	0.21***	-0.26***	0.37***	1.00***	
(9) CAPEX	-0.04***	0.04***	0.07***	0.01	-0.01*	-0.13***	-0.04***	-0.02***	1.00***

Panel B: Developing/Emerging Countries									
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESG Score	1.00***								
(2) DIV	-0.03***	1.00***							
(3) ROA	0.02*	0.15***	1.00***						
(4) VOL	0.05***	-0.02**	0.13***	1.00***					
(5) MTB	0.03***	0.02***	0.42***	0.24***	1.00***				
(6) SLACK	-0.08***	-0.04***	0.18***	0.02***	0.14***	1.00***			
(7) log_SIZE	0.25***	-0.17***	-0.07***	-0.02**	-0.14***	-0.02*	1.00***		
(8) LEV	0.13***	-0.14***	-0.38***	-0.07***	-0.02*	-0.21***	0.42***	1.00***	
(9) CAPEX	0.01	-0.03***	0.14***	0.03***	0.14***	-0.12***	0.06***	0.02**	1.00***

This table displays for each sub-sample the the Pearson Pairwise Correlation coefficients between the ESG Score and various financial control variables. The significance levels are indicated by *, *, and *** for the 10%, 5%, and 1% levels, respectively.

Table 20: Variance Inflation Factor – Developed Countries / Developing Countries

Panel A: Developed Countries		
Variables	**VIF**	**Tolerance (1/VIF)**
ESG Score	6.31	0.16
DIV	1.19	0.84
ROA	2.15	0.46
VOL	1.40	0.71
MTB	2.29	0.44
SLACK	1.91	0.52
log_SIZE	2.02	0.50
LEV	6.36	0.16
CAPEX	2.29	0.44

Panel B: Developing/Emerging Countries		
Variables	**VIF**	**Tolerance (1/VIF)**
ESG Score	4.93	0.20
DIV	1.26	0.80
ROA	2.64	0.38
VOL	1.16	0.87
MTB	2.28	0.44
SLACK	2.00	0.50
log_SIZE	1.51	0.66
LEV	5.44	0.18
CAPEX	2.41	0.41

This table presents the VIF and Tolerance (1/VIF) values for each variable in the sub-sumples included in the analysis, assessing multicollinearity within the regression model. VIF values exceeding 10 suggest potential multicollinearity concerns. The Tolerance value, which is the inverse of VIF, indicates the proportion of variance in each predictor not explained by the other variables.

Table 21: The Relationship between ESG and CFD – Developed Countries / Developing Countries

Variable	Developed Countries	Developing/Emerging Countries
	(1)	(2)
ESG Score	-0.0014	-0.0133**
	(0.0020)	(0.0061)
Constant	6.8687***	10.5756***
	(0.2658)	(0.6752)
DIV	0.6418	0.7822
	(0.4594)	(0.8717)
ROA	6.5895***	7.7862***
	(0.4453)	(1.7025)
VOL	0.0291***	0.1698***
	(0.0083)	(0.0596)
MTB	0.2572***	0.7971***
	(0.0214)	(0.0792)
SLACK	4.1090***	2.4159
	(0.9375)	(1.4792)
log_SIZE	0.1590*	-0.3052
	(0.0915)	(0.1924)
LEV	-9.6050***	-16.7751***
	(0.4943)	(1.1617)
CAPEX	1.0358	3.3451
	(0.6426)	(2.2609)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	36,385	12,826
Adj. R-squared	0.4352	0.4814

This table shows the results of the linear regression of the Z Score on different ESG dimensions in two different economic cycles. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. Column (1) showcases the effect of the ESG Score on the Z Score in developed countries whereas column (2) reports the effect of the ESG Score on the Z Score in developing/emerging countries. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Table 22: The Moderating Effect of Dividend Payout Policy – Developed Countries / Developing Countries

Variable	Developed Countries	Developing/Emerging Countries
	(1)	(2)
ESG Score	-0.0013	-0.0133**
	(0.0021)	(0.0061)
Constant	6.8653***	10.5951***
	(0.2650)	(0.6751)
ESG x DIV	0.0476	0.0539
	(0.0315)	(0.0476)
DIV	0.6061	0.7492
	(0.4332)	(0.8553)
ROA	6.5927***	7.7815***
	(0.4448)	(1.7024)
VOL	0.0291***	0.1701***
	(0.0083)	(0.0596)
MTB	0.2573***	0.7974***
	(0.0214)	(0.0792)
SLACK	4.0969***	2.4002
	(0.9297)	(1.4771)
log_SIZE	0.1581*	-0.3146
	(0.0920)	(0.1932)
LEV	-9.5995***	-16.7958***
	(0.4938)	(1.1625)
CAPEX	1.0472	3.3575
	(0.6409)	(2.2614)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	36,385	12,826
Adj. R-squared	0.4355	0.4816

This table shows the results of the linear regression of the Z Score on different ESG dimensions in two different economic cycles with the addition of the interaction term ESG x DIV to analyse the moderating effect of DPP. A positive coefficient indicates a higher Z Score which is associated with a lower risk of financial distress. Column (1) showcases the effect of the ESG Score on the Z Score in developed countries whereas column (2) reports the effect of the ESG Score on the Z Score in periods of developing/emerging countries. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. The *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Table 23: The Relationship between ESG and CFD using Additional Control Variables – Developed Countries / Developing Countries

Panel A: Developed Countries				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.0130***	6.4324***	6.7380***	6.7152***
	(0.2974)	(0.2566)	(0.3284)	(0.2631)
ESG Score	-0.0018	-0.0012	-0.0015	-0.0014
	(0.0021)	(0.0020)	(0.0020)	(0.0020)
DIV	0.4526	0.6683	0.6197	0.6524
	(0.4538)	(0.4586)	(0.4141)	(0.4614)
PERF	5.3774***	13.3387***	6.6370***	8.7214***
	(0.4640)	(0.9602)	(0.4463)	(0.5460)
VOL	0.0146*	0.0281***	0.0291***	0.0291***
	(0.0088)	(0.0082)	(0.0083)	(0.0083)
MTB	0.2087***	0.2820***	0.2568***	0.2525***
	(0.0219)	(0.0228)	(0.0214)	(0.0213)
SLACK	4.2475***	3.9793***	3.7697***	3.9870***
	(0.9334)	(0.9403)	(0.7719)	(0.9363)
log_SIZE	-0.2677**	0.1517*	0.1772**	0.1739*
	(0.1150)	(0.0917)	(0.0853)	(0.0908)
LEV	-8.4995***	-8.9213***	-9.4853***	-9.6287***
	(0.5238)	(0.4617)	(0.5123)	(0.4932)
CAPEX	0.5245	1.0020	1.1250*	1.1004*
	(0.6359)	(0.6458)	(0.6404)	(0.6445)
Additional Control Variable	0.7629***	-2.8024***	0.0422	0.5957***
	(0.1164)	(0.3571)	(0.0578)	(0.0515)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	36,385	36,385	36,385	36,385
Adj. R-squared	0.3997	0.4513	0.4429	0.4398

Panel B: Developing/Emerging Countries				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	8.0593***	9.9691***	7.0270***	10.3875***
	(0.6721)	(0.7295)	(0.7993)	(0.6742)
ESG Score	-0.0146**	-0.0130**	-0.0134**	-0.0132**
	(0.0063)	(0.0061)	(0.0057)	(0.0061)
DIV	-0.1028	0.8394	-0.2495	0.7660
	(1.0608)	(0.8677)	(0.8237)	(0.8739)
PERF	4.6704***	16.8589***	7.9053***	10.3663***
	(1.6622)	(3.9311)	(1.6867)	(1.9858)
VOL	0.0624	0.1693***	0.1630***	0.1707***
	(0.0561)	(0.0589)	(0.0583)	(0.0594)
MTB	0.6056***	0.8001***	0.8019***	0.7892***
	(0.0771)	(0.0791)	(0.0792)	(0.0793)
SLACK	1.9210	2.3694	0.2747	2.2927
	(1.4500)	(1.4781)	(1.4056)	(1.4768)
log_SIZE	-1.5779***	-0.2708	-0.1978	-0.2764
	(0.2952)	(0.1933)	(0.1760)	(0.1925)
LEV	-13.8034***	-15.7927***	-13.2860***	-16.8504***
	(1.1029)	(1.2228)	(1.1818)	(1.1582)
CAPEX	1.0169	3.5584	4.7814**	3.3937
	(2.2034)	(2.2505)	(2.2472)	(2.2568)
Additional Control Variable	2.5535***	-4.0920**	1.0460***	0.9231***
	(0.3354)	(1.6926)	(0.1865)	(0.1948)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	12,826	12,826	12,826	12,826
Adj. R-squared	0.4919	0.4868	0.5390	0.4824

This table presents entity and year fixed PanelOLS regression results assessing the robustness of the relationship between ESG Score and CFD by introducing additional control variables. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. Standard errors, clustered and heteroskedasticity-robust, are shown in parentheses. Statistical significance at the 10%, 5%, and 1% levels is marked by *, **, and ***, respectively.

Table 24: The Moderating Effect of Dividend Payout Policy using Additional Control Variables – Developed Countries / Developing Countries

Panel A: Developed Countries				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.0092***	6.4291***	6.7357***	6.7113***
	(0.2966)	(0.2556)	(0.3264)	(0.2623)
ESG Score	-0.0018	-0.0012	-0.0014	-0.0014
	(0.0021)	(0.0020)	(0.0020)	(0.0020)
ESG x DIV	0.0483	0.0474	0.0451	0.0485
	(0.0328)	(0.0316)	(0.0299)	(0.0316)
DIV	0.4163	0.6328	0.5861	0.6160
	(0.4285)	(0.4335)	(0.3929)	(0.4352)
PERF	5.3801***	13.3399***	6.6397***	8.7295***
	(0.4640)	(0.9600)	(0.4460)	(0.5461)
VOL	0.0145*	0.0281***	0.0290***	0.0291***
	(0.0088)	(0.0082)	(0.0083)	(0.0083)
MTB	0.2088***	0.2821***	0.2569***	0.2526***
	(0.0219)	(0.0228)	(0.0214)	(0.0213)
SLACK	4.2353***	3.9673***	3.7607***	3.9744***
	(0.9254)	(0.9327)	(0.7676)	(0.9283)
log_SIZE	-0.2688**	0.1508	0.1762**	0.1730*
	(0.1157)	(0.0922)	(0.0856)	(0.0913)
LEV	-8.4934***	-8.9160***	-9.4810***	-9.6231***
	(0.5229)	(0.4610)	(0.5114)	(0.4927)
CAPEX	0.5358	1.0133	1.1351*	1.1121*
	(0.6345)	(0.6442)	(0.6392)	(0.6428)
Additional Control Variable	0.7633***	-2.8016***	0.0418	0.5970***
	(0.1165)	(0.3571)	(0.0575)	(0.0517)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	36,385	36,385	36,385	36,385
Adj. R-squared	0.4000	0.4516	0.4431	0.4401

Panel B: Developing/Emerging Countries				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	8.0844***	9.9881***	7.0239***	10.4066***
	(0.6716)	(0.7301)	(0.7998)	(0.6741)
ESG Score	-0.0145**	-0.0130**	-0.0134**	-0.0132**
	(0.0063)	(0.0061)	(0.0057)	(0.0061)
ESG x DIV	0.0764	0.0481	-0.0060	0.0522
	(0.0471)	(0.0474)	(0.0431)	(0.0484)
DIV	-0.1504	0.8098	-0.2461	0.7341
	(1.0453)	(0.8520)	(0.8239)	(0.8577)
PERF	4.6606***	16.8311***	7.9059***	10.3584***
	(1.6615)	(3.9340)	(1.6868)	(1.9857)
VOL	0.0626	0.1696***	0.1630***	0.1709***
	(0.0562)	(0.0590)	(0.0583)	(0.0594)
MTB	0.6058***	0.8003***	0.8019***	0.7895***
	(0.0771)	(0.0791)	(0.0793)	(0.0793)
SLACK	1.8982	2.3554	0.2759	2.2776
	(1.4473)	(1.4761)	(1.4048)	(1.4749)
log_SIZE	-1.5924***	-0.2792	-0.1968	-0.2855
	(0.2954)	(0.1943)	(0.1770)	(0.1933)
LEV	-13.8297***	-15.8137***	-13.2828***	-16.8704***
	(1.1033)	(1.2244)	(1.1830)	(1.1590)
CAPEX	1.0320	3.5689	4.7803**	3.4056
	(2.2040)	(2.2508)	(2.2470)	(2.2573)
Additional Control Variable	2.5561***	-4.0813**	1.0462***	0.9219***
	(0.3353)	(1.6938)	(0.1865)	(0.1949)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	12,826	12,826	12,826	12,826
Adj. R-squared	0.4924	0.4869	0.5390	0.4825

This table presents entity and year fixed PanelOLS regression results assessing the robustness of the relationship between ESG Score and CFD along with the interaction term ESG x DIV, by introducing additional control variables. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. Standard errors, clustered and heteroskedasticity-robust, are shown in parentheses. Statistical significance at the 10%, 5%, and 1% levels is marked by *, **, and ***, respectively.

Table 25: The Relationship between ESG and CFD using O Score as an Alternative Proxy – Developed Countries / Developing Countries

Panel A: Developed Countries	
Variable	O Score
Constant	-0.8129***
	(0.0375)
ESG Score	0.0006**
	(0.0003)
DIV	-0.0066
	(0.0595)
ROA	-6.8388***
	(0.1075)
VOL	0.0008
	(0.0006)
MTB	0.0003
	(0.0016)
SLACK	-1.8949***
	(0.0790)
log_SIZE	-0.1399***
	(0.0120)
LEV	7.2010***
	(0.0591)
CAPEX	0.6128***
	(0.1254)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	36,385
Adj. R-squared	0.8301

Panel B: Developing/Emerging Countries	
Variable	O Score
Constant	-1.0029***
	(0.0609)
ESG Score	0.0011*
	(0.0005)
DIV	-0.0428
	(0.0888)
ROA	-7.4717***
	(0.1939)
VOL	0.0032
	(0.0034)
MTB	-0.0073**
	(0.0032)
SLACK	-1.5540***
	(0.1268)
log_SIZE	-0.1143***
	(0.0250)
LEV	7.5100***
	(0.0979)
CAPEX	1.0646***
	(0.2077)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	12,826
Adj. R-squared	0.7913

This table reports robustness checks on the relationship between ESG Score and Z Score, using O Score as an alternative proxies. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. A higher value correspond to an elevated level of financial distress risk. Entity and time fixed effects are included. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Table 26: The Moderating Effect of Dividend Payout Policy using O Score as an Alternative Proxy – Developed Countries / Developing Countries

Panel A: Developed Countries	
Variable	O Score
Constant	-0.8120***
	(0.0376)
ESG Score	0.0006**
	(0.0003)
ESG x DIV	-0.0128
	(0.0082)
DIV	0.0029
	(0.0548)
PERF	-6.8397***
	(0.1076)
VOL	0.0008
	(0.0006)
MTB	0.0003
	(0.0016)
SLACK	-1.8916***
	(0.0787)
log_SIZE	-0.1396***
	(0.0121)
LEV	7.1995***
	(0.0591)
CAPEX	0.6097***
	(0.1251)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	36,385
Adj. R-squared	0.8304

Panel B: Developing/Emerging Countries	
Variable	O Score
Constant	-1.0042***
	(0.0611)
ESG Score	0.0011*
	(0.0005)
ESG x DIV	-0.0035
	(0.0060)
DIV	-0.0406
	(0.0871)
PERF	-7.4714***
	(0.1937)
VOL	0.0031
	(0.0034)
MTB	-0.0074**
	(0.0032)
SLACK	-1.5530***
	(0.1268)
log_SIZE	-0.1137***
	(0.0249)
LEV	7.5114***
	(0.0981)
CAPEX	1.0638***
	(0.2075)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	12,826
Adj. R-squared	0.7913

This table reports robustness checks on the relationship between ESG Score and Z Score along with the interaction term ESG x DIV, using O Score as an alternative proxies. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. A higher value correspond to an elevated level of financial distress risk. Entity and time fixed effects are included. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Statistical significance at the 10%, 5%, and 1% levels is denoted by *, **, and ***, respectively.

Table 27: The Relationship between ESG and CFD using 2SLS and GMM – Developed Countries / Developing Countries

Panel A: Developed Countries			
Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	3.7109	6.6534***	6.5701***
	(4.4121)	(0.6552)	(0.2517)
Industry_Mean_ESG	0.5355***		
	(0.0854)		
Country_Mean_ESG	0.3109***		
	(0.0332)		
ESG Score		0.0034	-0.0070***
		(0.0128)	(0.0021)
DIV	0.1235	0.6408	-0.9171
	(0.6414)	(0.4596)	(0.6776)
ROA	-8.3918***	6.6285***	13.8741***
	(1.6670)	(0.4793)	(0.7597)
VOL	0.0224	0.0292***	0.0255***
	(0.0196)	(0.0083)	(0.0075)
MTB	-0.0576	0.2575***	0.4114***
	(0.0456)	(0.0214)	(0.0282)
SLACK	-1.1923	4.1148***	6.1854***
	(1.6440)	(0.9351)	(0.6745)
log_SIZE	3.7838***	0.1400	0.0749**
	(0.3774)	(0.1106)	(0.0368)
LEV	0.8457	-9.6037***	-9.7802***
	(1.4290)	(0.4952)	(0.3774)
CAPEX	-2.6424	1.0508	-2.1121***
	(3.1575)	(0.6404)	(0.7824)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	36,385	36,385	29,055
R^2	0.3052	0.435	0.4919
Sargan Test (p-value)		0.4945	
Hansen-J Test (p-value)			0.1983

Table 27: Continued

Panel B: Developing/Emerging Countries			
Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	-5.9049	12.5375***	11.2862***
	(3.8749)	(1.3188)	(0.7126)
Industry_Mean_ESG	0.5339***		
	(0.0676)		
Country_Mean_ESG	0.5932***		
	(0.0595)		
ESG Score		-0.0598**	-0.0073
		(0.0266)	(0.0060)
DIV	2.9405**	0.9132	-3.0024***
	(1.4689)	(0.8711)	(0.9508)
ROA	-16.3573***	6.8201***	5.8667**
	(3.2258)	(1.8053)	(2.9613)
VOL	-0.1762**	0.1634***	0.0594
	(0.0770)	(0.0588)	(0.0573)
MTB	0.0245	0.7960***	1.0168***
	(0.0594)	(0.0790)	(0.0740)
SLACK	1.8916	2.4858*	8.6757***
	(2.3569)	(1.4811)	(1.7606)
log_SIZE	5.4281***	-0.0404	-0.1652*
	(0.5784)	(0.2594)	(0.0979)
LEV	-6.0255**	-16.9852***	-20.1134***
	(2.5524)	(1.1822)	(1.1131)
CAPEX	6.8874	3.6951	-1.1773
	(5.0783)	(2.3088)	(2.5057)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	12,826	12,826	8,848
R^2	0.2859	0.4814	0.4903
Sargan Test (p-value)		0.7657	
Hansen-J Test (p-value)			0.3915

This table presents robustness checks for the relationship between ESG Score and CFD, addressing potential endogeneity concerns by employing Two-Stage Least Squares (2SLS) and Generalized Method of Moments (GMM) regressions. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. In the 2SLS approach, the first stage (1) regresses ESG on its country and industry mean values (usage as Instrumental Variables). Subsequently, the coefficients are then used to compute an instrumental ESG Score. The second stage (2) then estimates the effect of the instrumental ESG Score on CFD. In the GMM model (3), the one and two-time lagged ESG Scores are used as instrumental variables. Due to the usage of lagged ESG Scores as instrumental variables, only entity fixed effects are applied across the GMM. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.

Table 28: The Moderating Effect of Dividend Payout Policy using 2SLS and GMM – Developed Countries / Developing Countries

Panel A: Developed Countries

Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	3.7109	6.3386***	6.5803***
	(4.4121)	(0.6660)	(0.2539)
Industry_Mean_ESG	0.5355***		
	(0.0854)		
Country_Mean_ESG	0.3109***		
	(0.0332)		
ESG Score		0.0105	-0.0070***
		(0.0129)	(0.0021)
ESG x DIV		-0.1035	-0.0315
		(0.0694)	(0.0547)
DIV	0.1235	4.9333	-0.9942
	(0.6414)	(3.2114)	(0.6859)
ROA	-8.3918***	6.5380***	13.8845***
	(1.6670)	(0.4921)	(0.7610)
VOL	0.0224	0.0289***	0.0255***
	(0.0196)	(0.0083)	(0.0075)
MTB	-0.0576	0.2595***	0.4116***
	(0.0456)	(0.0215)	(0.0282)
SLACK	-1.1923	4.0192***	6.1566***
	(1.6440)	(0.8428)	(0.6837)
log_SIZE	3.7838***	0.1624	0.0725**
	(0.3774)	(0.1063)	(0.0367)
LEV	0.8457	-9.6421***	-9.7862***
	(1.4290)	(0.4977)	(0.3782)
CAPEX	-2.6424	0.9296	-2.1145***
	(3.1575)	(0.6486)	(0.7816)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	36,385	36,385	29,055
R^2	0.3052	0.4343	0.4917
Sargan Test (p-value)		0.4778	
Hansen-J Test (p-value)			0.1872

Table 28: Continued

Panel B: Developing/Emerging Countries			
Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	-5.9049	12.5422***	11.2929***
	(3.8749)	(1.3930)	(0.7124)
Industry_Mean_ESG	0.5339***		
	(0.0676)		
Country_Mean_ESG	0.5932***		
	(0.0595)		
Industry_Mean_DIV			
ESG Score		-0.0599**	-0.0073
		(0.0279)	(0.0060)
ESG x DIV		0.0010	0.1737**
		(0.0374)	(0.0706)
DIV	2.9405**	0.8666	-3.0690***
	(1.4689)	(2.0789)	(0.9088)
ROA	-16.3573***	6.8201***	5.8955**
	(3.2258)	(1.8055)	(2.9591)
VOL	-0.1762**	0.1634***	0.0594
	(0.0770)	(0.0588)	(0.0573)
MTB	0.0245	0.7960***	1.0171***
	(0.0594)	(0.0790)	(0.0740)
SLACK	1.8916	2.4851*	8.6550***
	(2.3569)	(1.4810)	(1.7599)
log_SIZE	5.4281***	-0.0405	-0.1674*
	(0.5784)	(0.2592)	(0.0980)
LEV	-6.0255**	-16.9860***	-20.1125***
	(2.5524)	(1.1869)	(1.1130)
CAPEX	6.8874	3.6953	-1.1781
	(5.0783)	(2.3087)	(2.5064)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	12,826	12,826	8,848
R^2	0.2859	0.4814	0.4899
Sargan Test (p-value)		0.7658	
Hansen-J Test (p-value)			0.3859

This table presents robustness checks for the relationship between ESG Score and CFD, addressing potential endogeneity concerns by employing Two-Stage Least Squares (2SLS) and Generalized Method of Moments (GMM) regressions. Panel A showcases the results of the Developed Countries sub-sample and Panel B the results of the Developing/Emerging Countries sub-sumple. In the 2SLS approach, the first stage (1) regresses ESG on its country and industry mean values (usage as Instrumental Variables). Subsequently, the coefficients are then used to compute an instrumental ESG Score. The second stage (2) then estimates the effect of the instrumental ESG Score and interaction term ESG x DIV on CFD. In the GMM model (3), the one and two-time lagged ESG Scores are used as instrumental variables. Due to the usage of lagged ESG Scores as instrumental variables, only entity fixed effects are applied across the models. Values in parantheses represent the clustered and heteroskedasticity-robust standard errors of the coefficients. Significance at the 10%, 5%, and 1% levels is indicated by *, **, and ***, respectively.