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

An Analysis Across Economic Cycles

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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 for economic downturn and upswing periods. 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 · Economic Cycle

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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 sub-samples 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**. 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 – Economic Cycles and Their Influence

While the previous part of this study examined the effect of ESG on CFD as well as the moderating effect of DPP, it is important to understand whether this relationship changes in different economic cycles. In particular, recent shocks such as the COVID-19 pandemic or the 2008-2009 global financial crisis have had a significant impact on company performance and insolvency risk (Chen & Yeh, 2021; Li et al., 2022). As our study covers a period from 2006 to 2023, a longer period of economic upswing than downturn is predominant, which might lead to a bias in the interpretation of the effect of ESG on CFD. Given that our results suggest a positive effect in this relationship (i.e., ESG increases the likelihood of bankruptcy), the question arises as to how this effect might change between the two major different business cycles (economic downturn and economic upswing) and whether a significant effect of DPP on this relationship can still be identified.

To enable a thorough analysis, the following chapter summarises the current state of the literature on the role of ESG on CFD in both downturns and upswings and formulates relevant hypotheses, especially regarding the possible moderating effect of DPP on this relationship. Building on this, Chapter 2 deals with the structure of the dataset used for this research objective and the methodology for the empirical analysis. Chapter 3 summarises the main findings. Finally, a discussion and conclusion of the results as well as an identification of limitations will complete this part of the work project.

1 Motivation and Hypotheses Development

In this study, we have already highlighted the literature that encompasses the positive effects of ESG for companies, such as easier access to financing (Boubaker et al., 2020), lower cost of debt (Jiraporn et al., 2014) or the accumulation of "social capital" that insures against idiosyncratic risks (Godfrey, 2005). However, we have also postulated that ESG has an overall positive effect on the likelihood of financial distress, using one of the largest samples to date

on this research question. This outcome contrasts with the generally negative findings on the relationship between ESG and CFD and leads us to consider possible factors that could explain this disparity. One potential source of bias in our results may be the time frame of our study. It is possible that our findings are influenced by the interval we have used. As our dataset spans from 2006 to 2023, it includes a longer time frame of periods in economic upswing than downturn, potentially leading to a skewed interpretation of the impact of ESG on CFD. It may be the case that the positive effects of ESG, as described in previous research, are primarily applicable to companies that have been affected by social and economic shocks (e.g. the dotcom bubble, the 2008-2009 global financial crisis or the COVID-19 pandemic) or recessions. Furthermore, it is possible that the positive effects of ESG activities are outweighed by their costs in times of economic upswing (Habermann & Fischer, 2023).

Previous research has shown that the effect of ESG activities can vary depending on the economic environment in which the sample is analysed. For instance, Hwang et al. (2021) analysed Korean companies during the COVID-19 pandemic and found that ESG activities contributed to enhance financial stability, whereas this effect was insignificant prior to the pandemic. Likewise, Lins et al. (2017) showed that companies with higher CSR commitment had better financial performance during the 2008-2009 global financial crisis, with Ducassy (2013) partially agreeing, showing a significant positive association between CSR and financial performance in the early stages of the financial crisis. In contrast, Abbassi et. al (2023) pointed out that companies with a high environmental rating are not necessarily more resilient to war shocks than those with environmental concerns. Collectively, the previous studies suggest that ESG engagement has the potential to enhance financial performance, particularly in times of crisis or economic shocks, while this effect may decrease as the economy recovers and stabilises. Moreover, while ESG activities may enhance resilience in economic downturns, the context and type of the shock can influence its effectiveness.

Limited research on the relationship between ESG and CFD has explored the potential profound impact of different economic periods. Binesh et al. (2024) analysed the impact of ESG engagement on the financial stability of companies during the COVID-19 pandemic. Their model showed a significant positive effect of ESG activities on reducing the likelihood of financial distress during this period. The results suggest that companies that actively engage in ESG efforts are better equipped to deal with crisis-related risks, suggesting an increased resilience effect. In the study of Boubaker et al. (2020), they examined the impact of CSR on the financial health of companies during several crisis periods, including the dotcom bubble and the 2008-2009 global financial crisis. While CSR strategies were generally associated with a lower risk of financial distress, this effect diminished during crisis periods. Thus, the results showed an insignificant relationship between CSR and financial stability during crises. At the same time, CSR engagement significantly reduced financial distress in non-crisis periods, suggesting a possible limitation of the protective function of CSR in times of financial crises. In contrast to Boubaker et al. (2020), Shahrour et al. (2021) also investigated the influence of CSR on default risk in the periods pre-, during and post-crisis periods in the context of the 2008-2009 global financial crisis. The results highlight a variable influence of CSR on financial distress. While CSR had no significant effect in the pre-crisis period, it proved to be a robust protective factor during the financial crisis, where CSR engagement was strongly associated with lower default risk. After the crisis, CSR continued to show a significant, albeit weaker, negative relationship with default risk. Hence, this study positions CSR as an insurance-like instrument that not only protects companies from adverse events but can also increase stability in difficult economic times (Shahrour, 2021: 987). Concluding, Habermann and Fischer (2023) examined the relationship between CSR activities and CFD in a phase of economic recovery. Their analysis found that ESG activities have minimal impact on reducing bankruptcy risk during growth periods. Specifically, an increase in CSR did not reduce the probability of

bankruptcy but instead correlated with lower Z Scores in the following year, indicating increased financial distress (Habermann & Fischer, 2023: 250). Research by Zheng et al. (2019) reinforces these findings, as they found that CSR has a stronger stabilising effect during downturns, when companies benefit more from stakeholder support. Thus, companies with high CSR are less likely to experience costly financial distress during economic downturns, with results showing a significant reduction in the likelihood of distress during recessionary periods. Conversely, CSR commitment had no significant impact on financial stability during growth periods. These findings underscore that the protective effects of CSR are more pronounced during economic downturns, while they diminish during economic expansions, as the costs associated with ESG may outweigh potential resilience benefits, suggesting a potential financial burden rather than a stabilising effect (Habermann & Fischer, 2023: 250).

Overall, most studies suggest that the protective benefits of ESG engagement on CFD may be more pronounced during periods of economic downturn. Conversely, the financial benefits may diminish during periods of upswing, particularly as companies must bear the direct and indirect costs of maintaining high ESG standards. Thus, based on these findings, these are the following hypotheses regarding the impact of the different economic periods on the relationship between ESG and CFD:

H1.1 *There is a negative relationship between ESG and CFD (ESG reduces the likelihood of financial distress) during periods of economic downturn.*

H1.2 *There is a positive relationship between ESG and CFD (ESG enhances the likelihood of financial distress) during periods of economic upswing.*

In examining the moderating effect of DPP on the ESG-CFD relationship, we may draw upon the findings of the stabilising role of dividends during times of financial distress. In particular, studies by Cohen and Yagil (2009), Kumar and Lee (2001) and Nissim and Ziv (2001) underline the value of dividend payments as a mechanism to reinforce financial stability

and increase investor confidence in times of financial distress. They suggest that companies that maintain or increase dividend payouts in difficult economic environments signal resilience and a commitment to shareholder returns, which in turn can mitigate perceptions of financial instability. Having established that DPP has a significant effect on the ESG-CFD relationship, albeit at the 10% level, its robustness was found to vary depending on model specifications, raising questions about the consistency of its effect across different contexts. This highlights the importance of examining how economic cycles may influence the moderating role of DPP. During economic downturns, increased financial pressures may amplify the role of DPP in combination with ESG investments in reducing financial distress. In contrast, during economic upswings, companies generally face fewer liquidity constraints, suggesting that the influence of DPP on ESG-CFD dynamics may be less pronounced. This reduced significance could stem from the fact that DPP's signalling function is less critical in periods of economic stability, as companies are under less scrutiny regarding their financial resilience and have greater perceived flexibility to balance ESG investments with shareholder returns. Thus, this study posits that the moderating effect of DPP on the ESG-CFD relationship remains insignificant in less challenging economic environments (i.e., periods of economic upswing). Based on the results of Chapter 4.2 of the Group Part, we propose the following hypothesis:

H2 *The positive moderating effect of DPP on the relationship between ESG and CFD is only observed during periods of economic downturn.*

2 Data Derivation and Empirical Methodology

To test the different hypotheses, this study uses the same dataset derived in Chapter 3.1 of the Group Part. Thus, 49,211 observations from 5,653 different companies from 64 countries over a timeline of 18 years (2006 to 2023) are used to achieve a robust analysis. A more detailed description of the dataset employed can be found in **Table 2**.

In order to examine the potential influence of economic cycles, the dataset was divided into periods of economic upswing and downturn. This approach is based on the methodologies proposed by Binesh et al. (2024), Boubaker et al. (2020), and Habermann and Fischer (2023). We have defined each of the two major shocks, i.e. the 2008-2009 global financial crisis and the COVID-19 pandemic, in the period from 2006 to 2023 as a period of economic downturn. Thus, the 2008-2009 global financial crisis period is defined as the period from 2008 to 2010 and the COVID-19 pandemic period is considered as the period from 2020 to 2023. The remaining years have been set as years of economic upswing, as they represent periods of relative stability and growth. **Tables 16 and 17** (see appendix) illustrate the distribution of observations according to the two different economic cycles.

Hence, to explore the effects of ESG on CFD and the moderating effect of DPP, this study uses the same FE regression models (following Boubaker et al. (2020), Habermann and Fischer (2023), and Shahrour et al. (2021)) along with the control variables outlined in **Table 1**. Using the FE regression models described in Chapter 3.3 of the Group Part, we conduct separate analyses for periods of economic downturn and upswing to capture potential differences.

3 Empirical Results and Robustness Testing

3.1 Summary Statistics

Table 18 reports the summary statistics for the two sub-samples. When looking at both panels, we observe that the average Z Score is higher during periods of economic downturn. This might be due to the fact, which we already discussed in Chapter 4.1 of the Group Part, that especially the COVID-19 pandemic years exhibited a high Z Score compared to other years. In addition, as Panel A shows periods of economic downturn, the higher standard deviation of the Z Score may be driven by industry-specific vulnerabilities or differences in access to liquidity. Regarding our independent variable, we identify that the ESG Score is also more pronounced in Panel A rather than in Panel B. This may be explained by the fact that ESG investment has

become increasingly popular as a business tool in recent years (Diwan & Sreeraman, 2024), but also by the fact that companies may be placing greater emphasis on ESG initiatives, both to meet evolving stakeholder expectations and to enhance their reputation and social capital as a safeguard against financial distress (Lin & Dong, 2018).

Table 18: Summary Statistics – Subsample Economic Downturn / Economic Upswing

Panel A: Economic Downturn								
Variable	**No.**	**Mean**	**StdDev**	**Min**	**First Quartile**	**Median**	**Third Quartile**	**Max**
Z Score	24,021	4.47	7.17	-0.08	1.54	2.61	4.49	74.99
ESG Score	24,021	48.95	20.42	0.08	32.96	49.72	65.13	95.37
Environmental Score	24,021	44.66	26.88	0.00	22.54	45.82	66.83	98.88
Social Score	24,021	49.14	24.23	0.16	29.92	49.24	68.87	98.32
Governance Score	24,021	52.36	22.33	0.04	34.87	53.61	70.52	99.41
DIV	24,021	0.07	0.24	0.00	0.01	0.03	0.07	20.09
ROA	24,021	0.05	0.07	-0.41	0.02	0.05	0.08	0.34
VOL	24,021	3.96	8.35	0.01	0.28	1.20	3.74	72.59
MTB	24,021	3.16	4.02	0.11	1.05	1.84	3.49	34.66
SLACK	24,021	0.11	0.10	-0.04	0.03	0.08	0.14	0.96
log_SIZE	24,021	0.76	1.66	-3.37	-0.40	0.78	1.90	5.07
LEV	24,021	0.52	0.19	0.08	0.39	0.52	0.65	0.96
CAPEX	24,021	0.05	0.04	0.00	0.02	0.04	0.06	0.28

Panel B: Economic Upswing								
Variable	**No.**	**Mean**	**StdDev**	**Min**	**First Quartile**	**Median**	**Third Quartile**	**Max**
Z Score	25,190	3.66	3.90	0.15	1.54	2.57	4.16	40.93
ESG Score	25,190	44.79	21.14	0.61	27.81	44.25	61.30	95.16
Environmental Score	25,190	39.01	28.63	0.00	11.90	38.21	62.97	99.10
Social Score	25,190	44.48	24.65	0.05	24.45	42.93	63.92	98.65
Governance Score	25,190	50.45	22.37	0.10	32.71	51.10	68.48	98.82
DIV	25,190	0.07	0.15	0.00	0.01	0.03	0.07	12.08
ROA	25,190	0.06	0.06	-0.20	0.02	0.05	0.08	0.32
VOL	25,190	3.54	6.70	0.01	0.36	1.39	3.79	95.62
MTB	25,190	3.02	3.61	0.17	1.13	1.90	3.39	29.16
SLACK	25,190	0.09	0.10	-0.01	0.03	0.07	0.13	0.95
log_SIZE	25,190	1.14	1.53	-3.02	0.14	1.14	2.19	5.13
LEV	25,190	0.53	0.18	0.10	0.41	0.54	0.66	0.94
CAPEX	25,190	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 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.

In addition to the reports in Chapter 4.1 of the Group Part, **Tables 19 and 20** (see appendix) represent the Pearson Pairwise Correlation Matrix and the VIF for each sub-sample. Similar to the findings in **Tables 4 and 5**, it can be inferred that none of the variables in each of the sub-samples 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, we can note that no correlation of variables with the ESG Score exceeds a Pearson

Correlation Coefficient of 0.39 (except for log_SIZE and MTB), indicating a weak correlation between the independent variables (moderate correlation for log_SIZE and MTB; Evans, 1996). To summarise, it is still unlikely that multicollinearity is a problem for our further analyses.

3.2 The Effect of ESG on Corporate Financial Distress

Table 21: The Relationship between ESG and CFD – Economic Downturn / Economic Upswing

Variable	Economic Downturn	Economic Upswing
	(1)	(2)
Constant	9.7628***	7.3259***
	(0.5098)	(0.2877)
ESG Score	-0.0193***	-0.0010
	(0.0047)	(0.0018)
DIV	0.3269	0.4409**
	(0.3232)	(0.1787)
ROA	5.2033***	7.7987***
	(0.8125)	(0.5570)
VOL	-0.0003	0.0040
	(0.0147)	(0.0057)
MTB	0.6441***	0.2465***
	(0.0559)	(0.0182)
SLACK	4.1128***	2.0609***
	(1.5123)	(0.5762)
log_SIZE	0.0459	0.1171
	(0.1414)	(0.1011)
LEV	-13.9565***	-9.9116***
	(0.8714)	(0.4379)
CAPEX	0.9761	1.9472***
	(1.7943)	(0.6131)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	24,021	25,190
Adj. R-squared	0.4251	0.4944

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 periods of economic downturn whereas column (2) reports the effect of the ESG Score on the Z Score in periods of economic upswing. 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.

In this study, a regression model with entity and year FE and clustered and heteroskedasticity-robust standard errors was carried out to analyse the effect of ESG on CFD. **Table 21** therefore shows the results of the relationship and other control variables. This table is split into two sub-sections, column (1) shows the regression of the downturn period sample and column (2) the regression of the upswing period sample. The majority of the control variables are statistically significant at the 1% level, with the exception of DIV, VOL, log_SIZE and CAPEX, where

DIV and CAPEX are only statistically significant at the 10% significance level in the upswing sub-sample, and VOL and log_SIZE are not significant in either sub-sample.

Focusing on the regression result of the downturn period, columns (1), we observe that the ESG Score has a statistically significant negative association with the Z Score at the 1% significance level. This negative coefficient suggests that higher ESG Scores are associated with a decrease in the Z Score, implying a higher risk of financial distress as ESG engagement increases. These results are consistent with the analysis in Chapter 4.2 of the Group Part, although the coefficients are more pronounced in this sub-sample than in the aggregate sample, suggesting a potentially stronger impact of ESG engagement during economic downturns. Thus, this result does not support our **Hypothesis H1.1**, suggesting that although there are positive effects from ESG engagement (Boubaker et al., 2020; Godfrey, 2005; Jiraporn et al., 2014) the costs involved outweigh the benefits and thus increase the risk of bankruptcy when considering this sub-sample.

In the upswing period, column (2), the regression analysis shows that the ESG Score is not statistically significant in their relationship with the Z Score. This insignificance suggests that increased ESG engagement during periods of economic upswing is not associated with significant changes in the Z Score. Therefore, although the coefficient of ESG is negative, **Hypothesis H1.2** is not supported due to the insignificance. This result is in line with Habermann and Fischer (2023) and Zheng et al. (2019), who also postulated an insignificant effect of ESG on CFD in times of economic upswing.

3.3 The Moderating Effect of Dividend Payout Policy

Having examined the direct relationship between ESG and CFD, we now test for the moderating effect of DPP, using the same regression model as in Chapter 4.3 of the Group Part including the additional interaction term, *ESG x DIV*, to assess whether DPP significantly moderates the ESG-CFD relationship under different economic conditions. **Table 22** therefore shows the

results of the moderating effect of DPP on the relationship and other control variables. This table is again split into two sub-sections, column (1) represents the regression of the downturn period sample and column (2) the regression of the upswing period sample. Once more, most of the control variables are statistically significant, at least at the 5% level, with some exceptions, VOL and log_SIZE are not statistically significant at any level in either of the two sub-samples, as well as DIV and CAPEX, which are not significant in the regression model of column (1).

Table 22: The Moderating Effect of Dividend Payout Policy – Economic Downturn / Economic Upswing

Variable	Economic Downturn	Economic Upswing
	(1)	(2)
Constant	9.7547***	7.3264***
	(0.5105)	(0.2878)
ESG Score	-0.0195***	-0.0010
	(0.0047)	(0.0018)
ESG x DIV	-0.1110	-0.0057
	(0.1325)	(0.0205)
DIV	0.4000	0.4385**
	(0.3972)	(0.1777)
ROA	5.1962***	7.7983***
	(0.8133)	(0.5569)
VOL	-0.0005	0.0040
	(0.0147)	(0.0057)
MTB	0.6435***	0.2464***
	(0.0559)	(0.0182)
SLACK	4.0797***	2.0631***
	(1.4584)	(0.5766)
log_SIZE	0.0608	0.1174
	(0.1345)	(0.1010)
LEV	-13.9341***	-9.9119***
	(0.8674)	(0.4379)
CAPEX	0.9771	1.9468***
	(1.7937)	(0.6132)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	24,021	25,190
Adj. R-squared	0.4244	0.4944

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 periods of economic downturn whereas column (2) reports the effect of the ESG Score on the Z Score in periods of economic upswing. 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.

Regarding the analysis of economic downturns, we hypothesise (**Hypothesis H2**) that a robust DPP would positively moderate the relationship between ESG and CFD and reduce the risk of financial distress. However, the results in **Table 22** show that the *ESG x DIV* interaction term is not statistically significant at any %-level and has a negative magnitude. Thus, a robust

dividend policy does not significantly moderate the impact of ESG engagement when companies are under economic pressure, possibly indicating that the CFD associated with ESG remains relatively stable regardless of the dividend policy applied. Consequently, **Hypothesis H2** is not supported by the empirical results. Moreover, this result differs from previous studies, such as Gharbi and Jarboui (2023) and Kanakriyah (2020), which suggest a positive role of dividend policy in enhancing company resilience through dividend stability.

Consistent with our expectations, the analysis of the upswing period shows no statistically significant moderating effect of DPP on the ESG-CFD relationship. This result suggests that a robust DPP does not significantly moderate the impact of ESG exposure on financial stability during periods of economic growth. Hence, this result, which is consistent across both economic downturns and expansions, suggest that the financial dynamics of ESG engagement on CFD are not moderated by DPP. This result confirms that the potential influence of DPP lacks robustness and appears to be sensitive to the specific modelling approach used, rather than reflecting a consistent moderating effect.

3.4 Robustness Check

To address potential concerns about endogeneity and omitted variable bias, we conduct several robustness checks, as described in Chapter 4.4 of the Group Part. First, we include additional control variables into our regression models. The results of these controls for both economic periods are reported in **Tables 23 and 24** (see appendix) and confirm that the ESG coefficients remain robust in both direction and significance. However, when test the moderating effect of DPP on the ESG-CFD relationship, we observe that the interaction term *ESG x DIV* shows no significance at any %-level and varies between positive and negative values depending on the specific control variables included.

Regarding the robustness of the CFD measure, **Tables 25 and 26** (see appendix) show that the ESG coefficients remain robust in direction and magnitude when using the O Score as

an alternative measure for CFD, considering that the likelihood of CFD increases with an increasing O Score. However, in terms of significance, the downturn period is no longer significant while the upswing period is significant. Furthermore, when examining the influence of the interaction term, we can conclude that the moderating coefficient of DPP also has a negative, but still insignificant effect on the ESG-CFD relationship when using the O Score for both economic periods.

Finally, in the 2SLS and GMM regressions, the IVs described in Chapter 4.3 of the Group Part were consistently used to analyse the two different sub-samples. The results of the 2SLS and GMM regressions are presented in **Tables 27 and 28** (see appendix). **Table 27** shows that the ESG Score in the 2SLS model is consistent with the results in **Table 21** in terms of both direction and significance for the two economic periods. However, the GMM model shows a significant impact of the ESG Score on the Z Score at the 1% level during the economic upswing period, in contrast to previous robustness tests which consistently found no significant impact of ESG in such periods. We therefore suggest that the ESG effect in this sub-sample lacks robustness as it appears to be sensitive to the model specification used. Thus, the lack of consistency across models suggests that this relationship is not as stable or reliable as during economic downturns. In addition, the same conclusion can be drawn for the results reported in **Table 28**, as the 2SLS and the GMM model show similar findings regarding the ESG-CFD relationship. However, within the 2SLS the interaction term *ESG x DIV* shows a negative and highly significant moderating effect on the ESG-CFD relationship in both sub-samples. In addition, the GMM regression shows a contrasting result, with the interaction term now also exhibiting a negative, insignificant coefficient. This discrepancy further highlights the lack of robustness of the moderating role of DPP, suggesting that any moderating effect observed may be model dependent and not consistently reliable across specifications. Consequently, the result cannot be interpreted or taken as a conclusive finding.

In summary, the robustness checks mostly provide confirmation of the significance and direction of the ESG effect on CFD, while addressing endogeneity concerns. Across different model specifications and control variables, ESG remains mostly a consistent predictor of CFD in terms of direction and magnitude across economic cycles, reinforcing the reliability of this primary effect. However, the moderating influence of DPP on the ESG-CFD relationship is not robust and cannot be cleared from endogeneity concerns, showing different significance and direction depending on the model. This inconsistency suggests that the results of the moderating variable cannot be properly interpreted and must be ignored.

4 Discussion and Conclusion

In this part of the work project, we provided evidence on the impact of different economic cycles on the relationship between ESG and CFD and examine how the moderating effect of DPP varies within these dynamics. To conduct this analysis, we used the dataset derived in Chapter 3.1 of the Group Part, which consists of 49,211 firm-year observations covering various industry sectors over an 18-year period. We split this dataset into two subsets based on economic cycles: downturns and upswings. In line with previous studies, such as Habermann and Fischer (2023) and Zheng et al. (2019), we hypothesised that ESG activities may have different effects during economic downturns and upswings. By focusing on specific economic phases, we wanted to capture the cyclical nature of the impact of ESG on CFD and understand the sensitivity of the moderating variable.

By utilizing FE regression models with clustered and heteroskedasticity-robust standard errors, we find that the ESG Score correlates negatively with the Z Score during economic downturns, indicating an increased risk of financial distress for companies with higher ESG Scores. Moreover, we examine that the ESG Score has an insignificant influence on CFD during times of economic upswing. These results are mostly robust to several tests, including additional control variables, alternative measures of financial distress, and two IV approaches,

namely 2SLS and GMM, which address endogeneity concerns and mitigate potential omitted variable bias. Thus, we can conclude that companies with higher ESG Scores face a higher risk of financial distress during times of economic downturn, indicating that the positive effects of ESG such as a higher creditworthiness, better access to financing, or a lower cost of capital (Cheng et al., 2014; Jiraporn et al., 2014) are outweighed by its associated costs. This finding aligns with Boubaker et al. (2020), who observed that the protective effects of CSR diminish during crises, suggesting that ESG may fail to shield companies from financial distress under adverse economic conditions. Nevertheless, other prior literature such as Binesh et al. (2024) and Shahrour et al. (2021), who suggest a protective effect of CSR during crisis periods, are thereby contradicted. In addition, we also examined that ESG has no significant effect on the Z Score in times of economic upswing. This result is in line with Habermann and Fischer (2023) and Zheng et al. (2019), who also postulated an insignificant effect of ESG on CFD in times of economic upswing. One possible interpretation is that, unlike in downturns, companies may face fewer financial constraints in implementing ESG strategies during periods of upswing. As a result, ESG initiatives may be less of a financial burden, allowing companies to integrate these practices without compromising their financial stability. Moreover, the result resonates with the argument by Habermann and Fischer (2023) that during periods of economic upswing, companies encounter less external pressure to justify their ESG investments to stakeholders. The reduced necessity for such justifications could diminish the overall relevance of ESG as a stabilising factor, which, following *Agency Theory,* may explain why ESG spending in these periods may primarily reflect additional costs without further benefits (Habermann & Fischer, 2023: 253).

In interpreting the results regarding the moderating role of DPP, we concluded in Chapter 4.3 of the Group Part that while the moderating effect reached statistical significance at the 10% level, its reliability was partially dependent on the specific model specifications

employed. In re-evaluating the influence of DPP over two different economic cycles, we further found that this moderating effect did not show consistent robustness when applied to both the downturn and upswing sub-samples. This inconsistency suggests that the moderating role of DPP may be particularly sensitive to external economic conditions, potentially amplifying or dampening the effect of ESG on financial distress. However, given the observed variability, this effect cannot be considered fully reliable and robust. Consequently, while DPP may serve as a conditional moderator, the evidence does not support a universal or robust moderating role, limiting the extent to which strong conclusions can be drawn about its stabilising effect as explained by Cohen and Yagil (2009) and Kumar and Lee (2001).

Besides the limitations identified in Chapter 6 of the Group Part, there is one additional factor regarding the creation of the sub-samples used in this analysis that limit the validity of the regression results, which also provide guidance for future directions. Namely, our analysis assumes that ESG effects are conditional on two economic cycles. Hence, it should be noted that economic cycles can be complex, and that the segmentation of the data into two broad categories may result in an oversimplification of the economic environment. While the 18-year period covers significant crises such as the 2008-2009 global financial crisis and the COVID-19 pandemic, segmenting the data into just two broad cycles may still oversimplify the complex and local nature of economic cycles. Moreover, this period may not fully capture the long-term trends that may emerge beyond these downturns, for example the post-crisis recovery phase of the COVID-19 pandemic. Thus, future research could consider the complexities of transition phases, which often precede or follow periods of economic upswing or downturn, to assess whether the ESG-CFD relationship, along with DPP as a moderator, evolves differently.

List of Internet Resources

Boata, M., Kuhanathan, A., and Lemerle, M. (2024). Global Allianz Trade Insolvency Outlook: Reality check, Allianz Trade, https://www.allianz-trade.com/en_BE/news/latest-news/insolvency-outlook-2024.html

G&A Institute (2024), 2024 Sustainability Reporting In Focus, https://www.ga-institute.com/research/research/sustainability-reporting-trends/2024-sustainability-reporting-in-focus/

G&A Institute (2021), 2021 Sustainability Reporting In Focus, https://www.ga-institute.com/research/research/sustainability-reporting-trends/2021-sustainability-reporting-in-focus/

International Monetary Fund (2024), World Economic Outlook Database - Groups and Aggregates Information, https://www.imf.org/en/Publications/WEO/weo-database/2024/April/groups-and-aggregates

LSEG (2023), Environmental, social and governance scores from LSEG, LSEG Database, https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf

OECD (2021), ESG Investing and Climate Transition: Market Practices, Issues and Policy Considerations, OECD Paris, https://www.oecd-ilibrary.org/finance-and-investment/esg-investing-and-climate-transition_a2fc6c39-en

List of References

Abbassi, W., Boubaker, S., Manita, R., and Pandey, D. K. (2023), "Are environmentally friendly companies more vulnerable to the Russia-Ukraine crisis", *International journal of accounting, auditing and performance evaluation*.

Abeysekera, A., Fernando, C.S., 2020, "Corporate social responsibility versus corporate shareholder responsibility: a family firm perspective.", *J. Corp. Finance*. **61**, 101370.

Agrawal, S., Liu, L. Y., Rajgopal, S., Sridharan, S. A., Yan, Y., and Yohn, T. L. (2023), "ESG Ratings of ESG Index Providers.", *Columbia Business School Research Paper*, 4468531.

Agarwal, V., and Taffler, R. (2008), "Comparing the performance of market-based and accounting-based bankruptcy prediction models.", *Journal of banking & finance*, **32(8)**, 1541-1551.

Al-Hadi, A., Chatterjee, B., Yaftian, A., Taylor, G., and Monzur Hasan, M. (2019), "Corporate social responsibility performance, financial distress and firm life cycle: evidence from Australia.", *Accounting & Finance*, ***59*(2)**, 961–989.

Altman, E. I. (1968), "Financial ratios, discriminant analysis and the prediction of corporate bankruptcy.", *The journal of finance*, **23(4)**, 589-609.

Altman, E., and Hotchkiss, E. (2006), "Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy", *Analyze and Invest in Distressed Debt (3rd ed.)*. *Wiley*.

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., and Suvas, A. (2017), "Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model.", *Journal of international financial management & accounting*, **28(2)**, 131-171.

Antunes, J., Wanke, P., Fonseca, T., and Tan, Y. (2023), "Do ESG Risk Scores Influence Financial Distress? Evidence from a Dynamic NDEA Approach.", *Sustainability*, **15(9)**, 7560.

Aouadi, A., and Marsat, S. (2018), "Do ESG controversies matter for firm value? Evidence from international data.", *Journal of business ethics*, **151**, 1027-1047.

Aslan, A., Poppe, L., and Posch, P. (2021), "Are sustainable companies more likely to default? Evidence from the dynamics between credit and ESG ratings.", *Sustainability*, **13(15)**, 8568.

Asyikin, J., Chandrarin, G., and Harmono, H. (2018), "Analysis of financial performance to predict financial distress in sharia commercial banks in Indonesia.", *International Journal of Accounting, Finance, and Economics*, **1(2)**, 11-20.

Badayi, S. A., Matemilola, B. T., An, B. A., and Wei Theng, L. (2021), "Does corporate social responsibility influence firm probability of default?", *International Journal of Finance & Economics*, **26(3)**, 3377-3395.

Badru, B. O., and Qasem, A. (2021), "Corporate social responsibility and dividend payments in the Malaysian capital market: the interacting effect of family-controlled companies.", *Journal of Sustainable Finance & Investment*, **14(2)**, 283–306.

Baker, H. K., Singleton, J. C., and Veit, E. T. (2011), "Survey research in corporate finance: bridging the gap between theory and practice*"*, *Oxford University Press*.

Beecher, J. A. (2013), "Economic regulation of utility infrastructure.", *Infrastructure and Land Policies*, *Lincoln Institute of Land Policy*.

Benlemlih, M. (2019), "Corporate social responsibility and dividend policy.", *Research in International Business and Finance*, **47**, 114–138.

Bilyay-Erdogan, S., Danisman, G. O. and Demir, E. (2023), "ESG performance and dividend payout: A channel analysis.", *Finance Research Letters*, **55**, 103827.

Binesh, F., E-Vahdati, S., and Ozdemir, O. (2024), "ESG performance and financial distress during COVID-19: the moderating effects of innovation and capital intensity.", *Asia-Pacific Journal of Business Administration*, **17(1)**, 212–238.

Bing, T., and Li, M. (2019), "Does CSR signal the firm value? Evidence from China. *Sustainability*, **11(15)**, 4255.

Bloomfield, R. J. (2002). "The incomplete revelation hypothesis' and financial reporting", *Accounting Horizons*, **16 (3)**, 233-243.

Boubaker, S., Cellier, A., Manita, R., and Saeed, A. (2020), "Does corporate social responsibility reduce financial distress risk?", *Economic Modelling*, **91**, 835-851.

Barney, J. (1991), "Firm Resources and Sustained Competitive Advantage.", Jour*nal of Management*, **17(1)**, 99–120.

Brav, A., Graham, J. R., Harvey, C. R. and Michaely, R. (2005), "Payout policy in the 21st century.", *Journal Of Financial Economics*, **77(3)**, 483–527.

Campbell, J. Y., Hilscher, J., and Szilagyi, J. (2008), "In search of distress risk.", *The Journal of finance*, **63(6)**, 2899-2939.

Cao, J., Kubick, T. R., and Masli, A. N. (2017), "Do corporate payouts signal going-concern risk for auditors? Evidence from audit reports for companies in financial distress.", *Review of Quantitative Finance and Accounting*, **49**, 599-631.

Ceccarelli, M., Ramelli, S., and Wagner, A. F. (2024), "Low carbon mutual funds.", *Review of Finance*, **28(1)**, 45-74.

Chen, H. C., and Yeh, C. W. (2021), "Global financial crisis and COVID-19: Industrial reactions.", *Finance Research Letters*, **42**, 101940.

Chen, Y., Li, T., Zeng, Q., and Zhu, B. (2023), "Effect of ESG performance on the cost of equity capital: Evidence from China.", *International Review of Economics & Finance*, **83**, 348-364.

Cheng, B., Ioannou, I., and Serafeim, G. (2014), "Corporate social responsibility and access to finance.", *Strategic management journal*, **35(1)**, 1-23.

Cheung, A., Hu, M. and Schwiebert, J. (2018), "Corporate social responsibility and dividend policy.", *Accounting And Finance*, **58(3)**, 787–816.

Coelho, R., Jayantilal, S., and Ferreira, J. J. (2023), "The impact of social responsibility on corporate financial performance: A systematic literature review.", *Corporate Social Responsibility and Environmental Management*, **30(4)**, 1535-1560.

Cohen, S., Kadach, I., Ormazabal, G., and Reichelstein, S. (2023), "Executive compensation tied to ESG performance: International evidence.", *Journal of Accounting Research*, **61(3)**, 805-853.

Cohen, G., and Yagil, J. (2009), "Why do financially distressed companies pay dividends?", *Applied Economics Letters*, **16(12)**, 1201–1204.

Connor, T. (2002), "The resource-based view of strategy and its value to practising managers.", *Strategic Change*, **11(6)**, 307–316.

Cooper, E., and Uzun, H. (2019), "Corporate social responsibility and bankruptcy.", *Studies in Economics and Finance*, **36(2)**, 130-153.

Cuadrado-Ballesteros, B., Garcia-Sanchez, I. M., and Martinez Ferrero, J. (2016), "How are corporate disclosures related to the cost of capital? The fundamental role of information asymmetry.", *Management Decision*, **54(7)**, 1669-1701.

Dhaliwal, D. S., Li, O. Z., Tsang, A., and Yang, Y. G. (2011), "Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting", *The accounting review*, **86(1)**, 59-100.

Devalle, A. (2017), "The linkage between ESG performance and credit ratings: A firm-level perspective analysis.", *International Journal of Business and Management*, **12(9)**, 53.

Ding, H., and Lee, W. (2024), "ESG and Financial Performance of China Firms: The Mediating Role of Export Share and Moderating Role of Carbon Intensity.", *Sustainability*, **16(12)**, 5042.

Dirman, A. (2020), "Financial distress: the impacts of profitability, liquidity, leverage, firm size, and free cash flow.", *International Journal of Business, Economics and Law*, **22(1)**, 17-25.

Diwan, H., and Sreeraman, B. (2024), "From financial reporting to ESG reporting: a bibliometric analysis of the evolution in corporate sustainability disclosures.", *Environment, development and sustainability*, **26(6)**, 13769-13805.

Do, T. K. (2022), "Corporate social responsibility and default risk: International evidence.", *Finance Research Letters*, **44**, 102063.

Ducassy, I. (2013), "Does corporate social responsibility pay off in times of crisis? An alternate perspective on the relationship between financial and corporate social performance.", *Corporate Social Responsibility and Environmental Management*, **20(3)**, 157-167.

Dyck, A., Lins, K. V., Roth, L., and Wagner, H. F. (2019), "Do institutional investors drive corporate social responsibility? International evidence." *Journal of financial economics*, **131(3)**, 693-714.

Eccles, R. G., Ioannou, I., and Serafeim, G. (2014), "The impact of corporate sustainability on organizational processes and performance.", *Management science*, **60(11)**, 2835-2857.

Edmans, A. (2023), "The end of ESG.", *Financial Management*, ***52*(1)**, 3-17.

El-Deeb, M. S., and Allam, M. F. (2024), "The moderating effect of dividend policy on the relationship between the corporate risk disclosure and firm value: evidence from Egypt.", *Futur Bus J,* **10**, 25.

European Commission (2011), "A Renewed EU Strategy 2011-14 for Corporate Social Responsibility", 1–15.

Evans, J. D. (1996), "Straightforward statistics for the behavioral sciences". *Thomson Brooks/Cole Publishing Co*.

Farooq, M., Ahmed, A., Khan, I. and Munir, M. (2024), "Impact of dividend policy on corporate social responsibility: the role of board governance mechanism.", *Journal of Global Responsibility*.

Freeman R. E. (1984), "Strategic management: a stakeholder approach", *Pitman*.

Friede, G., Busch, T., and Bassen, A. (2015), "ESG and financial performance: aggregated evidence from more than 2000 empirical studies.", *Journal of sustainable finance & investment*, **5(4)**, 210-233.

Friedman, M. (2007), "The Social Responsibility of Business Is to Increase Its Profits", *Corporate Ethics and Corporate Governance*, 173–178.

Friedman, M. (1970), "The Social Responsibility of Business Is to Increase Its Profits", *New York Times Magazine*, 122–126.

Gangi, F., Meles, A., Monferrà, S., and Mustilli, M. (2020), "Does corporate social responsibility help the survivorship of SMEs and large firms?", *Global Finance Journal*, **43**, 100402.

Gharbi, M., and Jarboui, A. (2023), "The moderating effect of dividend policy on the relationship between corporate social responsibility and financial performance:

evidence from french context", *International Journal of Economics and Business Administration*, **9(2)**, 97-114.

Ghoul, S. E., Guedhami, O., and Kim, Y. (2017), "Country-level institutions, firm value, and the role of corporate social responsibility initiatives", *Journal of International Business Studies*, **48**, 360-385.

Ghoul, S. E., Guedhami, O., Kwok, C. C., and Mishra, D. R. (2011), "Does corporate social responsibility affect the cost of capital?", *Journal of Banking and Finance*, **35(9)**, 2388–2406.

Giarto, R. V. D., and Fachrurrozie, F. (2020), "The effect of leverage, sales growth, cash flow on financial distress with corporate governance as a moderating variable", *Accounting Analysis Journal*, **9(1)**, 15-21.

Gillan, S. L., Koch, A., and Starks, L. T. (2021), "Firms and social responsibility: A review of ESG and CSR research in corporate finance", *Journal of Corporate Finance*, **66**, 101889.

Godfrey, P. C. (2005), "The relationship between corporate philanthropy and shareholder wealth: A risk management perspective", *Academy of management review*, **30(4)**, 777-798.

Gong, Y., and Ho, K. C. (2018), "Does corporate social responsibility matter for corporate stability? Evidence from China", *Quality & Quantity*, **52(5)**, 2291–2319.

Goss, A., and Roberts, G. S. (2011), "The impact of corporate social responsibility on the cost of bank loans", *Journal of banking & finance*, **35(7)**, 1794-1810.

Grossman, H. (2005), "Refining the role of the corporation: the impact of corporate social responsibility on shareholder primacy theory", *Deakin Law Review*, **10(2)**, 572-597.

Habermann, F., and Fischer, F. B. (2023), "Corporate social performance and the likelihood of bankruptcy: Evidence from a period of economic upswing", *Journal of Business Ethics*, **182(1)**, 243-259.

Habib, A. M. (2023), "Do business strategies and environmental, social, and governance (ESG) performance mitigate the likelihood of financial distress? A multiple mediation model", *Heliyon*, **9(7)**.

Hartzmark, S. M., and Sussman, A. B. (2019), "Do investors value sustainability? A natural experiment examining ranking and fund flows", *The Journal of Finance*, **74(6)**, 2789-2837.

Hillman, A. J., and Keim, G. D. (2001), "Shareholder Value, Stakeholder Management, and Social Issues: What's the Bottom Line?" *Strategic Management Journal*, **22(2)**, 125-139.

Hsu, P. H., Lee, H. H., Liu, A. Z., and Zhang, Z. (2015), "Corporate innovation, default risk, and bond pricing", *Journal of Corporate Finance*, **35**, 329-344.

Hwang, J., Kim, H., and Jung, D. (2021), "The effect of ESG activities on financial performance during the COVID-19 pandemic—Evidence from Korea". *Sustainability*, **13(20)**, 11362.

Jabbouri, I. (2016), "Determinants of corporate dividend policy in emerging markets: Evidence from MENA stock markets", *Research in international business and finance*, **37**, 283-298.

Javed, M., Shah, Z. A., and Rahman, A. (2020), "Exploring Role of CSR in Preventing Bankruptcy: Moderation Effect of Board Independence in Manufacturing Sector of Pakistan and Australia", *Global Social Sciences Review*, 32-44.

Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, **3(4)**, 305–360.

Jiraporn, P., Jiraporn, N., Boeprasert, A., and Chang, K. (2014), "Does corporate social responsibility (CSR) improve credit ratings? Evidence from geographic identification", *Financial management*, **43(3)**, 505-531.

Jones, T. M., and Felps, W. (2013), "Shareholder Wealth Maximization and Social Welfare: A Utilitarian Critique", *Business Ethics Quarterly*, **23(2)**, 207–238.

Kanakriyah, R. (2020), "Dividend Policy and Companies' Financial Performance". *The Journal of Asian Finance, Economics and Business*, 531-541.

Kovvali, A., and Macey, J. C. (2023), "The Corporate Governance of Public Utilities", *Yale J. on Reg.*, **40**, 569.

Krüger, P. (2015), "Corporate goodness and shareholder wealth", *Journal of financial economics*, **115(2)**, 304-329.

Kumar, P. and Lee, B. S. (2001), "Discrete dividend policy with permanent earnings", *Financial Management*, **30**, 55-76.

Kutner, M. H., Nachtsheim, C. J., Neter, J., and Li, W. (2005), "Applied linear statistical models", *McGraw-hill.*

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (2000), "Investor protection and corporate governance", *Journal of financial economics*, **58(1-2)**, 3-27.

Li, Z., Farmanesh, P., Kirikkaleli, D., and Itani, R. (2022), "A comparative analysis of COVID-19 and global financial crises: evidence from US economy", *Economic Research-Ekonomska Istraživanja*, **35(1)**, 2427-2441.

Li, W. and Lie, E. 2006, "Dividend changes and catering incentives", *Journal of Financial Economics*, **80**, 293-308.

Lin, K. C., and Dong, X. (2018), "Corporate social responsibility engagement of financially distressed companies and their bankruptcy likelihood", *Advances in accounting*, **43**, 32-45.

Lins, K. V., Servaes, H., and Tamayo, A. (2017), "Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis", *The Journal of Finance*, **72(4)**, 1785–1824.

Lockett, A., and Thompson, S. (2001), "The resource-based view and economics", *Journal of Management*, **27(6)**, 723–754.

Lohmann, C., Möllenhoff, S., and Lehner, S. (2024), "On the Relationship between Financial Distress and ESG Scores", *SSRN*, 4751503.

Masulis, R. W., and Reza, S. W. (2015), "Agency problems of corporate philanthropy", *The Review of Financial Studies*, **28(2)**, 592-636.

Marsat, S., and Williams, B. (2013), "CSR and market valuation: International evidence", *Bankers Markets & Investors: an academic & professional review*, **123**, 29-42.

Megginson, W. L., Meles, A., Sampagnaro, G., and Verdoliva, V. (2019), "Financial distress risk in initial public offerings: how much do venture capitalists matter?", *Journal of Corporate Finance*, **59**, 10-30.

Nickerson, D., Lowe, M., Pattabhiramaiah, A., and Sorescu, A. (2021), "The Impact of Corporate Social Responsibility on Brand Sales: An Accountability Perspective". *Journal of Marketing*, **86(2)**, 5–28.

Nissim, D., and Ziv, A. (2001), "Dividend changes and future profitability", *The Journal of finance*, **56(6)**, 2111-2133.

Ohlson, J. A. (1980), "Financial Ratios and The Probabilistic Prediction of Bankruptcy", *Journal of Accounting Research*.

Ould Daoud Ellili, N. (2020), "Environmental, social, and governance disclosure, ownership structure and cost of capital: Evidence from the UAE", *Sustainability*, **12(18)**, 7706.

Pérez, L., Hunt, V., Samandari, H., Nuttall, R., and Biniek, K. (2022), "Does ESG really matter—and why", *McKinsey Quarterly*, **60(1)**.

Porter, M. E.; and Kramer, M. R. (2006), "The link between competitive advantage and corporate social responsibility". *Harv. Bus. Rev*, **84**, 78–92.

Post, F. R. (2003), A Response to "The Social Responsibility of Corporate Management: A Classical Critique.", *American Journal of Business*, **18(1)**, 25–36.

Radzi, S. H. M., Hamid, N. A. and Ismail, R. F. (2023), "An overview of Environmental, Social and Governance (ESG) and company performance", *The European Proceedings Of Social & Behavioural Sciences*, ***131***, 1111–1122.

Raimo, N., Caragnano, A., Zito, M., Vitolla, F., and Mariani, M. (2021), "Extending the benefits of ESG disclosure: The effect on the cost of debt financing", *Corporate Social Responsibility and Environmental Management*, **28(4)**, 1412-1421.

Rakotomavo, M. T. (2012), "Corporate investment in social responsibility versus dividends?", *Social Responsibility Journal*, **8(2)**, 199-207.

Rizwan, M. S., Obaid, A., and Ashraf, D. (2017), "The Impact of Corporate Social Responsibility on Default Risk: Empirical Evidence from US Firms", *SSRN Electronic Journal*.

Salzbank, S., Lu, C., and Yim, E. (2023), "Use of environmental, social, and governance measures in incentive plans", *FW Cook.*

Samet, M., and Jarboui, A. (2017), Corporate social responsibility and payout decisions, *Management Finance*, **43**, 982–998.

Servaes, H., and Tamayo, A. (2013), "The impact of corporate social responsibility on firm value: the role of customer awareness", *Manag. Sci*, **59(5)**, 1045–1061.

Shahrour, M. H., Girerd-Potin, I., and Taramasco, O. (2022), "Corporate Social Responsibility and Firm Default Risk Mitigation: The Moderating Role of the Legal Context", *Finance Contrôle Stratégie*, 25–1.

Shahrour, M. H., Girerd-Potin, I., and Taramasco, O. (2021), "Corporate social responsibility and firm default risk in the Eurozone: a market-based approach", *Managerial Finance*, **47(7)**, 975-997.

Sheather, S. (2009), "A Modern Approach to Regression with R", *Springer Science & Business Media*.

Shi, Y., Li, X., and Asal, M. (2023), "Impact of sustainability on financial distress in the air transport industry: the moderating effect of Asia–Pacific", *Financial Innovation*, **9(1)**, 97.

Song, S., and Deng, M. (2023), "The impact of Firms' ESG Performance on Financing Constraints", *International Journal of Management Science Research*, **6(5)**, 60-72.

Sun, Z., Li, X., Xie, J. and Cheng, C. (2023), "How does dividend payout affect corporate social responsibility? A channel analysis", *Journal Of Financial Stability*, **68**, 101165.

Suprabha, K. R., Sreepriya, J., and Prasad, K. (2024), "The impact of ESG disclosure on mitigating financial distress: exploring the moderating role of firm life cycle", *International Journal of Disclosure and Governance*, 1-14.

Schoenmaker, D., and Schramade, W. (2019), "Principles of Sustainable Finance", *Oxford University Press*.

Tse, T. (2011), "Shareholder and stakeholder theory: after the financial crisis", *Qualitative Research in Financial Markets*, **3(1)**, 51–63.

Verwijmeren, P., and Derwall, J. (2010), "Employee well-being, firm leverage, and bankruptcy risk", *Journal of Banking & Finance*, **34(5)**, 956-964.

Yu, Z., Farooq, U., Alam, M. M. and Dai, J. (2024), "How does environmental, social, and governance (ESG) performance determine investment mix? New empirical evidence from BRICS", *Borsa Istanbul Review*.

Zahid, R. A., Taran, A., Khan, M. K., and Chersan, I. C. (2023), "ESG, dividend payout policy and the moderating role of audit quality: Empirical evidence from Western Europe", *Borsa Istanbul Review*, **23(2)**, 350-367.

Zanin, L. (2022), "Estimating the effects of ESG scores on corporate credit ratings using multivariate ordinal logit regression", *Empirical Economics*, **62(6)**, 3087-3118.

Zhang, Y. (2011), "The Analysis of Shareholder Theory and Stakeholder Theory", *Fourth International Conference on Business Intelligence and Financial Engineering*.

Zheng, Y., Wang, Y., and Jiang, C. (2019), "Corporate social responsibility and likelihood of financial distress".

Appendix – Group Part

Figure 1: Conceptual Structure of this Study

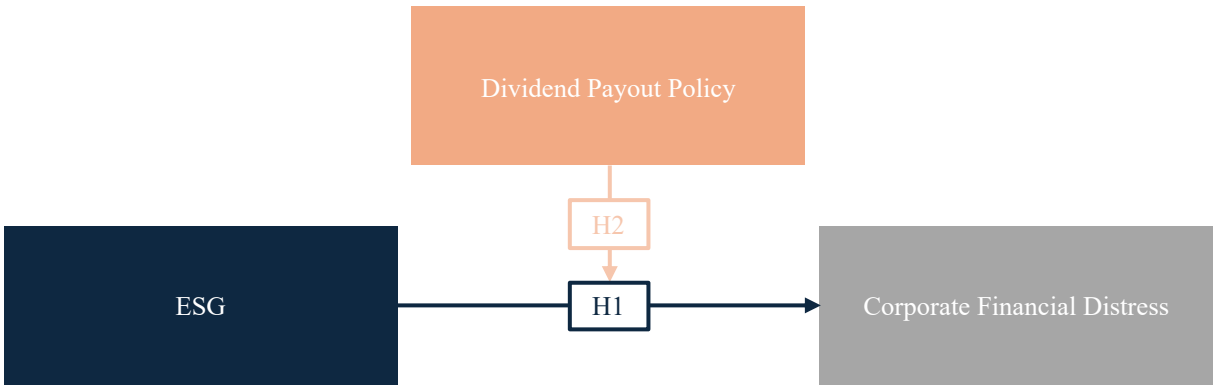

Figure 2: Overall ESG Score Composition

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 (1) First Stage	2SLS (2) Second Stage	GMM (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 (1) First Stage ESG	2SLS (2) Second Stage	GMM (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 – Economic Downturn

Panel A: Distribution by Country

#	Country	No.	Share	Z Score	ESG Score	DIV
1	Argentina	77	0.32%	2.30	44.57	0.05
2	Australia	895	3.73%	3.87	47.42	0.14
3	Austria	127	0.53%	2.04	56.16	0.07
4	Azerbaijan	3	0.01%	3.65	12.15	0.08
5	Bahamas	2	0.01%	1.18	30.62	0.01
6	Bahrain	13	0.05%	10.10	36.12	0.16
7	Belgium	149	0.62%	2.99	55.79	0.12
8	Bermuda	42	0.17%	1.64	40.92	0.13
9	Brazil	348	1.45%	2.76	52.19	0.07
10	Cambodia	3	0.01%	4.01	70.52	0.21
11	Canada	974	4.05%	2.78	45.73	0.08
12	Cayman Islands	14	0.06%	7.62	41.24	0.07
13	Chile	141	0.59%	1.84	51.48	0.09
14	China	3,495	14.55%	7.16	38.88	0.06
15	Colombia	53	0.22%	2.10	59.84	0.08
16	Cyprus	19	0.08%	2.59	34.62	0.07
17	Egypt	31	0.13%	3.31	26.60	0.09
18	France	579	2.41%	3.13	59.85	0.05
19	Germany	768	3.20%	3.12	53.05	0.04
20	Greece	81	0.34%	5.15	48.09	0.08
21	Hong Kong	598	2.49%	2.63	48.48	0.15
22	India	948	3.95%	10.39	50.41	0.04
23	Indonesia	175	0.73%	5.05	48.96	0.06
24	Israel	48	0.20%	3.49	37.08	0.07
25	Italy	316	1.32%	3.00	59.80	0.06
26	Japan	2,152	8.96%	4.08	49.78	0.03
27	Kazakhstan	7	0.03%	5.35	69.96	0.16
28	Kenya	4	0.02%	6.50	51.61	0.19
29	Kuwait	25	0.10%	2.17	40.37	0.11
30	Luxembourg	77	0.32%	2.26	53.40	0.05
31	Macau	5	0.02%	3.06	55.38	0.17
32	Malaysia	513	2.14%	5.92	45.66	0.09
33	Malta	7	0.03%	5.15	42.22	0.07
34	Mexico	157	0.65%	3.24	51.64	0.06
35	Morocco	44	0.18%	5.99	39.60	0.09
36	Netherlands	210	0.87%	3.11	62.71	0.06
37	New Zealand	171	0.71%	2.81	42.47	0.14
38	Nigeria	3	0.01%	1.44	56.98	0.08
39	Oman	8	0.03%	1.29	22.88	0.04
40	Pakistan	11	0.05%	2.41	31.73	0.07
41	Panama	1	0.00%	1.39	25.42	0.04
42	Peru	74	0.31%	2.41	47.82	0.08
43	Philippines	107	0.45%	1.97	50.34	0.06
44	Portugal	64	0.27%	1.64	64.94	0.06
45	Puerto Rico	4	0.02%	3.80	24.91	0.02
46	Qatar	46	0.19%	3.86	23.34	0.14
47	Saudi Arabia	85	0.35%	8.25	38.03	0.17
48	Singapore	313	1.30%	3.01	45.88	0.15
49	Slovenia	4	0.02%	6.41	59.06	0.10
50	South Africa	345	1.44%	3.24	53.14	0.08
51	South Korea	502	2.09%	3.18	52.36	0.02
52	Spain	230	0.96%	2.27	66.06	0.08
53	Sri Lanka	5	0.02%	1.49	59.85	0.01
54	Sweden	694	2.89%	5.21	52.71	0.11
55	Switzerland	491	2.04%	5.27	51.69	0.06
56	Taiwan	588	2.45%	4.19	57.10	0.08
57	Thailand	447	1.86%	4.18	52.82	0.12
58	Turkey	211	0.88%	7.06	60.57	0.03
59	United Arab Emirates	74	0.31%	3.93	41.57	0.11
60	United Kingdom	1,552	6.46%	3.82	51.18	0.07
61	United States of America	4,838	20.14%	3.56	49.44	0.07
62	Uruguay	7	0.03%	4.10	49.58	0.00
63	Vietnam	42	0.17%	3.15	32.91	0.04
64	Zimbabwe	4	0.02%	3.75	28.56	1.15
	Total	**24,021**	**100.00%**			

Table 16: Continued

Panel B: Distribution by Industry

#	Industry	No.	Share	Z Score	ESG Score	DIV
1	Agriculture	156	0.65%	3.03	38.16	0.06
2	Arts & Recreation	125	0.52%	4.02	42.63	0.08
3	Construction	1,210	5.04%	1.94	49.71	0.06
4	Educational Services	81	0.34%	3.73	39.59	0.08
5	Health Care	270	1.12%	5.38	47.51	0.04
6	Holdings	6	0.02%	32.52	9.45	0.63
7	Hospitality	373	1.55%	3.31	51.42	0.04
8	Information	1,742	7.25%	5.29	46.34	0.08
9	Manufacturing	10,795	44.94%	5.81	50.04	0.04
10	Mining & Extraction	1,198	4.99%	3.52	50.92	0.08
11	Other Services	74	0.31%	3.16	43.15	0.03
12	Professional Services	1,022	4.25%	5.34	50.36	0.05
13	Public Services	381	1.59%	4.11	47.96	0.04
14	Real Estate	1,857	7.73%	1.62	47.79	0.28
15	Retail Trade	1,311	5.46%	4.04	48.05	0.03
16	Transportation	1,126	4.69%	2.48	47.12	0.08
17	Utilities	1,394	5.80%	1.68	50.56	0.11
18	Wholesale	900	3.75%	4.42	43.39	0.03
	Total	**24,021**	**100.00%**			

Panel C: Distribution by Fiscal Year

#	Fiscal Year	No.	Share	Z Score	ESG Score	DIV
1	2008	873	3.63%	2.76	42.70	0.07
2	2009	1,338	5.57%	3.29	42.37	0.05
3	2010	1,626	6.77%	3.66	42.64	0.05
4	2020	4,612	19.20%	5.15	47.67	0.07
5	2021	5,189	21.60%	5.42	48.60	0.07
6	2022	5,230	21.77%	4.17	51.14	0.08
7	2023	5,153	21.45%	4.04	52.98	0.08
	Total	**24,021**	**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 – Economic Upswing

Panel A: Distribution by Country

#	Country	No.	Share	Z Score	ESG Score	DIV
1	Argentina	54	0.21%	2.14	32.99	0.08
2	Australia	1,275	5.06%	3.66	39.38	0.12
3	Austria	141	0.56%	2.28	51.60	0.04
4	Bahamas	1	0.00%	2.74	24.70	0.00
5	Bahrain	6	0.02%	8.09	11.51	0.19
6	Belgium	184	0.73%	2.74	48.19	0.08
7	Bermuda	57	0.23%	1.95	38.20	0.14
8	Brazil	417	1.66%	2.22	53.29	0.07
9	Canada	1,172	4.65%	2.72	40.53	0.08
10	Cayman Islands	21	0.08%	6.55	30.42	0.04
11	Chile	192	0.76%	1.87	40.09	0.08
12	China	1,657	6.58%	4.59	30.74	0.07
13	Colombia	54	0.21%	3.15	53.91	0.07
14	Cyprus	10	0.04%	0.84	15.88	0.15
15	Egypt	42	0.17%	2.16	16.12	0.07
16	France	665	2.64%	2.74	59.84	0.06
17	Germany	663	2.63%	3.05	55.16	0.04
18	Greece	86	0.34%	3.06	47.25	0.04
19	Hong Kong	816	3.24%	2.87	38.61	0.13
20	India	625	2.48%	6.56	49.58	0.04
21	Indonesia	236	0.94%	6.39	41.84	0.07
22	Israel	84	0.33%	2.93	36.64	0.07
23	Italy	228	0.91%	2.44	60.40	0.07
24	Japan	3,036	12.05%	3.77	44.19	0.03
25	Kazakhstan	10	0.04%	3.07	60.60	0.14
26	Kenya	5	0.02%	14.25	42.03	0.21
27	Kuwait	32	0.13%	2.35	37.67	0.12
28	Luxembourg	62	0.25%	2.75	49.57	0.10
29	Macau	26	0.10%	4.81	44.48	0.18
30	Malaysia	321	1.27%	4.18	43.14	0.08
31	Malta	5	0.02%	5.58	39.93	0.12
32	Mexico	197	0.78%	3.75	46.13	0.06
33	Morocco	16	0.06%	2.34	32.26	0.15
34	Netherlands	233	0.92%	2.73	58.84	0.06
35	New Zealand	254	1.01%	2.99	36.66	0.15
36	Oman	12	0.05%	2.49	18.12	0.09
37	Pakistan	6	0.02%	3.82	23.76	0.09
38	Panama	9	0.04%	2.79	21.60	0.05
39	Peru	60	0.24%	2.30	32.34	0.07
40	Philippines	160	0.64%	2.40	38.77	0.07
41	Portugal	68	0.27%	1.96	59.97	0.05
42	Puerto Rico	3	0.01%	2.82	29.06	0.03
43	Qatar	42	0.17%	5.56	16.44	0.32
44	Saudi Arabia	60	0.24%	8.28	29.20	0.20
45	Singapore	292	1.16%	3.39	39.75	0.10
46	Slovenia	3	0.01%	5.17	58.17	0.07
47	South Africa	615	2.44%	3.73	48.54	0.10
48	South Korea	718	2.85%	3.35	44.24	0.02
49	Spain	291	1.16%	2.71	60.01	0.07
50	Sri Lanka	9	0.04%	1.99	55.54	0.02
51	Sweden	494	1.96%	4.36	55.23	0.06
52	Switzerland	513	2.04%	5.12	49.96	0.07
53	Taiwan	899	3.57%	3.70	38.53	0.06
54	Thailand	243	0.96%	4.07	51.62	0.10
55	Turkey	167	0.66%	4.58	50.72	0.04
56	United Arab Emirates	28	0.11%	2.07	32.77	0.16
57	United Kingdom	1,690	6.71%	3.84	51.15	0.08
58	United States of America	5,915	23.48%	3.59	44.88	0.07
59	Uruguay	7	0.03%	5.11	42.79	0.01
60	Vietnam	1	0.00%	9.29	56.00	0.14
61	Zimbabwe	2	0.01%	21.34	28.77	0.27
	Total	**25,190**	**100.00%**			

Table 17: Continued

Panel B: Distribution by Industry

#	Industry	No.	Share	Z Score	ESG Score	DIV
1	Agriculture	79	0.31%	3.14	30.39	0.07
2	Arts & Recreation	138	0.55%	4.44	37.01	0.07
3	Construction	1,348	5.35%	2.03	42.37	0.06
4	Educational Services	77	0.31%	4.39	32.75	0.04
5	Health Care	273	1.08%	4.16	39.80	0.06
6	Holdings	2	0.01%	1.79	21.02	0.57
7	Hospitality	488	1.94%	4.03	45.58	0.07
8	Information	1,907	7.57%	4.24	44.03	0.08
9	Manufacturing	10,682	42.41%	4.40	46.47	0.04
10	Mining & Extraction	1,416	5.62%	2.98	46.48	0.07
11	Other Services	82	0.33%	3.36	34.34	0.03
12	Professional Services	908	3.60%	4.53	46.02	0.05
13	Public Services	424	1.68%	3.78	43.37	0.04
14	Real Estate	1,931	7.67%	1.67	41.66	0.27
15	Retail Trade	1,575	6.25%	4.66	44.84	0.03
16	Transportation	1,338	5.31%	2.43	43.50	0.08
17	Utilities	1,613	6.40%	1.46	47.51	0.10
18	Wholesale	909	3.61%	4.06	36.30	0.02
	Total	**25,190**	**100.00%**			

Panel C: Distribution by Fiscal Year

#	Fiscal Year	No.	Share	Z Score	ESG Score	DIV
1	2006	673	2.67%	3.88	36.26	0.06
2	2007	743	2.95%	3.51	38.63	0.06
3	2011	1,859	7.38%	3.26	42.98	0.06
4	2012	2,005	7.96%	3.45	43.39	0.06
5	2013	2,102	8.34%	3.55	43.91	0.06
6	2014	2,202	8.74%	3.54	44.26	0.06
7	2015	2,349	9.33%	3.43	44.84	0.07
8	2016	2,639	10.48%	3.42	45.50	0.07
9	2017	3,043	12.08%	3.89	45.69	0.07
10	2018	3,497	13.88%	3.66	46.44	0.08
11	2019	4,078	16.19%	4.20	47.01	0.08
	Total	**25,190**	**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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	24,021	4.47	7.17	-0.08	1.54	2.61	4.49	74.99
ESG Score	24,021	48.95	20.42	0.08	32.96	49.72	65.13	95.37
Environmental Score	24,021	44.66	26.88	0.00	22.54	45.82	66.83	98.88
Social Score	24,021	49.14	24.23	0.16	29.92	49.24	68.87	98.32
Governance Score	24,021	52.36	22.33	0.04	34.87	53.61	70.52	99.41
DIV	24,021	0.07	0.24	0.00	0.01	0.03	0.07	20.09
ROA	24,021	0.05	0.07	-0.41	0.02	0.05	0.08	0.34
VOL	24,021	3.96	8.35	0.01	0.28	1.20	3.74	72.59
MTB	24,021	3.16	4.02	0.11	1.05	1.84	3.49	34.66
SLACK	24,021	0.11	0.10	-0.04	0.03	0.08	0.14	0.96
log_SIZE	24,021	0.76	1.66	-3.37	-0.40	0.78	1.90	5.07
LEV	24,021	0.52	0.19	0.08	0.39	0.52	0.65	0.96
CAPEX	24,021	0.05	0.04	0.00	0.02	0.04	0.06	0.28

Panel B: Economic Upswing

Variable	No.	Mean	StdDev	Min	First Quartile	Median	Third Quartile	Max
Z Score	25,190	3.66	3.90	0.15	1.54	2.57	4.16	40.93
ESG Score	25,190	44.79	21.14	0.61	27.81	44.25	61.30	95.16
Environmental Score	25,190	39.01	28.63	0.00	11.90	38.21	62.97	99.10
Social Score	25,190	44.48	24.65	0.05	24.45	42.93	63.92	98.65
Governance Score	25,190	50.45	22.37	0.10	32.71	51.10	68.48	98.82
DIV	25,190	0.07	0.15	0.00	0.01	0.03	0.07	12.08
ROA	25,190	0.06	0.06	-0.20	0.02	0.05	0.08	0.32
VOL	25,190	3.54	6.70	0.01	0.36	1.39	3.79	95.62
MTB	25,190	3.02	3.61	0.17	1.13	1.90	3.39	29.16
SLACK	25,190	0.09	0.10	-0.01	0.03	0.07	0.13	0.95
log_SIZE	25,190	1.14	1.53	-3.02	0.14	1.14	2.19	5.13
LEV	25,190	0.53	0.18	0.10	0.41	0.54	0.66	0.94
CAPEX	25,190	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 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn									
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESG Score	1.00***								
(2) DIV	-0.02***	1.00***							
(3) ROA	-0.02***	0.03***	1.00***						
(4) VOL	0.09***	-0.01**	0.12***	1.00***					
(5) MTB	0.02**	-0.01	0.35***	0.23***	1.00***				
(6) SLACK	-0.09***	-0.02**	0.22***	0.01	0.16***	1.00***			
(7) log_SIZE	0.44***	-0.18***	0.00	0.12***	-0.04***	-0.09***	1.00***		
(8) LEV	0.19***	-0.12***	-0.31***	0.03***	0.10***	-0.26***	0.39***	1.00***	
(9) CAPEX	-0.04***	0.03***	0.11***	-0.01	0.05***	-0.11***	-0.00	-0.02***	1.00***

Panel B: Economic Upswing									
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) ESG Score	1.00***								
(2) DIV	-0.04***	1.00***							
(3) ROA	-0.03***	0.09***	1.00***						
(4) VOL	0.04***	-0.02***	0.06***	1.00***					
(5) MTB	0.03***	0.02***	0.46***	0.15***	1.00***				
(6) SLACK	-0.09***	-0.07***	0.24***	-0.01	0.14***	1.00***			
(7) log_SIZE	0.46***	-0.29***	-0.07***	0.09***	-0.04***	-0.06***	1.00***		
(8) LEV	0.18***	-0.16***	-0.28***	0.04***	0.17***	-0.24***	0.38***	1.00***	
(9) CAPEX	-0.01**	0.03***	0.07***	0.01	0.03***	-0.13***	-0.05***	-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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn		
Variables	**VIF**	**Tolerance (1/VIF)**
ESG Score	6.14	0.16
DIV	1.14	0.88
ROA	2.05	0.49
VOL	1.32	0.76
MTB	2.10	0.48
SLACK	1.97	0.51
log_SIZE	1.58	0.63
LEV	5.94	0.17
CAPEX	2.20	0.45

Panel B: Economic Upswing		
Variables	**VIF**	**Tolerance (1/VIF)**
ESG Score	5.82	0.17
DIV	1.34	0.74
ROA	2.60	0.38
VOL	1.31	0.76
MTB	2.43	0.41
SLACK	1.90	0.53
log_SIZE	2.34	0.43
LEV	6.23	0.16
CAPEX	2.40	0.42

This table presents the VIF and Tolerance (1/VIF) values for each variable in the sub-samples 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 – Economic Downturn / Economic Upswing

Variable	Economic Downturn	Economic Upswing
	(1)	(2)
Constant	9.7628***	7.3259***
	(0.5098)	(0.2877)
ESG Score	-0.0193***	-0.0010
	(0.0047)	(0.0018)
DIV	0.3269	0.4409**
	(0.3232)	(0.1787)
ROA	5.2033***	7.7987***
	(0.8125)	(0.5570)
VOL	-0.0003	0.0040
	(0.0147)	(0.0057)
MTB	0.6441***	0.2465***
	(0.0559)	(0.0182)
SLACK	4.1128***	2.0609***
	(1.5123)	(0.5762)
log_SIZE	0.0459	0.1171
	(0.1414)	(0.1011)
LEV	-13.9565***	-9.9116***
	(0.8714)	(0.4379)
CAPEX	0.9761	1.9472***
	(1.7943)	(0.6131)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	24,021	25,190
Adj. R-squared	0.4251	0.4944

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 periods of economic downturn whereas column (2) reports the effect of the ESG Score on the Z Score in periods of economic upswing. 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 – Economic Downturn / Economic Upswing

Variable	Economic Downturn	Economic Upswing
	(1)	(2)
Constant	9.7547***	7.3264***
	(0.5105)	(0.2878)
ESG Score	-0.0195***	-0.0010
	(0.0047)	(0.0018)
ESG x DIV	-0.1110	-0.0057
	(0.1325)	(0.0205)
DIV	0.4000	0.4385**
	(0.3972)	(0.1777)
ROA	5.1962***	7.7983***
	(0.8133)	(0.5569)
VOL	-0.0005	0.0040
	(0.0147)	(0.0057)
MTB	0.6435***	0.2464***
	(0.0559)	(0.0182)
SLACK	4.0797***	2.0631***
	(1.4584)	(0.5766)
log_SIZE	0.0608	0.1174
	(0.1345)	(0.1010)
LEV	-13.9341***	-9.9119***
	(0.8674)	(0.4379)
CAPEX	0.9771	1.9468***
	(1.7937)	(0.6132)
Entity Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Observations	24,021	25,190
Adj. R-squared	0.4244	0.4944

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 periods of economic downturn whereas column (2) reports the effect of the ESG Score on the Z Score in periods of economic upswing. 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	7.3302***	9.3001***	8.8299***	9.6445***
	(0.5263)	(0.5094)	(0.6557)	(0.5083)
ESG Score	-0.0205***	-0.0192***	-0.0196***	-0.0194***
	(0.0047)	(0.0046)	(0.0047)	(0.0047)
DIV	-0.0429	0.3403	0.2792	0.3318
	(0.3290)	(0.3232)	(0.3021)	(0.3235)
PERF	2.7794***	13.1339***	5.6019***	7.2484***
	(0.8447)	(2.1267)	(0.8128)	(0.9974)
VOL	-0.0395**	0.0003	-0.0001	-0.0007
	(0.0156)	(0.0145)	(0.0147)	(0.0146)
MTB	0.4942***	0.6510***	0.6420***	0.6405***
	(0.0550)	(0.0561)	(0.0560)	(0.0558)
SLACK	4.2052***	3.9581***	2.4896*	3.9814***
	(1.4796)	(1.5161)	(1.4139)	(1.5067)
log_SIZE	-1.0039***	0.0422	0.1536	0.0636
	(0.2167)	(0.1413)	(0.1390)	(0.1409)
LEV	-10.7226***	-13.2156***	-13.0119***	-14.0583***
	(0.8991)	(0.8533)	(0.9476)	(0.8729)
CAPEX	-1.0142	1.0730	1.3477	1.0618
	(1.7865)	(1.7896)	(1.7585)	(1.7904)
Additional Control Variable	2.1078***	-3.2580***	0.2659*	0.6246***
	(0.2689)	(0.8033)	(0.1444)	(0.1033)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	24,021	24,021	24,021	24,021
Adj. R-squared	0.3972	0.4332	0.4445	0.4267

Panel B: Economic Upswing				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.6110***	6.6510***	6.7433***	7.0889***
	(0.3000)	(0.2976)	(0.3045)	(0.2837)
ESG Score	-0.0011	-0.0008	-0.0011	-0.0009
	(0.0018)	(0.0018)	(0.0018)	(0.0018)
DIV	0.2545	0.5067***	0.3763**	0.4449**
	(0.2167)	(0.1682)	(0.1875)	(0.1875)
PERF	6.5708***	16.0080***	7.8625***	10.6334***
	(0.5475)	(1.1704)	(0.5493)	(0.6973)
VOL	-0.0077	0.0035	0.0032	0.0047
	(0.0059)	(0.0057)	(0.0056)	(0.0056)
MTB	0.2055***	0.2903***	0.2456***	0.2385***
	(0.0184)	(0.0206)	(0.0181)	(0.0179)
SLACK	2.0435***	1.9176***	1.0129*	1.8658***
	(0.5630)	(0.5729)	(0.5768)	(0.5673)
log_SIZE	-0.2335**	0.0955	0.1837*	0.1355
	(0.1107)	(0.1008)	(0.0942)	(0.0992)
LEV	-9.0966***	-8.7945***	-9.4322***	-9.8560***
	(0.4446)	(0.4362)	(0.4410)	(0.4330)
CAPEX	1.5240**	1.7244***	2.2525***	1.9192***
	(0.5932)	(0.6122)	(0.6221)	(0.6082)
Additional Control Variable	0.6523***	-3.6477***	0.1891***	0.7714***
	(0.0796)	(0.4352)	(0.0443)	(0.0636)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	25,190	25,190	25,190	25,190
Adj. R-squared	0.4762	0.5196	0.4986	0.5038

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 Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	7.3295***	9.3000***	8.8300***	9.6446***
	(0.5264)	(0.5094)	(0.6555)	(0.5083)
ESG Score	-0.0205***	-0.0192***	-0.0196***	-0.0194***
	(0.0047)	(0.0046)	(0.0047)	(0.0047)
ESG x DIV	-0.0093	-0.0010	0.0023	0.0036
	(0.0341)	(0.0408)	(0.0347)	(0.0395)
DIV	-0.0191	0.3427	0.2734	0.3227
	(0.3841)	(0.3894)	(0.3532)	(0.3865)
PERF	2.7823***	13.1346***	5.6011***	7.2473***
	(0.8440)	(2.1259)	(0.8130)	(0.9977)
VOL	-0.0395**	0.0003	-0.0001	-0.0007
	(0.0156)	(0.0145)	(0.0147)	(0.0146)
MTB	0.4942***	0.6510***	0.6420***	0.6405***
	(0.0550)	(0.0561)	(0.0560)	(0.0558)
SLACK	4.2067***	3.9582***	2.4892*	3.9809***
	(1.4812)	(1.5184)	(1.4150)	(1.5091)
log_SIZE	-1.0044***	0.0421	0.1537	0.0638
	(0.2169)	(0.1417)	(0.1391)	(0.1413)
LEV	-10.7219***	-13.2156***	-13.0120***	-14.0583***
	(0.8990)	(0.8532)	(0.9475)	(0.8729)
CAPEX	-1.0209	1.0724	1.3493	1.0642
	(1.7905)	(1.7936)	(1.7598)	(1.7940)
Additional Control Variable	2.1082***	-3.2581***	0.2659*	0.6246***
	(0.2690)	(0.8032)	(0.1444)	(0.1032)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	24,021	24,021	24,021	24,021
Adj. R-squared	0.3972	0.4332	0.4445	0.4267

Panel B: Economic Upswing				
Variable	(1) log_MV Equity	(2) ROE	(3) Current Ratio	(4) Net Loss
Constant	6.5986***	6.6417***	6.7391***	7.0815***
	(0.2961)	(0.2944)	(0.3022)	(0.2817)
ESG Score	-0.0010	-0.0008	-0.0011	-0.0009
	(0.0018)	(0.0018)	(0.0017)	(0.0018)
ESG x DIV	0.0316	0.0276	0.0182	0.0241
	(0.0411)	(0.0408)	(0.0445)	(0.0398)
DIV	0.3878	0.6237***	0.4535**	0.5470**
	(0.2395)	(0.2155)	(0.2094)	(0.2260)
PERF	6.5752***	16.0251***	7.8674***	10.6387***
	(0.5473)	(1.1654)	(0.5483)	(0.6969)
VOL	-0.0078	0.0034	0.0032	0.0047
	(0.0059)	(0.0056)	(0.0056)	(0.0056)
MTB	0.2052***	0.2902***	0.2455***	0.2384***
	(0.0183)	(0.0206)	(0.0181)	(0.0179)
SLACK	2.0383***	1.9130***	1.0127*	1.8620***
	(0.5633)	(0.5732)	(0.5765)	(0.5677)
log_SIZE	-0.2375**	0.0931	0.1819*	0.1333
	(0.1101)	(0.1006)	(0.0942)	(0.0991)
LEV	-9.0902***	-8.7902***	-9.4315***	-9.8534***
	(0.4414)	(0.4334)	(0.4400)	(0.4315)
CAPEX	1.5265**	1.7276***	2.2540***	1.9223***
	(0.5932)	(0.6120)	(0.6220)	(0.6080)
Additional Control Variable	0.6546***	-3.6518***	0.1887***	0.7710***
	(0.0792)	(0.4342)	(0.0445)	(0.0636)
Entity Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes
Observations	25,190	25,190	25,190	25,190
Adj. R-squared	0.4752	0.5191	0.4983	0.5034

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 Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn	
Variable	O Score
Constant	-0.7906***
	(0.0524)
ESG Score	0.0006
	(0.0005)
DIV	-0.0259
	(0.0745)
ROA	-7.2256***
	(0.1542)
VOL	0.0010
	(0.0008)
MTB	-0.0027
	(0.0023)
SLACK	-2.0866***
	(0.1119)
log_SIZE	-0.1634***
	(0.0178)
LEV	7.2791***
	(0.0837)
CAPEX	0.9015***
	(0.1727)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	24,021
Adj. R-squared	0.7922

Panel B: Economic Upswing	
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	25,190
Adj. R-squared	0.8224

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 Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn	
Variable	O Score
Constant	-0.7918***
	(0.0522)
ESG Score	0.0006
	(0.0005)
ESG x DIV	-0.0171
	(0.0177)
DIV	-0.0146
	(0.0581)
ROA	-7.2266***
	(0.1546)
VOL	0.0010
	(0.0008)
MTB	-0.0028
	(0.0023)
SLACK	-2.0917***
	(0.1135)
log_SIZE	-0.1611***
	(0.0181)
LEV	7.2825***
	(0.0838)
CAPEX	0.9016***
	(0.1715)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	24,021
Adj. R-squared	0.7924

Panel B: Economic Upswing	
Variable	O Score
Constant	-0.9363***
	(0.0458)
ESG Score	0.0010***
	(0.0003)
ESG x DIV	-0.0009
	(0.0042)
DIV	0.0299
	(0.0375)
ROA	-6.9697***
	(0.1249)
VOL	0.0008
	(0.0008)
MTB	-0.0000
	(0.0020)
SLACK	-1.4977***
	(0.0841)
log_SIZE	-0.1220***
	(0.0177)
LEV	7.2768***
	(0.0697)
CAPEX	0.7029***
	(0.1476)
Entity Fixed Effects	Yes
Time Fixed Effects	Yes
Observations	25,190
Adj. R-squared	0.8224

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 Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn

Variable	2SLS (1) First Stage	2SLS (2) Second Stage	GMM (3)
Constant	-7.1974	13.1227***	10.3653***
	(6.5775)	(1.1261)	(0.4961)
Industry_Mean_ESG	0.6339***		
	(0.1264)		
Country_Mean_ESG	0.4675***		
	(0.0481)		
ESG Score		-0.0912***	-0.0114***
		(0.0204)	(0.0043)
DIV	0.3437	0.3519	-1.3029
	(0.5009)	(0.3233)	(1.0957)
ROA	-10.8165***	4.3683***	9.2559***
	(1.9332)	(0.8529)	(1.5124)
VOL	0.0514**	0.0022	-0.0235**
	(0.0254)	(0.0147)	(0.0106)
MTB	-0.0839*	0.6340***	0.9056***
	(0.0490)	(0.0558)	(0.0514)
SLACK	-0.9064	4.0859***	6.8367***
	(1.8690)	(1.5094)	(1.3274)
log_SIZE	4.6841***	0.3939**	0.0013
	(0.4697)	(0.1710)	(0.0577)
LEV	-1.1932	-14.0184***	-17.5873***
	(1.8797)	(0.8727)	(0.7166)
CAPEX	0.0767	0.8636	0.3059
	(3.9489)	(1.7927)	(1.8687)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	24,021	24,021	12,952
R^2	0.0676	0.1827	0.4372
Sargan Test (p-value)		0.8676	
Hansen-J Test (p-value)			0.3779

Table 27: Continued

Panel B: Economic Upswing			
Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	8.8842**	7.4653***	6.2460***
	(4.3405)	(0.5836)	(0.2059)
Industry_Mean_ESG	0.3684***		
	(0.0904)		
Country_Mean_ESG	0.3369***		
	(0.0361)		
ESG Score		-0.0044	-0.0065***
		(0.0122)	(0.0020)
DIV	-0.0544	0.4413**	-1.7478***
	(1.4233)	(0.1794)	(0.5599)
ROA	-5.6564**	7.7764***	17.0538***
	(2.2765)	(0.5754)	(0.9425)
VOL	0.0229	0.0039	0.0202***
	(0.0293)	(0.0057)	(0.0070)
MTB	-0.0148	0.2463***	0.3759***
	(0.0537)	(0.0182)	(0.0229)
SLACK	-0.1032	2.0619***	4.1662***
	(1.9550)	(0.5768)	(0.5018)
log_SIZE	3.0763***	0.1281	0.1342***
	(0.4219)	(0.1112)	(0.0340)
LEV	2.0955	-9.9068***	-9.2831***
	(1.5653)	(0.4363)	(0.3154)
CAPEX	-0.1009	1.9463***	-1.2209**
	(3.5311)	(0.6131)	(0.6143)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	25,190	25,190	17,200
R^2	0.0353	0.3466	0.6346
Sargan Test (p-value)		0.1410	
Hansen-J Test (p-value)			0.2151

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 Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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 – Economic Downturn / Economic Upswing

Panel A: Economic Downturn

Variable	2SLS (1) First Stage ESG	2SLS (2) Second Stage	GMM (3)
Constant	-7.1974 (6.5775)	12.9639*** (1.1604)	10.3626*** (0.4961)
Industry_Mean_ESG	0.6339*** (0.1264)		
Country_Mean_ESG	0.4675*** (0.0481)		
ESG Score		-0.0880*** (0.0211)	-0.0113*** (0.0043)
ESG x DIV		-0.0445*** (0.0427)	0.0486 (0.0474)
DIV	0.3437 (0.5009)	2.3047 (2.1049)	-1.3506 (1.1019)
ROA	-10.8165*** (1.9332)	4.3229*** (0.8547)	9.2605*** (1.5133)
VOL	0.0514** (0.0254)	0.0020 (0.0147)	-0.0236** (0.0106)
MTB	-0.0839* (0.0490)	0.6346*** (0.0558)	0.9054*** (0.0513)
SLACK	-0.9064 (1.8690)	4.0423*** (1.4780)	6.8404*** (1.3282)
log_SIZE	4.6841*** (0.4697)	0.4106** (0.1678)	-0.0003 (0.0578)
LEV	-1.1932 (1.8797)	-14.0206*** (0.8734)	-17.5867*** (0.7165)
CAPEX	0.0767 (3.9489)	0.8431 (1.7908)	0.3287 (1.8706)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	24,021	24,021	12,952
R^2	0.3212	0.4255	0.4372
Sargan Test (p-value)		0.1740	
Hansen-J Test (p-value)			0.3524

Table 28: Continued

Panel B: Economic Upswing			
Variable	2SLS	2SLS	GMM
	(1) First Stage	(2) Second Stage	(3)
Constant	8.8842**	7.6818***	6.2454***
	(4.3405)	(0.6035)	(0.2058)
Industry_Mean_ESG	0.3684***		
	(0.0904)		
Country_Mean_ESG	0.3369***		
	(0.0361)		
ESG Score		-0.0033	-0.0065***
		(0.0121)	(0.0020)
ESG x DIV		-0.0178**	-0.0010
		(0.0336)	(0.0309)
DIV	-0.0544	1.1020	-1.7428***
	(1.4233)	(1.2449)	(0.5596)
ROA	-5.6564**	7.7740***	17.0539***
	(2.2765)	(0.5756)	(0.9430)
VOL	0.0229	0.0039	0.0202***
	(0.0293)	(0.0057)	(0.0070)
MTB	-0.0148	0.2467***	0.3759***
	(0.0537)	(0.0182)	(0.0229)
SLACK	-0.1032	2.0606***	4.1675***
	(1.9550)	(0.5768)	(0.5017)
log_SIZE	3.0763***	0.1293	0.1344***
	(0.4219)	(0.1111)	(0.0340)
LEV	2.0955	-9.9107***	-9.2828***
	(1.5653)	(0.4362)	(0.3155)
CAPEX	-0.1009	1.9424***	-1.2205**
	(3.5311)	(0.6137)	(0.6137)
Entity Fixed Effects	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	No
Observations	25,190	25,190	17,200
R^2	0.2554	0.4940	0.6344
Sargan Test (p-value)		0.1434	
Hansen-J Test (p-value)			0.2151

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. Panel A showcases the results of the Economic Downturn sub-sample and Panel B the results of the Economic Upswing 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.