

Influence of ESG Risk Scores on Financial Distress

Subjects: [Business, Finance](#) | [Operations Research & Management Science](#)

Contributor: Jorge Antunes , Peter Wanke , Thiago Fonseca , Yong Tan

Financial distress is a research topic in finance that has attracted attention from academia following past financial crises. Although previous studies associate financial distress with several elements, the relationship between distress and ESG has not been broadly explored.

censored robust regression

data envelopment analysis

ESG

efficiency

1. Introduction

Financial distress, which refers to a situation where firms struggle to generate enough income to meet their obligations, has become a hot topic among companies. Recent financial crises, such as the Great Financial Crisis of 2008, the European Sovereign Debt Crisis, and the COVID-19 pandemic, have intensified the attention of scholars, shareholders, regulators, and policymakers to the topic, which includes the financial health deterioration of firms around the globe.

Financial distress has been the focus of a substantial stream of literature in several fields, including accounting, corporate finance, economics, and risk management. Specifically, the causes and effects of financial distress have been of broad interest in the literature. For instance, previous studies have indicated that financial distress can impact corporate investment decisions [\[1\]\[2\]\[3\]\[4\]](#). In addition, distress might affect ownership structure [\[5\]](#), relationships with employees and suppliers [\[6\]\[7\]](#), and even pricing strategies employed by the company [\[8\]](#).

Furthermore, corporate social responsibility (CSR) has emerged as a critical element of corporate administration. Hence, scholars, stakeholders (i.e., management, board of directors, shareholders, creditors), and regulators are not only interested in the financial aspects of a company, since the concern about the environment, social factors, and corporate governance (i.e., ESG) has been actively expanding. The related literature has investigated the impacts of ESG scores on corporate performance and decision-making [\[9\]\[10\]\[11\]\[12\]\[13\]](#). Additionally, previous research has examined the relationship between ESG and finance, such as Apergis et al. [\[14\]](#) and Li et al. [\[15\]](#). Notably, the emergence of ESG ratings allows us to contrast firms that own a rating with those that do not possess an ESG score.

Accounting and financial indicators are paramount for analyzing corporate performance. Previous empirical research has explored the financial distress efficiency of firms. For illustration, Scalzer et al. [\[16\]](#) analyzed which financial indicators can predict financial distress, considering a sample of sixty companies from the electricity

sector. Additionally, Wanke et al. [17] studied the Malaysian dual banking system's efficiency by assessing financial distress. In addition, related literature has examined the efficiency of ESG. For instance, Abate et al. [18] exhibited evidence regarding the efficiency of mutual funds through the implementation of ESG scores. Therefore, although earlier empirical studies demonstrated some evidence regarding firms' financial distress and efficiency as well as ESG scores and efficiency, they do not assess the association between a firm's financial distress and ESG performance.

Thus, while there is extant individual literature on financial distress and ESG, few studies have focused on the connection between financial distress and ESG (see [19]). Consequently, the current research fills this gap in the literature by presenting a Dynamic Network Data Envelopment Analysis (DEA) approach. The DEA model enables the computation of the underlying relationships between three sub-structures—profit sheet, balance sheet, and capital and operating expenditures—over the 2018–2021 period.

2. Financial Distress

Financial distress is a common issue in the corporate universe, and the related literature investigates the topic and its effects on corporations, investors, and the economy. Some studies emphasize the impact of financial distress on corporate decision-making.

Firstly, the trade-off theory of capital structure predicts that a firm weighs the benefits of tax shields with the costs of financial distress. Hence, Elkamhi et al. [20] argue that the accumulated present value of distress costs cancels out the possible tax benefits from higher leverage. Moreover, distress costs might explain the unwillingness of firms to expand their financial leverage [21].

Therefore, firms have large costs when in financial distress, and bankruptcy is indeed costlier. Among these costs are expenses for lawyers and advisors as indirect costs [22]. Conversely, Giammarino [23] argues that it might be rational for firms to induce those costs because of asymmetric information and judicial discretion. Consequently, firms may have a preference to face a costly arbitrator than provide equity holders an opportunity to lead the reorganization.

As defined by Chan and Chen [24], distressed firms that lose their market share due to poor performance are usually inefficient producers, and they are prone to high leverage and cash flow issues. Hence, many factors might lead a company to distress. For instance, the company's capital structure impacts the restructuring of financially distressed companies [25]. Contrarily, Graham and Harvey [26] suggest that potential costs of distress are not considered very important when the management is evaluating debt decisions, even though companies contemplate credit ratings, which can be perceived as a signal of concern about distress. According to Altman et al. [22], the most common reasons for corporate failures are poor operating performance and high financial leverage, lack of technological innovation, and liquidity and funding shocks. Additionally, firms may become financially distressed due to unexpected liabilities.

Financial distress has several effects on a firm's performance. Opler and Titman [27] demonstrate that highly leveraged firms lose their market share in industry downturns and also experience a reduction in their market value of equity. Additionally, the effects of financial distress are more powerful for firms with substantial R&D expenses. Distress might also influence the relationship between companies and their suppliers. For example, firms in financial distress make use of larger amounts of supplier trade credit as an alternative source of financing [7]. In contrast, financial distress provokes waterfall effects on a firm's suppliers and is associated with an increase in the suppliers' leverage ratio [28]. Finally, financial distress may affect a firm's pricing strategy since companies facing distress might employ aggressive pricing strategies to immediately generate cash [8].

Furthermore, financial distress impacts corporate investments. Eisdorfer [1] exhibits that distressed firms' investments generate less value in periods of uncertainty. Additionally, firms with poor financial performance and fewer investment opportunities are more likely to under-invest, while distressed firms with greater investment opportunities have a similar behavior to healthier firms [3]. Investment and dividend contraction are also related to firms' recovery from financial distress [4]. Finally, defaults and bankruptcy have the power to affect the investment decisions of non-distressed peers [2].

Distress also affects the relationship between firms and employees. For instance, managers experience personal costs and higher rates of turnover when their firms turn into distress [29]. Firms facing financial distress in their earlier life cycle decrease the number of employees [4].

Moreover, companies in distress also tend to renegotiate wages and reduce labor costs [6]. Likewise, the risk of financial distress harms the compensation of new executives [30]. This is also supported by Altman et al. [22], who state that management incentives regarding compensation may not be effective during financial distress situations. Lastly, Pham et al. [31] suggest that the work environment is associated with a firm's financial policies and is positively connected to the level of cash that the firms hold.

The relationship between companies and stakeholders (i.e., management, board of directors, shareholders, creditors) might also be influenced by financial distress. Firstly, financial distress impacts corporate ownership by reducing ownership concentration and increasing ownership by banks and outside investors [5]. In addition, some types of investors specialize in firms in a distressed situation or distressed securities, such as high-yield bonds. Secondly, compliance with corporate governance decreases the probability of financial distress [32]. As a result, firms with weak corporate governance are more prone to falling into financial distress [33]. Thirdly, board composition (e.g., the proportion of outside directors) is associated with financial distress [34]. Additionally, management and board positions are more prone to experiencing higher turnover during financial distress. Distressed firms are also more likely to experience changes in ownership. Finally, companies emerging from Chapter 11 might have former creditors as new owners [22].

Other studies disclose possible distinct effects that financial distress may yield on firms. Among these effects, the related literature examines the association between asset sales and financial distress. Lasfer et al. [35] investigated

the stock market reaction to asset sales of the distressed firms, and the results suggest significant positive abnormal returns. The sale of assets by firms in distress, therefore, is well-perceived by the financial market.

Further research also assessed the relationship between financial distress and tax strategies. For example, the study by Richardson et al. [36], which contemplates a sample of Australian firms, exhibits that corporate financial distress is positively associated with tax aggressiveness. Other articles also explored the connection between distress and risk management. According to Purnanandam [37], financial distress costs and hedging have a non-linear relationship, which implies that financially distressed firms are not much engaged in hedging foreign currency and commodities, although moderately leveraged firms are active hedgers. Lastly, the level of financial distress might even affect the real economy [38].

Furthermore, as suggested by Kahl [39], financial distress is a long-term process and may affect firms emerging from debt restructuring. Consequently, firms re-entering financial distress is not unusual. Some firms filed for Chapter 11 more than once in the United States. As Altman et al. [22] demonstrate, some firms emerge from Chapter 11 three, four, and even five times. Therefore, among the possible methods of overcoming financial distress, companies might attempt to restructure their debt, workouts, and informal reorganizations [40].

Likewise, there are several established predictors of financial distress considering firm-specific characteristics. For instance, Altman [41] introduced the Z-score approach to predict corporate bankruptcy, while Altman et al. [42] presented the ZETA model for bankruptcy evaluation. Campbell et al. [43] also developed a model that predicts corporate failure, which includes accounting and market-based factors.

The literature on DEA also sheds light on the impacts of financial distress on corporations. Using a Malmquist DEA approach on firms from Egypt, Habib and Shahwan [44] found that corporate governance does not affect the propensity of financial distress, although intellectual capital has a negative impact. Moreover, Habib and Kayani [45] point out that the efficiency of working capital management has a negative association with the propensity for a decline into financial distress. Li et al. [46] applied a Malmquist DEA to generate a dynamic prediction of financial distress, while Shiri and Salehi [47] implemented the DEA as a tool to measure efficiency scores of the Tehran Stock Exchange as well as predict financial distress.

Studies that measure efficiency levels at the level of the firm have been gaining popularity recently. These studies are usually grouped into two main methods: parametric and non-parametric. The most usual parametric technique is the stochastic frontier approach (SFA), while the most common nonparametric methodology is the DEA. In the context of financial distress, these methods can designate how effective a firm is in minimizing variables associated with increasing financial distress and maximizing those coupled with the variables increasing financial health.

Previous research considered the DEA and bootstrap approach to assessing the insolvency of the Brazilian electricity distributors [16] and also a dynamic network DEA and SFA to evaluate the efficiency of the OECD banks [48]. DEA models were also implemented to verify efficiency in Middle East and North African banking, Chinese

banking during the global financial crisis, the Malaysian dual bank system, and distress drivers of the Brazilian banks [\[49\]](#)[\[50\]](#).

In sum, financial distress is a relevant topic that affects corporate financial and operational performance as well as the relationship between firms and stakeholders. However, the connection between ESG and financial distress has not been broadly explored, which is the goal.

3. Environmental, Social, and Governance (ESG)

ESG represents Environmental, Social, and Governance. Firstly, environmental issues are related to the conservation of nature and include topics such as climate change, carbon emissions, pollution, waste management, and water usage. In addition, social actions depict what firms are doing to promote diversity, inclusion, human rights, customer satisfaction, and even data security. Finally, the governance structure appraises standards for running a company and comprehends board composition, management compensation, audit committee structure, lobbying, and corruption.

The interest of stakeholders (i.e., politics, investors, employees, and the population) in sustainability issues has been growing exponentially since the beginning of the last decade. The increase in sustainable demands has improved the drive for sustainable actions, as well as the disclosure of information regarding corporate responsibility efforts. The concept of environmental, social, and governance has evolved in recent years to meet social demands associated with the risks and opportunities of corporate sustainable actions. On top of that, country-level concerns related to ESG are also a topic of broad discussion [\[51\]](#).

ESG is connected to the Sustainable Development Goals (SDGs) developed by the United Nations (UN), which aim to overcome several issues faced by society. The 17 Sustainable Development Goals address social problems (e.g., education, women, inequalities, and children), as well as environmental and climate issues (e.g., water, biodiversity, and energy). Overall, the SDGs are a plan of action encompassing people, the planet, and prosperity and contain 169 target actions for the world's sustainable development. ESG might also be defined as a framework of the Association for Supporting the SDGs for the UN, which includes non-financial elements that should materialize as the core values of firms, financial institutions, and shareholders.

Furthermore, regulatory agencies are increasing their action range to include ESG topics. For instance, the Sustainability Accounting Standards Board (SASB) was introduced by the IFRS Foundation and aims to highlight the paramount set of sustainability issues for a company's financial performance. In addition, the Global Reporting Initiative (GRI) has developed the best practice standards for sustainability reporting. Lastly, the Task Force on Climate-related Financial Disclosures (TCFD) focuses on improving market transparency related to risks and opportunities of climate change through the release of recommendations to assist firms in disclosing better information and support capital allocation.

Previous literature has concentrated on the association of ESG and corporate decisions [52][53]. Some studies investigate the relationship between ESG and firms' investments. For instance, Zhang et al. [12] argue that environmental and social perspectives are important drivers of corporate investments within the United Kingdom. In addition, further research has examined the association between ESG and corporate performance. The research developed by Friede et al. [13] explores the association between ESG criteria and corporate financial performance. Their findings point out a positive association between ESG and financial performance. In addition, ESG disclosure impacts positively on financial performance [9][10][11]. On top of that, the presence of independent outside directors, foreign institutional stockholders, and domestic financial institutional shareholders positively affects financial performance [54]. Likewise, institutional ownership has a positive relationship with firms' environmental and social performance (E&S) [55]. Finally, sustainability is also related to better financial performance [56].

Scholars have investigated the connection between ESG and finance topics. Apergis et al. [14] show that a higher ESG rating is associated with lower costs of debt and a reduced default risk [15]. Wong et al. [57] demonstrate that ESG certifications lead to a decrease in a firm's cost of capital. Zhang et al. [12] demonstrate that superior ESG performance helps firms reduce debt overhang. Specifically in the banking industry, socially responsible actions are rewarded [58].

Further studies have explored the connection between ESG and investors. For example, investors require higher expected returns on firms with higher environmental concerns, such as those related to the emission of toxic chemicals, hazardous waste concerns, and climate change. As a result, firms that generate more revenue from clean energy tend to have lower costs of capital [59].

ESG rating downgrades are also associated with negative stock abnormal returns [60]. Moreover, Barros et al. [61] show that firms have higher ESG performance following M&A activity. Studies have also explored the effects of ESG at a national level. Pineau et al. [62] assess ESG factors in sovereign credit risk and demonstrate that the evolution of ESG is influenced by the level of economic development of a country. Cherkasova and Nenuzhenko's [63] study suggests that international firms in developed Asia or North America are more likely to succeed in ESG development, while Latin American firms might struggle.

Previous research has explored the relationship between ESG and stakeholders, such as management, board of directors, shareholders, and creditors [64]. ESG is related to executives' compensation as a mechanism of alignment. The use of ESG metrics in incentive plans is expanding, and nearly 60% of companies include ESG metrics in their incentive plans [65]. For example, McDonald's ties 15% of its management bonuses to targets such as diversity and inclusion. Additionally, BlackRock's CEO, Larry Fink, emphasizes the importance of sustainability and ESG as value drivers.

Previous studies have explored the impact of CSR on firms, which may act as a predecessor of the term ESG. Borghesi et al. [66] demonstrate that larger firms and those with more free cash flow tend to have higher CSR. The authors also point out that firms with stronger institutional ownership are less likely to invest in CSR activities.

Additionally, financial constraints are an important driver of CSR. Thus, companies are more likely to be involved in CSR when they have an outstanding financial performance [67].

Amiraslani et al. [68] demonstrate that firms with higher volumes of CSR activities hold lower bond spreads in the secondary debt market during the financial crisis, which is enhanced for firms in distress. These firms are capable of raising a higher amount of debt for longer maturities and better initial credit ratings. In sum, debtholders trust high-CSR companies.

Recently, the DEA methodology has been introduced to evaluate ESG efficiency by considering firm-level information. Abate et al. [18] examined the efficiency of mutual funds delineated by distinct degrees of sustainability, assessed by the ESG scores, through DEA. In addition, the DEA methodology has also been employed to study portfolio optimization comprising ESG scores [69]. Moreover, Alam et al. [70] analyzed the influence of ESG involvement on the technical efficiency of both conventional and Islamic banks.

Furthermore, Ren et al. [71] analyzed the effect of ESG performance on energy-adjusted firm efficiency, while Chang et al. [72] used the DEA method to assess the effects of digital finance and ESG performance on financing efficiency. The same methodology was implemented to examine the relationship between corporate efficiency and sustainability [73]. Finally, Vincentis [74] points out that news related to ESG issues is interpreted differently in different locations, and ESG reputation impacts the relationship between the news and equity returns.

In sum, ESG is an emerging topic that has acquired great importance recently. Investors, managers, policymakers, and other stakeholders have highlighted the importance of ESG disclosure and standards, which can be represented through ESG ratings.

4. Financial Distress and ESG

Few studies have measured the association between financial distress and a firm's ESG performance. For instance, Boubaker et al. [19] argue that CSR is related to lower financial distress risks as well as default risks, providing a better corporate environment, and enhancing firms' financial stability. The stakeholder theory argues that moral capital or goodwill can be generated through enhanced investments in CSR. This moral capital and goodwill can act as an insurance protection mechanism which reduces the firm's risk exposure [75]. Lee and Faff [76] argued that investment decisions should be based on both financial and non-financial criteria, and they predicted that socially responsible companies would attract more investors, which could reduce the company's risk. A study by Sun and Stuebs [77] investigated the relationship between CSR and firm productivity using a sample of companies in the chemical industry in the United States. They argued that CSR is positively related to firm competitiveness through a learning and innovation cycle. The firm's competitiveness includes five dimensions, including financial performance, quality of product/service, productivity, innovation, and image/reputation [78]. Guillamon-Saorin et al. [79] investigated the relationship between CSR and operational inefficiency using a sample of US firms between 2004 and 2015. They argued that the engagement of CSR will benefit the firms from the perspective of reputation enhancement, insurance-like protection, shareholder wealth improvement, better risk

management, improvement of market demand from customers, increased disclosure and reporting transparency, and an overall ability to access financial markets in better conditions.

Using a sample of S&P 500 stocks data between 2019 and 2021, Cohen ^[80] investigated the influence of ESG risk scores on a company's survival chances. The results indicated that higher environmental and social risk reduces a corporation's financial stability and increases their default risk. Glover ^[81] argued that investing in resources to reduce environmental and social risks may increase the firm's overall value due to the fact that environmental and social risks are associated with default costs.

Using a sample of Australian firms, Jia and Li ^[82] investigated the relationship between corporate environmental performance and financial distress. They argue that there are four reasons to expect a negative relationship between environmental performance and financial stress. Firstly, better environmental performance improves the relationship with different stakeholders, resulting in an improvement in the firm's financial performance and sustainability as well as a reduction in the possibility of financial distress ^{[83][84]}. Secondly, better environmental performance indicates the availability and efficient allocation of resources and good management quality ^{[85][86]}. Firms with higher quality of management and better allocation of resources would have better access to financing and a lower probability of financial distress ^{[87][88]}. Thirdly, negative environmental events trigger sanctions from stakeholders, and firms with good environmental performance will receive less severe sanctions. Moreover, the likelihood of negative regulatory and legislative actions can be mitigated, thus reducing the environmental risk for firms with higher levels of environmental performance ^{[89][90]}. Finally, good relationships with stakeholders from companies with higher levels of environmental performance will improve the firm's ability to raise funding by attracting financial resources from socially responsible investors ^[91]. This will reduce the level of financial distress.

Regarding the "G" component in ESG, numerous studies have addressed the relationship between corporate governance and financial distress ^{[33][92][93]}. It has been argued that good corporate governance, together with business contract transparency, ethical standards, legal and constitutional agreement, effective decision-making, and true disclosure of financial information leads to the success of a company. On the other hand, poor corporate governance would increase the opportunities for controlling shareholders to transfer value from the firm into their own pockets. The resulting decline in corporate value would result in a higher probability of falling into financial distress ^{[94][95]}.

References

1. Eisdorfer, A. Empirical Evidence of Risk Shifting in Financially Distressed Firms. *J. Financ.* 2008, 63, 609–637.
2. Garcia-Appendini, E. Financial distress and competitors' investment. *J. Corp. Financ.* 2018, 51, 182–209.

3. Gutiérrez, C.; Azofra, S.; Olmo, B. Investment decisions of companies in financial distress. *BRQ Bus. Res. Q.* 2015, 18, 174–187.
4. Koh, S.; Durand, R.B.; Dai, L.; Chang, M. Financial distress: Lifecycle and corporate restructuring. *J. Corp. Financ.* 2015, 33, 19–33.
5. Jostarndt, P.; Sautner, Z. Financial distress, corporate control, and management turnover. *J. Bank. Financ.* 2008, 32, 2188–2204.
6. Benmelech, E.; Bergman, K.; Ricardo, J. Negotiating with Labor under Financial Distress. *Rev. Corp. Financ. Stud.* 2012, 1, 28–67.
7. Molina, C.A.; Preve, L.A. An Empirical Analysis of the Effect of Financial Distress on Trade Credit. *Financ. Manag.* 2012, 41, 187–205.
8. Hendel, I. Competition Under Financial Distress. *J. Ind. Econ.* 1996, 44, 309–324.
9. Chen, Z.; Xie, G. ESG disclosure and financial performance: Moderating role of ESG investors. *Int. Rev. Financ. Anal.* 2022, 83, 102291.
10. Bruna, M.G.; Loprevite, S.; Raucci, D.; Ricca, B.; Rupo, D. Investigating the marginal impact of ESG results on corporate financial performance. *Financ. Res. Lett.* 2022, 47, 102828.
11. Alareeni, B.A.; Hamdan, A. ESG impact on performance of US S&P 500-listed firms. *Corp. Gov. Int. J. Bus. Soc.* 2020, 20, 1409–1428.
12. Zhang, D.; Zhao, Z.; Lau, C. Sovereign ESG and corporate investment: New insights from the United Kingdom. *Technol. Forecast. Soc. Chang.* 2022, 183, 121899.
13. Friede, G.; Timo, B.; Alexander, B. ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies. *J. Sustain. Financ. Investig.* 2015, 5, 210–233.
14. Apergis, N.; Poufinas, T.; Antonopoulos, A. ESG scores and cost of debt. *Energy Econ.* 2022, 112, 106186.
15. Li, H.; Zhang, X.; Zhao, Y. ESG and Firm's Default Risk. *Financ. Res. Lett.* 2022, 47, 102713.
16. Scalzer, R.S.; Rodrigues, A.; Macedo, M.A.D.S.; Wanke, P. Insolvency of Brazilian electricity distributors: A DEA bootstrap approach. *Technol. Econ. Dev. Econ.* 2018, 24, 718–738.
17. Wanke, P.; Azad, M.; Barros, C. Financial distress and the Malaysian dual baking system: A dynamic slacks approach. *J. Bank. Financ.* 2016, 66, 1–18.
18. Abate, G.; Basile, I.; Ferrari, P. The level of sustainability and mutual fund performance in Europe: An empirical analysis using ESG ratings. *Corp. Soc. Responsib. Environ. Manag.* 2021, 28, 1446–1455.
19. Boubaker, S.; Cellier, A.; Manita, R.; Saeed, A. Does corporate social responsibility reduce financial distress risk? *Econ. Model.* 2020, 91, 835–851.

20. Elkamhi, R.; Ericsson, J.; Parsons, C.A. The cost and timing of financial distress. *J. Financ. Econ.* 2012, 105, 62–81.
21. Almeida, H.; Philippon, T. The Risk-Adjusted Cost of Financial Distress. *J. Financ.* 2007, 62, 2557–2586.
22. Altman, E.; Hotchkiss, E.; Wang, W. *Corporate Financial Distress, Restructuring, and Bankruptcy: Analyze Leveraged Finance, Distressed Debt, and Bankruptcy*; Wiley: Hoboken, NJ, USA, 2019.
23. Giammarino, M. The Resolution of Financial Distress. *Rev. Financ. Stud.* 1989, 2, 25–47.
24. Chan, K.C.; Chen, N.-F. Structural and Return Characteristics of Small and Large Firms. *J. Financ.* 1991, 46, 1467–1484.
25. Asquith, P.; Gertner, R.; Scharfstein, D. Anatomy of Financial Distress: An Examination of Junk-Bond Issuers. *Q. J. Econ.* 1994, 109, 625–658.
26. Graham, J.R.; Harvey, C.R. The theory and practice of corporate finance: Evidence from the field. *J. Financ. Econ.* 2001, 60, 187–243.
27. Opler, T.C.; Titman, S. Financial Distress and Corporate Performance. *J. Financ.* 1994, 49, 1015–1040.
28. Oliveira, M.; Kadapakkam, P.-R.; Beyhaghi, M. Effects of customer financial distress on supplier capital structure. *J. Corp. Financ.* 2017, 42, 131–149.
29. Gilson, S.C. Management turnover and financial distress. *J. Financ. Econ.* 1989, 25, 241–262.
30. Chen, J.; De Cesari, A.; Hill, P.; Ozkan, N. Initial compensation contracts for new executives and financial distress risk: An empirical investigation of UK firms. *J. Corp. Financ.* 2018, 48, 292–313.
31. Pham, T.; Talavera, O.; Wood, G.; Yin, S. Quality of working environment and corporate financial distress. *Financ. Res. Lett.* 2021, 46, 102449.
32. Urquiza, F.; Moreno-Ureba, E. Does compliance with corporate governance codes help to mitigate financial distress? *Res. Int. Bus. Financ.* 2021, 55, 101344.
33. Lee, T.-S.; Yeh, Y.-H. Corporate Governance and Financial Distress: Evidence from Taiwan. *Corp. Gov. Int. Rev.* 2004, 12, 378–388.
34. Elloumi, F.; Gueyié, J. Financial distress and corporate governance: An empirical analysis. *Corp. Gov. Int. J. Bus. Soc.* 2001, 1, 15–23.
35. Lasfer, M.A.; Sudarsanam, P.S.; Taffler, R.J. Financial Distress, Asset Sales, and Lender Monitoring. *Financ. Manag.* 1996, 25, 57.
36. Richardson, G.; Taylor, G.; Lanis, R. The impact of financial distress on corporate tax avoidance spanning the global financial crisis: Evidence from Australia. *Econ. Model.* 2015, 44, 44–53.

37. Purnanandam, A. Financial Distress and Corporate Risk Management: Theory & Evidence. *J. Financ. Econ.* 2007, 87, 706–739.
38. Inekwe, J.; Yi Jin, M.; Valenzuela, R. The effects of financial distress: Evidence from US GDP growth. *Econ. Model.* 2018, 72, 8–21.
39. Kahl, M. Economic Distress, Financial Distress, and Dynamic Liquidation. *J. Financ.* 2002, 57, 135–168.
40. Senbet, L.W.; Seward, J.K. Financial distress, bankruptcy and reorganization. *Handb. Oper. Res. Manag. Sci.* 1995, 9, 921–961.
41. Altman, E.I. Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *J. Financ.* 1968, 23, 589–609.
42. Altman, E.; Haldeman, R.; Narayanan, P. ZETA analysis: A new model to identify bankruptcy risk of corporations. *J. Bank. Financ.* 1977, 1, 29–54.
43. Campbell, J.Y.; Hilscher, J.D.; Szilagyi, J. Predicting financial distress and the performance of distressed stocks. *J. Investig. Manag.* 2011, 9, 14–34.
44. Habib, A.M.; Shahwan, T.M. Measuring the operational and financial efficiency using a Malmquist data envelopment analysis: A case of Egyptian hospitals. *Benchmarking Int. J.* 2020, 27, 2521–2536.
45. Habib, A.M.; Kayani, U.N. Does the efficiency of working capital management affect a firm's financial distress? Evidence from UAE. *Corp. Gov. Int. J. Bus. Soc.* 2022, 22, 1567–1586.
46. Li, Z.; Crook, J.; Andreeva, G. Dynamic prediction of financial distress using Malmquist DEA. *Expert Syst. Appl.* 2017, 80, 94–106.
47. Shiri, M.; Salehi, M. Prediction of financial distress in Tehran Stock Exchange using DEA approach. *Indian J. Sci. Technol.* 2012, 5, 3461–3473.
48. Wanke, P.; Tsionas, M.G.; Chen, Z.; Antunes, J. Dynamic network DEA and SFA models for accounting and financial indicators with an analysis of super-efficiency in stochastic frontiers: An efficiency comparison in OECD banking. *Int. Rev. Econ. Financ.* 2020, 69, 456–468.
49. Wanke, P.; Azad, M.; Emrouznejad, A.; Antunes, J. A dynamic network DEA model for accounting and financial indicators: A case of efficiency in MENA banking. *Int. Rev. Econ. Financ.* 2019, 61, 52–68.
50. Wanke, P.; Barros, C.; Faria, J.R. Financial distress drivers in Brazilian banks: A dynamic slacks approach. *Eur. J. Oper. Res.* 2015, 240, 258–268.
51. Boffo, R.; Patalano, R. ESG Investing: Practices, Progress and Challenges. OECD Paris. 2020. Available online: <https://www.oecd.org/finance/ESG-Investing-Practices-Progress-Challenges.pdf>

(accessed on 25 November 2022).

52. Clementino, E.; Perkins, R. How Do Companies Respond to Environmental, Social and Governance (ESG) ratings? Evidence from Italy. *J. Bus. Ethics* 2021, 171, 379–397.
53. Burke, J.J. Do Boards Take Environmental, Social, and Governance Issues Seriously? Evidence from Media Coverage and CEO Dismissals. *J. Bus. Ethics* 2022, 176, 647–671.
54. Huang, Y.S.; Wang, C.-J. Corporate governance and risk-taking of Chinese firms: The role of board size. *Int. Rev. Econ. Financ.* 2015, 37, 96–113.
55. Mahoney, L.; Roberts, R.W. Corporate Social Performance, Financial Performance and Institutional Ownership in Canadian Firms. *Account. Forum* 2007, 31, 233–253.
56. Velde, E.; Vermeir, W.; Corten, F. Corporate social responsibility and financial performance. *Corp. Gov.* 2005, 5, 129–138.
57. Wong, W.C.; Batten, J.A.; Ahmad, A.H.; Mohamed-Arshad, S.B.; Nordin, S.; Adzis, A.A. Does ESG certification add firm value? *Financ. Res. Lett.* 2021, 39, 101593.
58. Cornett, M.M.; Erhemjamts, O.; Tehranian, H. Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of U.S. commercial banks around the financial crisis. *J. Bank. Financ.* 2016, 70, 137–159.
59. Chava, S. Environmental Externalities and Cost of Capital. *Manag. Sci.* 2014, 60, 2223–2247.
60. Shanaev, S.; Ghimire, B. When ESG meets AAA: The effect of ESG rating changes on stock returns. *Financ. Res. Lett.* 2022, 46, 102302.
61. Barros, V.; Matos, P.V.; Sarmiento, J.M.; Vieira, P.R. M&A activity as a driver for better ESG performance. *Technol. Forecast. Soc. Chang.* 2022, 175, 121338.
62. Pineau, E.; Le, P.; Estran, R. Importance of ESG factors in sovereign credit ratings. *Financ. Res. Lett.* 2022, 49, 102966.
63. Cherkasova, V.; Nenuzhenko, I. Investment in ESG Projects and Corporate Performance of Multinational Companies. *J. Econ. Integr.* 2022, 37, 54–92.
64. Barko, T.; Cremers, M.; Renneboog, L. Shareholder Engagement on Environmental, Social, and Governance Performance. *J. Bus. Ethics* 2022, 180, 777–812.
65. Delves, D.; Newbury, R.; Blakeslee, E. 2021 Report on ESG Metrics in Executive Incentive Plans. Willis Towers Watson's. 2021. Available online: <https://www.wtwco.com/-/media/WTW/Insights/2021/12/WTW-2021-Global-ESG-Report.pdf?modified=20220104213205> (accessed on 25 November 2022).
66. Borghesi, R.; Houston, J.F.; Naranjo, A. Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests. *J. Corp. Financ.* 2014, 26, 164–181.

67. Hong, H.; Kubik, J.; Scheinkman, J. Financial Constraints on Corporate Goodness. SSRN Electron. J. 2012. Available online: 10.2139/ssrn.1734164 (accessed on 25 November 2022).
68. Amiraslani, H.; Lins, K.V.; Servaes, H.; Tamayo, A. Trust, social capital, and the bond market benefits of ESG performance. *Rev. Account. Stud.* 2022, 1–42.
69. Chen, L.; Zhang, L.; Huang, J.; Xiao, H.; Zhou, Z. Social responsibility portfolio optimization incorporating ESG criteria. *J. Manag. Sci. Eng.* 2021, 6, 75–85.
70. Alam, A.W.; Banna, H.; Hassan, M.K. ESG activities and bank efficiency: Are Islamic banks better? *J. Islam. Monet. Econ. Financ.* 2022, 8, 65–88.
71. Ren, C.; Ting, I.; Lu, W.-M.; Kweh, Q.L. Nonlinear effects of ESG on energy-adjusted firm efficiency: Evidence from the stakeholder engagement of apple incorporated. *Corp. Soc. Responsib. Environ. Manag.* 2022, 29, 1231–1246.
72. Chang, K.; Cheng, X.; Wang, Y.; Liu, Q.; Hu, J. The impacts of ESG performance and digital finance on corporate financing efficiency in China. *Appl. Econ. Lett.* 2021, 30, 516–523.
73. Xie, J.; Nozawa, W.; Yagi, M.; Fujii, H.; Managi, S. Do environmental, social, and governance activities improve corporate financial performance? *Bus. Strategy Environ.* 2019, 28, 286–300.
74. Vincentiis, P. Do international investors care about ESG news? *Qual. Res. Financ. Mark.* 2022; ahead-of-print.
75. El Ghouli, S.; Karoui, A. Does corporate social responsibility affect mutual fund performance and flows? *J. Bank. Financ.* 2017, 77, 53–63.
76. Lee, D.D.; Faff, R.W. Corporate Sustainability Performance and Idiosyncratic Risk: A Global Perspective. *Financ. Rev.* 2009, 44, 213–237.
77. Sun, L.; Stuebs, M. Corporate Social Responsibility and Firm Productivity: Evidence from the Chemical Industry in the United States. *J. Bus. Ethics* 2012, 118, 251–263.
78. Kapelko, M.; Lansink, A.O.; Guillamon-Saorin, E. Corporate social responsibility and dynamic productivity change in the US food and beverage manufacturing industry. *Agribusiness* 2021, 37, 286–305.
79. Guillamon-Saorin, E.; Kapelko, M.; Stefanou, S.E. Corporate Social Responsibility and Operational Inefficiency: A Dynamic Approach. *Sustainability* 2018, 10, 2277.
80. Cohen, G. ESG risks and corporate survival. *Environ. Syst. Decis.* 2023, 43, 16–21.
81. Glover, B. The expected cost of default. *J. Financ. Econ.* 2016, 119, 284–299.
82. Jia, J.; Li, Z. Corporate Environmental Performance and Financial Distress: Evidence from Australia. *Aust. Account. Rev.* 2022, 32, 188–200.

83. Ambec, S.; Lanoie, P. Does it pay to be green? A systematic overview. *Acad. Manag. Perspect.* 2018, 22, 45–62.
84. Malik, M. Value-enhancing capabilities of CSR: A brief review of contemporary literature. *J. Bus. Ethics* 2015, 127, 419–438.
85. Attig, N.; El Ghouli, S.; Guedhami, O.; Suh, J. Corporate Social Responsibility and Credit Ratings. *J. Bus. Ethics* 2013, 117, 679–694.
86. Attig, N.; Cleary, S. Managerial Practices and Corporate Social Responsibility. *J. Bus. Ethics* 2015, 131, 121–136.
87. Altman, E.I.; Hotchkiss, E. *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt*; John Wiley & Sons: Hoboken, NJ, USA, 2006.
88. Habib, A.; Costa, M.D.; Huang, H.J.; Bhuiyan, B.U.; Sun, L. Determinants and consequences of financial distress: Review of the empirical literature. *Account. Financ.* 2018, 60, 1023–1075.
89. Berman, S.L.; Wicks, A.C.; Kotha, S.; Jones, T.M. Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Acad. Manag. J.* 1999, 42, 488–506.
90. Godfrey, P.C. The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Acad. Manag. Rev.* 2005, 30, 777–798.
91. Renneboog, L.; Ter Horst, J.; Zhang, C. Socially responsible investments: Institutional aspects, performance, and investor behavior. *J. Bank. Financ.* 2008, 32, 1723–1742.
92. Hassan Al-Tamimi, H.A. The effects of corporate governance on performance and financial distress: The experience of UAE national banks. *J. Financ. Regul. Compliance* 2012, 20, 169–181.
93. Younas, N.; UdDin, S.; Awan, T.; Khan, M.Y. Corporate governance and financial distress: Asian emerging market perspective. *Corp. Gov.* 2021, 21, 702–715.
94. La Porta, R.; Lopez-De-Silanes, F.; Shleifer, A.; Vishny, R.W. Investor protection and corporate governance. *J. Financ. Econ.* 2000, 58, 3–27.
95. Johnson, S.; Boone, P.; Breach, A.; Friedman, E. Corporate governance in the Asian financial crisis. *J. Financ. Econ.* 2000, 58, 141–186.

Retrieved from <https://encyclopedia.pub/entry/history/show/100325>