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Sustainability and corporate scandals:
The role of corporate social responsibility and irresponsibility in financial markets

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Dissertation zur Erlangung des Grades eines Doktors der Wirtschaftswissenschaft

eingereicht an der Fakultät für Wirtschaftswissenschaften der Universität Regensburg

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Tag der Disputation: 24.05.2023

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A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
Doktor der Wirtschaftswissenschaft (Dr. rer. pol.)

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Acknowledgements

I owe my gratitude to my advisor, Prof. Dr. Gregor Dorfleitner, for his continuous support and advice throughout my dissertation at the Department of Finance at the University of Regensburg. I am particularly grateful for his trust, the encouraging comments, and for the opportunity to pursue my Ph.D under his supervision. I am also grateful to Prof. Dr. Klaus Röder for being my second advisor. Insightful discussions with both and their suggestions and feedback have greatly improved my research.

Moreover, I would like to thank my colleagues at the Department of Finance for their helpful suggestions, cooperation, and friendship.

Last but not least, I would like to thank my family and friends for their encouragement throughout the process. Special thanks go to my Mum and Karina. Without their seemingly endless support and love, this dissertation would not have been possible.

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Chapter 1

Introduction

Modern society faces a tremendous challenge: adapting to climate change and charting a path to more sustainability while simultaneously accounting for national disparities in economic development, cultural and religious norms, and political systems. In conjunction with political efforts, such as the Paris Climate Agreement in 2015 and the European Green Deal in 2019, financial markets and their actors play a crucial role and can contribute to this transformation in multiple ways.

Financial innovations, such as green bonds, the proceeds of which are used to finance environmentally friendly projects (Baker et al., 2022; Flammer, 2021), can help to direct scarce financial resources accordingly. Shareholder proposals by ethically-motivated investors can pressure firms to adopt environmental standards, fair working conditions, and sound corporate governance (Shackleton et al., 2021). Independent third-party rating agencies quantify and measure companies' efforts, increasing transparency in this transformation process. But companies and business models also have to adapt to the emerging challenges.

Traditionally, economics and finance have long embraced Friedman's (1970) view of companies, according to which companies are obliged only to serve shareholders' interest in maximizing profits (Friedman, 1970; Bénabou and Tirole, 2010; Liang and Renneboog, 2017). However, the notion that modern society requires companies to consider objectives beyond profit maximization has attracted substantial worldwide attention in recent years. In response, firms appear to be increasingly investing in environmentally-friendly production and supply chains, adopting sound diversity policies and fair working conditions, or donating to local communities.

These business practices, which seek to enhance other stakeholders' welfare, are summarized as corporate social responsibility (CSR). Despite the enormous academic attention paid to the concept of CSR, a formal definition is not straightforward. CSR spans multiple topics (Liang and Renneboog, 2017) and may vary with individual beliefs (Maignan and Ralston,

2002), historical context, or industry sectors (Campbell, 2007).

As a broad definition, CSR involves all business practices that contribute to the sustainable development of society and a mindful interaction with the environment (World Business Council for Sustainable Development, 2000; European Commission, 2001). CSR activities are often characterized as a company's voluntary actions exceeding legal and regulatory requirements (see e.g., McWilliams and Siegel, 2001) to manage the externalities it causes during its endeavor to maximizing profits (Tirole, 2001). Consequently, some authors require a sacrifice of profit and thus 'true' CSR activities to conflict with shareholder value maximization (see e.g., Bénabou and Tirole, 2010; Masulis and Reza, 2015), while others emphasize the compatibility of a stakeholder welfare orientation with the pursuit of profit maximization (see e.g., Liang and Renneboog, 2017; Ferrell et al., 2016; Edmans, 2011; Deng et al., 2013).

For academics, managers, and, in particular, investors who want to incorporate specific sustainable criteria in their investment process, it is indispensable to define a tangible and objective measure of CSR. Hence, various independent rating agencies, such as MSCI, Moody's ESG, Sustainalytics, or Refinitiv, cater to this demand and quantify a company's CSR performance across three pillars (environmental, social, and corporate governance). These so-called ESG scores are based on publicly available data reported by the company. The environmental pillar primarily captures a company's efforts to reduce resource waste and greenhouse gas emissions or to promote green innovations. Actions towards sound diversity policies, fair working conditions, customer and employee health, as well as privacy are included in the social pillar. Lastly, the corporate governance pillar mainly measures the protection of shareholder rights, adequate management compensation incentives, and the implementation and disclosure of an appropriate CSR strategy.

Nowadays, ESG scores find numerous applications in scientific publications (see e.g., Waddock and Graves, 1997; Ioannou and Serafeim, 2012; Eccles et al., 2014; Ferrell et al., 2016; Liang and Renneboog, 2017; Dyck et al., 2019; Ding et al., 2021; Dai et al., 2021; Flammer, 2021) and the integration of ESG information in investment decisions has been one of the most prominent trends in financial markets in recent years (Christensen et al., 2022; Hartzmark and Sussman, 2019; Amel-Zadeh and Serafeim, 2018). Figure 1.1 illustrates this trend and presents the total assets under management (AUM) invested according to ESG-related criteria for the US market (light gray) and globally (dark gray) in trillion USD as reported by the Global Sustainable Investment Alliance (GSIA, 2020) and US Form for Sustainable and Responsible Investment (USSIF, 2020).[1] Following this long-standing debate, academics and practitioners have shown themselves to be increasingly interested in the linkage between CSR and corporate financial performance (CFP).

[1]The AUM for each year are drawn from a separate report. For presentation purposes, only the most recent reports are cited here. The complete list of reports can be found in the bibliography of this thesis.

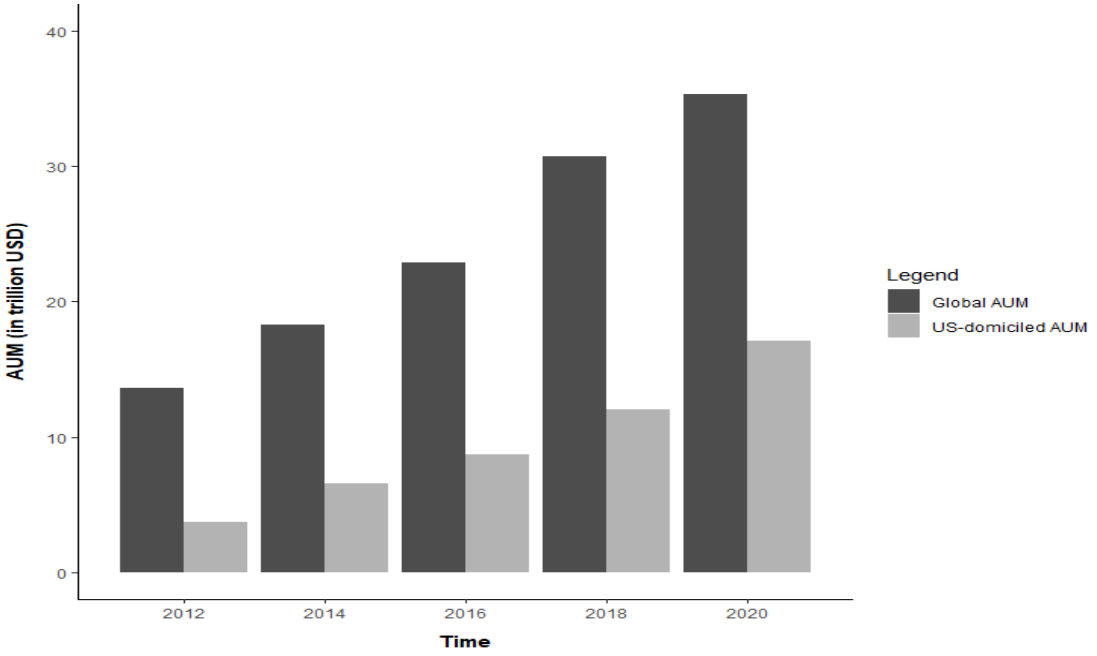

Figure 1.1: AUM invested according to ESG-related criteria.

This figure shows the assets under management (AUM) invested according to ESG-related criteria in trillion USD. The US-domiciled AUM, presented in light gray, are derived from the US Form for Sustainable and Responsible Investment (USSIF, 2020). The worldwide AUM, displayed in dark gray, come from the Global Sustainable Investment Alliance (GSIA, 2020).

From a risk perspective, CSR can be beneficial for firm value as companies with high ESG scores are associated with lower systematic and idiosyncratic risk (see e.g., Orlitzky and Benjamin, 2001; Lee and Faff, 2009; Godfrey et al., 2009; Luo and Bhattacharya, 2009; Bénabou and Tirole, 2010; Albuquerque et al., 2019). CSR reduces information asymmetries between managers and external stakeholders (Harrison et al., 2010), which decreases the cost of capital (see e.g., El Ghoul et al., 2011; Dhaliwal et al., 2011; Goss and Roberts, 2011) and facilitates access to external financing (see e.g., Cheng et al., 2014a). It directs the firm's awareness towards certain CSR-related risks, helping to address and mitigate these risks more efficiently (Vishwanathan et al., 2020; Godfrey et al., 2009), which is especially valuable during severe economic crises with a general loss of confidence and trust (Lins et al., 2017). Moreover, with the recent shift in focus towards idiosyncratic climate and carbon risk (see e.g., Krüger, 2015; Ferrell et al., 2016; Lins et al., 2017; Ilhan et al., 2021; Engle et al., 2020), capital markets increasingly consider firms with high environmental performance as a hedging tool against climate-based risks and price the firm's environmental efforts accordingly (Andersson et al., 2016; Ilhan et al., 2021; Huynh and Xia, 2021).

Another major branch of literature on CSR examines a more direct relation with CFP. One viewpoint centers around the assumption that CSR enhances future CFP, i.e., "doing

well by doing good" (see e.g., Waddock and Graves, 1997; Orlitzky et al., 2003; Kempf and Osthoff, 2007; Statman and Glushkov, 2009; Krüger, 2015; Flammer, 2015; Kang et al., 2016; Flammer, 2021). Advocates of this link often draw upon the good management hypothesis (see e.g., McGuire et al., 1990; Waddock and Graves, 1997; Kang et al., 2016) and argue that firms with a high CSR reputation build up relationship-based intangible assets resulting in various competitive advantages, such as a strong relationship with their key stakeholders and brand equity (see e.g., Luo and Bhattacharya, 2006; Bhattacharya and Sen, 2004; McWilliams and Siegel, 2000; Brown and Dacin, 1997; Fombrun et al., 2000; McWilliams and Siegel, 2001; Waddock and Graves, 1997). From a capital markets perspective, the long-term benefits of CSR are usually hard to quantify, and due to the short-termism of shareholders, high CSR firms are often undervalued (Edmans, 2011; Dorfleitner et al., 2018).

A second view postulates a negative relation between CSR and CFP, often framed as "doing good but not well" (see e.g., Boyle et al., 1997; Barnea and Rubin, 2010; Renneboog et al., 2008; Hong and Kacperczyk, 2009; Bolton and Kacperczyk, 2021). Similar to the previous view, the reasons behind this relation may be manifold. One of the most prevalent arguments, the trade-off theory (Aupperle et al., 1985; Jensen, 2002), assumes CSR to be seen as an unnecessary rise in capital expenditures. Therefore, following the agency problem of free cash flow (Jensen, 1986), managers who still pursue CSR presumably do so because they can extract private benefits and non-financial rents in the form of gifts, network building, and entrenchment effects (Barnea and Rubin, 2010; Brown et al., 2006; Bénabou and Tirole, 2010; Masulis and Reza, 2015; Krüger, 2015).

Still, the academic discussion of whether CSR enhances or hampers CFP lacks a uniform theoretical foundation (see e.g., Vishwanathan et al., 2020; Kang et al., 2016), and conflicting findings are often data-driven (Capelle-Blancard and Monjon, 2012; Revelli and Viviani, 2015). Therefore, academics and practitioners alike have recently expressed concerns regarding the usage of ESG scores.

Similar to the heterogeneous individual definitions of CSR, ESG scores are hardly comparable (Dorfleitner et al., 2015; Chatterji et al., 2016), which may even raise the concern that a rating agency's personal view of the company may distort ESG scores (Berg et al., 2022). Scores often differ in their underlying set of attributes on which a company's CSR is evaluated, and rating agencies employ different key indicators with different weights to quantify the same set of attributes (Berg et al., 2022). For example, Refinitiv and Sustainalytics include a firm's commitment to board and employee diversity, while MSCI does not. Similarly, Sustainalytics is the only rating agency that captures aspects of lobbying within its scoring methodology.

Additionally, these ratings rely on publicly available company-reported data, and thus companies may be able to favorably distort their rating by selective disclosure (Christensen

et al., 2022; Drempetic et al., 2019) or outright misleading claims. Companies often engage in pure symbolism to enhance their public image (Meyer and Rowan, 1977), and rating agencies should carefully consider the extent to which firms behave in socially responsible ways or merely make empty claims (Campbell, 2007).

In particular, with the trend towards the greening of business, companies are incentivized to dishonestly communicate a good general environmental performance (i.e., firm-level greenwashing) or overstate the environmental benefits of a product or (financial) service (i.e., product- and service-level greenwashing) to consumers, regulators, rating agencies, and financial markets (Delmas and Burbano, 2011). Nowadays, the phenomenon of greenwashing is far more complex than falsely praising environmental benefits and incorrectly advertising products or services as 'green' or 'environmentally friendly' (Chen and Chang, 2013; Parguel et al., 2011) but also includes concealing non-compliance with socially-expected environmental standards and deflecting attributions of fault (Laufer, 2003).

Politicians and regulators are well aware of these issues and implement initiatives, such as the EU Corporate Sustainability Reporting Directive (CSRD), to define consistent rules for the disclosure of CSR information and to counteract greenwashing and rating discrepancies in the first place. Accordingly, continuous reevaluation and transparent disclosure of the underlying ESG scoring methodology, combined with a rigorous regulatory definition and monitoring of how companies should report CSR-related information, are required to prevent the black-box nature of ESG ratings and represent a necessary step in ensuring correct and credible applications of ESG ratings for practical purposes.

Despite all political and societal efforts to promote and encourage companies to pursue sustainable goals, firms still engage in unethical practices, be it excessive pollution, employee discrimination and harassment, child labor, antitrust violations, accounting and tax fraud, or shareholder rights infringements. These patterns of unethical corporate behavior regarding environmental, social, or corporate governance issues are commonly referred to as corporate social irresponsibility (CSI). A company may either willingly and knowingly act unethically or because of negligence, but CSI is not always an illegal action (Godfrey, 2005).

CSI runs counter to a firm's stakeholder welfare orientation and may inflict severe and often irreversible damage to the environment, stakeholders, and society. Besides the well-known Deepwater Horizon oil spill in 2010, causing large-scale environmental damage and costing thousands of jobs, other prominent examples are Wirecard's accounting fraud in 2020 with the subsequent loss of public trust in regulatory agencies and auditors, the highly unethical price hike of Turing Pharmaceuticals' HIV drug in 2015, when the price of a life-saving drug was increased by more than 5,000% overnight, pushing the cost from \$13.50 to \$750 per pill, or Norfolk Southern's train derailments in 2023 in part due to neglect of train safety measures.

However, a company can be perceived as sustainable by the public yet, at the same time, act unethically. Hence, CSI is not mutually exclusive to CSR (Aouadi and Marsat, 2018) but rather is a theoretically different construct (Ioannou and Serafeim, 2015; Bear et al., 2010) that can be temporally and causally intertwined with CSR through the following two mechanisms (Kang et al., 2016):

First, the insurance mechanism of CSR suggests that prior CSR activities can build relationship-based intangible assets and goodwill, which provide insurance-like protection against the societal condemnation and consequences of future unethical corporate behavior (see e.g., Godfrey, 2005; Godfrey et al., 2009; Fombrun et al., 2000; Peloza, 2006; Kang et al., 2016; Flammer, 2013). Proponents of this view argue that CSR can mitigate legal claims and give the company 'the benefit of the doubt' and thus substantially revise the societal perception of unethical practices (Godfrey et al., 2009; Uzzi, 1997).

Second, the penance mechanism proposes that firms engage in CSR after CSI. Firms increasingly ensure workplace or product safety after an employee or consumer has been harmed or restructure their boards after being accused of bribery or other governance issues. Advocates of the penance mechanism argue that these firms attempt to compensate for their harm and, in doing so, regain public trust (see e.g. Kang et al., 2016; Kotchen and Moon, 2012). Nevertheless, pure symbolism to divert the public's attention from corporate misconduct cannot be ruled out as a motive.

Another important question, namely, why companies engage in unethical practices in the first place, fascinates scholars from various research fields. Apart from the legal and psychological disciplines, Becker (1968) offers an economic approach to crime and offenses. In his well-known framework, he argues that the commitment of a criminal action is the utility-maximizing output of an individual's rational decision-making process. The individual weighs the benefits and costs of a criminal action, including the probability of detection and severity of punishment, against non-criminal behavior and deliberately chooses the option which maximizes the expected utility.

From a firm's perspective, certain unethical business practices can lead to competitive advantages or prevent disadvantages as long as they remain undetected or do not entail punishment. Siemens bribed the Argentine government to obtain contracts, Foxconn exploited their employees with forced overtime to increase production, and Wirecard committed accounting fraud to, among other things, disguise their failure to satisfy the unrealistic promises of growth.

However, before politicians, customers, and shareholders can react to CSI, they must be aware of these patterns of corporate misconduct in the first place. Thus companies have a substantial incentive to conceal these practices and impede the disclosure of negative news. For example, several months before the disclosure of Wirecard's accounting fraud in 2020,

the Financial Times pointed out multiple discrepancies in the balance sheets, whereupon Wirecard made considerable efforts to avert these allegations by the Financial Times.

Additionally, the societal definition of unethical corporate behavior varies across countries, cultures, and time (Alas, 2006; Beekun and Westerman, 2012). Especially in less developed countries, unethical business practices such as bribery, the negligence of workplace safety requirements, or employee discrimination are more likely to be tolerated and may remain hidden for a long time. Companies may even rely on the insurance-like protection offered by a good CSR reputation to deflect accusations of unethical behavior.

For this reason, it is crucial that NGOs, global media sources, public authorities, and whistleblowers reveal and disseminate credible information about corporate misconduct. The disclosure of these unethical practices changes the public perception of the firm (Grappi et al., 2013; Gantchev et al., 2022). Customers, suppliers, investors, and regulators can position themselves and respond accordingly to the corporate scandal with, for example, a boycott of the firm's products, the cancellation of contracts, or stricter regulation of industry sectors.

Within his theoretical setting, Becker (1968) concludes that potential offenders appear to be more responsive to changes in the probability of detection and conviction than to changes in the severity of punishment. Unfortunately, uncovering corporate scandals is not straightforward. Dyck et al. (2023) show that only approximately one-third of all cases of companies committing securities fraud are exposed, exemplifying that the disclosure of unethical behavior is still insufficient. Policy-makers and regulators should increase their efforts to create legal and regulatory environments that foster the disclosure process. Moreover, academics should focus on the identification of different motives and potential drivers of corporate scandals.

From a shareholder perspective, understanding the underlying pricing mechanism of corporate scandals in efficient capital markets is imperative. Are scandals truly unpredictable, or can efficient capital markets price the risk of a scandal accordingly? In addition, a more comprehensive understanding of the impact of corporate scandals on a company's stock returns and payout policy can provide guidance to ethically-motivated investors on how to incorporate information about corporate misconduct into their stock selection process.

Therefore, this doctoral thesis aims to contribute to these academic fields with the following four independent research papers with several co-authors:

Ch. 2 ESG controversies and controversial ESG: About silent saints and small sinners.
Publication status: Published in Journal of Asset Management

Ch. 3 To sin in secret is no sin at all: On the linkage of policy, society, culture, and firm characteristics with corporate scandals.

Publication status: Published in Journal of Economic Behavior and Organization

Ch. 4 The Good Left Undone: About future scandals, past returns and ineffectual ESG.
Publication status: Journal of Banking and Finance (under review)

Ch. 5 The Corporate Payout Puzzle: About the Payout Policy between CSR and CSI.
Publication status: Journal of Financial and Quantitative Analysis (under review)

The remainder of this introduction briefly summarizes the research articles with respect to the research question, the contribution to literature, the data and statistical models, and the practical implications. Chapters 2 to 5 present the research papers, and chapter 6 concludes.

ESG controversies and controversial ESG: About silent saints and small sinners

With the popularity of socially responsible investing in recent years, investors, portfolio managers, and academics have paid considerable attention to whether sustainable companies can achieve higher returns and better financial performance. Despite the lively academic discussion, the results remain inconclusive to this date (Friede et al., 2015; Revelli and Viviani, 2015). The first article of this thesis contributes to this debate and examines the relationship between corporate social (ir-)responsibility and corporate financial performance from an investor's perspective. To the best of our knowledge, this article is the first to explore the impact of CSR-based scandals on stock returns within a portfolio context, which offers investors an easy-to-implement approach to incorporate a company-based evaluation of unethical corporate behavior in their stock-selection process.

Using an extensive international dataset with more than 4,700 companies from 2002 to 2018, we employ a monthly rebalanced positive screening approach and select stocks based on a firm's level of corporate social (ir-)responsibility to construct best-only, worst-only, and best-minus-worst portfolios with different weighting strategies. For stock selection, we use three different scores from Refinitiv (formerly known as Thomson Reuters) with various cutoff levels: the *Refinitiv ESG Score* assesses a company's level of CSR, the *Refinitiv Controversies Score* captures a firm's involvement in CSR-based scandals during a fiscal year, and the *Refinitiv Combined Score* represents an aggregated measure of a firm's ESG and Controversies Score. Besides an equal- and value-weighting approach, we apply a ranked weighting in which a company's weight increases the more extreme its score becomes. We determine the risk-adjusted performance of the respective stock portfolios with the Fama and French (2015) five-factor model.

Although none of our value-weighting strategies achieve a significant outperformance, our results reveal a statistical significant positive alpha for equally-weighted best controversies strategies and worst ESG portfolios. Additionally, the ranked-weighting approach further improves this outperformance. As the small firms within our sample mainly drive our findings, we can conclude that investors may overlook and incorrectly price smaller companies with a clean coat regarding scandals ("silent saints"). Additionally, supported by the trade-off theory (Aupperle et al., 1985), portfolios based on smaller companies with low ESG ratings ("small sinners") can achieve an outperformance.

Overall, this article contributes to the literature on the relationship between corporate social (ir-)responsibility and corporate financial performance and shows that investors may profit from investing in small firms without scandals. Furthermore, because there is no significant performance loss for portfolios with high ESG ratings, ethically-oriented investors do not have to sacrifice profit for sustainability. Finally, this article highlights the need for academics and investors alike to incorporate both dimensions, i.e. a company's ESG rating and its CSR-related scandals, to make informed decisions.

To sin in secret is no sin at all: On the linkage of policy, society, culture, and firm characteristics with corporate scandals

Academics have been increasingly interested in firms' motives for CSR beyond its impact on financial performance (see e.g., Ioannou and Serafeim, 2012; Campbell, 2007; McWilliams and Siegel, 2001; Liang and Renneboog, 2017; Reverte, 2009; Baldini et al., 2018). However, since companies can achieve high ESG scores and be simultaneously involved in corporate scandals, academic attention is biased towards the concept of good social performance (Aouadi and Marsat, 2018) while mostly ignoring or overlooking the occurrence of CSR-related scandals.

This research article contributes to the understanding of corporate scandals in multiple ways. First, inspired by Thompson (2005), it offers a new theoretical model in which we posit two aspects for the occurrence of corporate scandals: a firm's unethical behavior and the process of societal disclosure. Unethical behavior alone does not result in a scandal because this behavior has to be perceptible and must be severe enough to force stakeholders and society to act (Aouadi and Marsat, 2018; Weick et al., 2005).

Subsequently, we analyze the link of various country- and company-specific variables with corporate scandals. By drawing upon institutional theory (see e.g., DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Oliver, 1991) and legitimacy theory (see e.g., Aldrich and Fiol, 1994; Ashforth and Gibbs, 1990; Suchman, 1995), we hypothesize that stakeholders and institutions can pressure firms to adopt ethical standards and that companies will act

more ethically if a corporate scandal threatens organizational legitimacy and the survival of the firm. Furthermore, we argue that ethically-oriented societies that closely monitor and scrutinize corporate behavior will uncover more corporate scandals.

By employing a hybrid regression model (Allison, 2009; Schunck, 2013), which separates the within-firm and between-entity effects and a Tobit regression (Tobin, 1958) to an international dataset covering 44 countries and 5,700 firms from 2002 to 2017, we can confirm the importance of various country-level and firm-specific determinants for the occurrence of corporate scandals.

First, our country-level determinants show that companies are less likely to be involved in a corporate scandal if the national government ensures a stable political environment with high political participation, which enables efficient enactment and enforcement of new laws and encourages the fight against political and corporate corruption. Furthermore, high power distance and uncertainty-avoiding societies are associated with fewer corporate scandals. In contrast, companies operating in more developed countries with an individualistic culture and a high GDP growth are more likely to become involved in a corporate scandal.

Considering company-specific factors, our results illustrate that a company's level of dependency on capital markets is negatively related to the occurrence of corporate scandals. In contrast, company size, visibility, and risk are positively linked to scandals. Interestingly, firms with good CSR reputations are associated with more scandals, which we define as the *Janus phenomenon*.

Overall, this research article is the first to provide a clearer picture as to which country-level or company-specific factors influence patterns of unethical corporate behavior and their disclosure. This article is an important first step for further research on this topic. Especially the counterintuitive relationship between CSR and corporate scandals deserves further attention. The findings may provide ethically-motivated investors with valuable insights for their investment decisions. Likewise, it may guide regulators and policy-makers to formulate sound rules to limit unethical behavior in the first place and advance their disclosure.

The Good left Undone: About future scandals, past returns and ineffectual ESGs

The discussion on CSR and financial performance is primarily centered around a forward impact, i.e., past or present CSR and its effect on future financial performance. However, based on the counterintuitive relation between companies being sustainable regarding ESG ratings and firms acting ethically correct (see e.g., Dorfleitner et al., 2022), researchers should reconsider their underlying assumptions about what they want to measure. In

conjunction with the problem of companies engaging in greenwashing (see e.g., Laufer, 2003; Delmas and Burbano, 2011) or the concerns expressed towards ESG scores (see e.g., Dorfleitner et al., 2015; Berg et al., 2020; Berg et al., 2022), it is important to extend the academic debate and focus on the relation between CSI and corporate financial performance.

Companies may achieve competitive advantages by engaging in unethical business practices, such as neglecting environmental or workplace safety, committing tax fraud, or bribery, for as long as these practices remain hidden from the public. Accordingly, companies try to withhold the disclosure of their unethical behavior, creating information asymmetries between themselves and their stakeholders. However, in efficient capital markets (Fama, 1965, 1970), investors seek compensation for these risks and demand higher risk premia. Because standard asset pricing factor models cannot explicitly model this relation, we argue that the likelihood of a corporate scandal should be priced in the unexplained component of excess returns. Consequently, excess returns should be a statistical precursor of future scandals. However, studies regarding a reverse and potential causal link between prior financial performance and future corporate scandals are missing in the literature. The central aim of this paper is to fill this gap and explore how the capital market prices corporate scandals.

We use the alpha of the Fama and French (2015) five-factor model to determine the excess return of 10,522 public companies in an international sample from 2002 to 2020. By employing a panel vector autoregression (PVAR) (see e.g., Holtz-Eakin et al., 1988; Love and Zicchino, 2006), generalized impulse response functions (GIRF) (see Pesaran and Shin, 1998), and a propensity score matching approach, we are able to unravel the forward impact (i.e., prior scandals predicting future excess returns) and reverse impact (i.e., prior excess returns predicting future scandals) while simultaneously differentiating between a correlation-based linkage and statistical support for a causal connection.

Our results provide strong and robust evidence for a reverse rather than a forward impact and show that this relation is counterintuitively moderated by the environmental (E) and governance (G) components of the ESG score. Firms with high excess returns will be involved in more corporate scandals in the future, especially if these firms are perceived to be well-governed or environmentally friendly. Our results are robust to alternative measures of excess return.

Overall, our findings reveal a counterintuitive relationship between CSR, corporate scandals, and excess returns, which hopefully brings the attention of investors, regulators, and academics alike to the fact that they will overlook or underestimate corporate misconduct when they solely focus on ESG ratings. Additionally, our results challenge the traditional view that scandals are unpredictable and priced only after their public disclosure, which can serve as another screening criterion for ethically-oriented investors and asset managers.

The Corporate Payout Puzzle: About the Payout Policy between CSR and CSI

Besides the financial performance of a firm, investors, regulators, and academics pay considerable attention to a firm's payout policy (see e.g., Guttman et al., 2010; Deshmukh et al., 2013; Cejnek et al., 2021; Faulkner and García-Feijóo, 2022). Yet still, surprisingly little attention has been paid to the interaction of CSR and CSI with a firm's payout policy so far, despite the academic popularity of corporate social (ir-)responsibility and the far-reaching impact that CSR and CSI can have on a company's financial resources available for payout.

This paper offers novel insights into the influence of CSR and CSI regarding a firm's decision to choose the appropriate amount and optimal channel for payout (i.e., dividends vs. stock repurchases). We discuss the linkage of CSR and CSI with a firm's payout decisions within the most prevalent theoretical branches of the corporate payout literature, i.e., the agency theory of free cash flow (Jensen, 1986; Stulz, 1990; La Porta et al., 2000; Servaes and Tamayo, 2014), signaling theory (Bhattacharya, 1979; Miller and Rock, 1985; John and Williams, 1985), market-timing hypothesis (Brav et al., 2005; Graham and Harvey, 2001; Peyer and Vermaelen, 2009), and precautionary cash holding theory (Bates et al., 2009; Han and Qiu, 2007; Almeida et al., 2004; Dittmar and Dittmar, 2008; Bliss et al., 2015). In doing so, this article sheds light on how companies can leverage their payout channels to align shareholders' financial and non-financial interests and shows how firms change their payout policies after the disclosure of a scandal.

Using an international dataset with 7,260 firms from 2003 to 2021, we show that high ESG scores are positively associated with the likelihood and amount of dividends. In line with the agency theory of free cash flow, corporate payout policy helps to limit agency problems (Easterbrook, 1984) stemming from managers' ability to achieve private benefits and to extract non-financial rents through overinvestments in CSR (Barnea and Rubin, 2010; Brown et al., 2006; Masulis and Reza, 2015). Additionally, we conduct an empirical test to further verify this relation. Following the argumentation, we would predict the disciplining mechanism of corporate payout to be more prominent in countries and organizational structures susceptible to agency issues. We proxy this susceptibility with the country-level anti-self-dealing index of Djankov et al. (2008) and can confirm the overall positive relation between CSR and a firm's payout to persist only for countries with a high susceptibility to agency problems.

Regarding CSI, our results support the precautionary cash holding theory and indicate that companies temporally reduce their payout activities in response to the disclosure of a scandal. To further ensure the validity of this finding, we implement a time-to-event study.

Based on a hand-collected dataset, we use propensity score matching to pair firms with and without a scandal in a given year. Using an OLS regression and accelerated failure time (AFT) model (see e.g., Wei, 1992) to compare the time until the next repurchase announcement for the matched sample, we find that the involvement in a scandal prolongs the time, which supports our previous results.

This article highlights the impact of CSR and CSI on a firm's payout policy. Given the continuing trend towards sustainability, it becomes increasingly crucial for companies to establish an appropriate payout policy that restrains managerial incentives to overinvest. Although the pricing uncertainty after a scandal might be a good opportunity for firms to buy back shares at a relatively low price, investors should consider that companies prioritize retaining their cash to ensure future investments rather than timing their repurchases, which ultimately demonstrates that unethical corporate behavior leads to a reduction in cash flows to investors via all payout channels.

Chapter 2

ESG controversies and controversial ESG: About silent saints and small sinners

This research project is joint work with Gregor Dorfleitner (University of Regensburg) and Christian Sparrer (University of Regensburg). The paper has been published as:
Dorfleitner, G., Kreuzer, C., Sparrer, C. (2020), ESG controversies and controversial ESG: about silent saints and small sinners. *Journal of Asset Management*, 21 (5), 393–412.

Abstract Based on an extensive international dataset containing Thomson Reuters environmental, social and corporate governance (ESG) rating, as well as Thomson Reuters newest controversies and combined score of an average of 2,500 companies in the years 2002–2018, this article contributes to the existing discourse of the relationship between corporate social performance and corporate financial performance (CFP) by examining the Fama and French (2015) five-factor risk-adjusted performance of positive screened best and worst portfolios, based on a 10% cutoff, respectively for equally-, value- and rank-weighted strategies in the European, US, and global market. Furthermore, the controversies score allows us to examine the mid-to-long-term effects of scandals on the CFP without having to rely on the event study methodology. Even though a value-weighted strategy does not show any significant abnormal returns, we examined a significant outperformance for equally-weighted worst ESG-portfolios and best controversies strategies. These results strongly indicate that this is, on the one hand, driven by low-rated smaller companies ("small sinners") and clean-coated firms with regard to controversies ("silent saints") on the other hand. The findings hold for several robustness checks such as adjusting the cutoff rates or splitting the dataset across time.

Keywords ESG, corporate social responsibility, corporate social performance, controversy

2.1 Introduction

The interaction between corporate social performance (CSP) measured by ESG scores (which evaluate the performance of companies in their environmental, social or corporate governance pillars) and their corporate financial performance (CFP) has been the subject of academic research for many years with various findings. This paper is the first to examine the mid-to-long-term effects of controversies, as the new dimension of ESG, on the CFP of listed companies in a portfolio context. Furthermore, it determines the impact of different weighting strategies for high- and low-rated ESG and controversy portfolios.

Since the 1970s the matter of the relationship between CSP and CFP has been investigated by a pile of academic research. Revelli and Viviani (2015) report in their recent meta-analysis that the consideration of CSP in a portfolio leads to neither an under- nor an outperformance when compared with non-ESG-based investment strategies. Friede et al. (2015) conclude from their meta-analysis that approximately 90% of the more than 2,000 considered studies report a nonnegative relationship between CSP and CFP. This heterogeneity of the results can generally be ascribed to three issues, namely the question of how to measure CSP, the methods of stock selection and the question of how to define and measure CFP.

Addressing the first concern, some companies like Sustainalytics, MSCI-KLD or Asset4 specialize in issuing an ESG-based rating system and represent therefore as external and independent rating providers a transparent and reliable source of objective corporate social responsibility (CSR) measurements. Nevertheless, Capelle-Blancard and Monjon (2012) as well as Revelli and Viviani (2015) argue that the academic discordance can mainly be ascribed to the factor of data-driven results. Furthermore, Dorfleitner et al. (2015) and Chatterji et al. (2016) report a lack of homogeneous ESG measurement concepts, even among the large international ESG rating institutions.

To address the CSP measurement issue, our analysis includes three distinct ratings that represent industry-based percentile-ranked scores, which enable a simple implementation of a best-in-class approach and therefore do not discriminate any industry groups. The first one, the *Thomson Reuters ESG score* (in the following referred to as TR score), evaluates the CSR in various pillars, the *Thomson Reuters Controversies score* (in the following referred to as controversies score) measures the amount of ESG-based controversies a company encounters during a fiscal year, and finally, the *Thomson Reuters Combined score* (in the following referred to as combined score) aggregates ESG-related controversies and the TR score of a company.

Despite the fact that the controversies score finds its application within other financial research (see, for example, Park, 2018 and Vasilescu and Wisniewski, 2019), we still

contribute to the literature as we are the first ones to consider the extreme event of an ESG-based scandal within the context of portfolio selection.

The heterogeneity of academic results is strengthened even further by the use of various stock selection criteria. The most common and easy way in which an investor can implement a socially responsible investment (SRI) strategy is represented by socially responsible (SR) mutual funds. These funds claim to construct a portfolio based on SR selection criteria, such as selecting stocks with a high ESG rating (positive screening) or excluding the so-called "sin stocks" (tobacco, alcohol, arms or gambling industry) from their investment decisions (negative screening). The majority of the literature devoted to these type of investment strategies reports on no financial performance differences between SR and conventional mutual funds (see, i.e., Statman, 2000; Bauer et al., 2005; Bello, 2005; Kreander et al., 2005; Cortez et al., 2009; Utz and Wimmer, 2014). However, socially or ethically motivated value-driven investors in particular have to pay close attention to the shifting level of social responsibility of these SR funds. Wimmer (2013) finds that these funds are optimized towards their financial rather than their social performance and therefore the overall level of social performance of an SR fund is only persistent in the short run. Utz and Wimmer (2014) argue that, viewed from an individual stock level, neither SR mutual funds nor conventional funds differ greatly in terms of portfolio composition. This leads to the conclusion that SR mutual funds do not sustainably satisfy the needs of value-driven investors.

To overcome the stock selection problem, our analysis does not include SR funds, but rather selects stocks based on an ESG-ranking, allowing us to measure the CSR of a firm directly and therefore constructs long-term ESG-persistent portfolios by implementing a monthly rebalanced positive screening process following the ESG-based portfolio formation method of Kempf and Osthoff (2007). We construct a *best* and *worst* portfolio based on 10% cutoffs for ESG and controversy out- and underperformer in the sample, respectively. Additionally, the *best-minus-worst* zero-cost-investment strategy simply buys the outperformers and short sells the underperformers. Besides testing for the standard approach of value-weighted portfolios, we also conduct equally-weighted ones to better control for disparities between large and small firms. Furthermore, we implement a ranked weighting, which, given an ESG-based stock selection, allocates a higher weight to the respective stock the more extreme its score becomes.

Regarding the definition and measurement of CFP, researchers tend to use methods of two different directions. Whereas the first group, which represents an accounting-based view, defines CFP as the shift in earnings per share (EPS), operating profitability (return on equity (ROE), return on assets (ROA) or return on sales (ROS)) or net income, the second employs a stock-market-oriented perspective by applying (risk-adjusted) performance measurements such as abnormal returns, Sharpe Ratio or Tobin's Q. A common method

in the accounting-based direction comprises the implementation of a particular type of regression analysis. Qiu et al. (2016), for instance, regress the ROS of companies on their respective ESG score. Mervelskemper and Streit (2017) follow the valuation approach of Ohlson (1995) and add an ESG dimension to the model resulting in a regression of the market-to-book value of equity ratio on an ESG score. Van der Laan et al. (2008) implement a firm-fixed-effects regression to measure the influence of different CSP rating dimensions on the ROA and the EPS. In the stock-market-based perspective, factor models represent a common way in which to measure CFP as they have evolved from simple single-index models (like the CAPM) into a more appropriate approach like the Fama and French (2015) five-factor model. Kempf and Osthoff (2007) and Halbritter and Dorfleitner (2015), for example, align themselves in this group by implementing a Carhart (1997) four-factor model to estimate the abnormal returns of ESG portfolios. With a Fama and MacBeth (1973) regression, Halbritter and Dorfleitner (2015) also incorporate a cross-sectional approach as they regress the excess return of a certain company on its ESG score. Pintekova and Kukacka (2019) analyze the share prices of companies based on the Thomson Reuters combined score using a within-group fixed-effects model. Aouadi and Marsat (2018) utilize a fixed-effects model with dummy variables to estimate the relationship between Tobins' Q and an ESG score. Other studies, such as Auer (2016) and Auer and Schuhmacher (2016) who implement a Sharpe Ratio approach, rely on financial ratios. Event studies represent another noteworthy methodology, which is especially useful when analyzing the short-term impact of certain events (for example, the eventuation of a scandal). Among others, Lundgren and Olsson (2009) examine the effects of environmental-based scandals on firm value by applying a t test to the cumulative standardized abnormal return, whereas Krüger (2015) utilizes the cumulative abnormal return to show the impact of positive and negative ESG-related news separately on firm value. As these examples show, there is a wide variety of different methods and models for different purposes. A more stock-market-oriented perspective is especially suitable for an analysis from an investor's perspective as these methods better reflect the investors' perception of the impact of CSR on the future value of the company (see, i.e., Hillman and Keim, 2001; Gentry and Shen, 2010; Pintekova and Kukacka, 2019). Therefore, we align with the stock-market-oriented perspective and use the Fama and French (2015) five-factor model to calculate the risk-adjusted abnormal return. Furthermore, the use of the controversy score allows us to directly measure the mid-to-long-term effects of controversies on CFP without having to rely on the event study methodology.

Besides the academic disjointedness, SRI strategies have received a rapid rise in interest over the recent years. The global AUM, according to the Global Sustainable Investment Review GSIA (2018), grew significantly from $22.89 trillion in 2016 to $30.68 trillion in 2018, whereas, as reported by the U.S. Forum for Sustainable and Responsible Investments USSIF (2018), the AUM experienced a sharp increase from $8.7 trillion in 2016 to $12.0

trillion at the beginning of 2018 in the US market alone, which shows an almost 40% growth over two years. Furthermore, as mentioned by Crilly et al. (2012), the increasing pressure provided by various stakeholder groups forces companies to invest financial resources in CSR. Moreover, many investors pay close attention to the CSR or CSP of firms, whether they be value-driven investors trying to satisfy their altruistic needs or attempting to achieve abnormal returns by investing in firms with high ESG ratings.

Interestingly, within our results, we find a significant outperformance of up to almost 9% p.a. for the *worst* TR score portfolios for equally-weighted strategies as well as 7% p.a. for the equally-weighted *best* controversies score portfolios. These results show that investors should focus on low-rated smaller companies ("small sinners") and clean-coated firms with regard to controversies ("silent saints"). The implementation of a rank-weighted strategy instead of an equally-weighted one shows an improvement in alpha across nearly all tested strategies. Regarding the value-weighted strategies, no significant out- or underperformance can be found. These findings apply for different markets and hold true for various robustness checks.

This paper is organized as follows. Section 2.2 provides a short overview of the recent state of literature, while the data and methodology are discussed in Section 2.3. Section 2.4 presents our results. Section 2.5 implements several robustness checks, and Section 2.6 concludes.

2.2 Literature overview

This section provides an overview of the three perspectives regarding the relationship between CSP and CFP.

The first one indicates a positive relationship between the ESG score of a company and their respective CFP (see, i.e., Kempf and Osthoff, 2007; Statman and Glushkov, 2009; Auer, 2016; Pintekova and Kukacka, 2019) and is often referred to as *doing good while doing well*. This hypothesis holds true if the costs of socially responsible activities are overestimated or the respective benefits exceed the expectations of the managers and investors. This can be explained through the managerial myopia theory (see, i.e., Narayanan, 1985; Stein, 1988), where, on the one hand, managers tend to prefer decisions with a short-term profit rather than those that maximize long-term shareholder value, and short-term focused investors, on the other hand, who undervalue long-term benefits. Since the costs of socially responsible activities occur immediately, the benefits of those arise in the future. Therefore, the corresponding benefits are harder to predict and less attractive to short-term focused investors. Among others, Derwall et al. (2005) and Edmans (2011), who link the *doing good while doing well*-hypothesis with the managerial myopia theory, conclude that short-

term investors are unable (or unwilling) to price the long-term benefits of those activities correctly and therefore undervalue stocks of companies with high levels of engagement in environmental or social aspects, leading to higher returns in the long-run for the respective stocks when compared with other stocks. This idea of benefit manifestation in the long run is consistent with the findings of Dorfleitner et al. (2018), who conclude that the benefits of socially responsible activities (measured by the abnormal stock returns) are produced by unexpected additional cash flows which occur mid-to-long term. Pintekova and Kukacka (2019) divide the term of ESG-based activities into a primary and a secondary sector, whereas the first category refers to socially responsible activities which are closely related to the core business of the respective company. They can corroborate within their results, the point of view of *doing good while doing well* if the ESG-based activity is located in the primary sector.

The second approach reverts the above-mentioned relationship, which produces a view of *doing good but not well* (see, i.e., Boyle et al., 1997; Barnea and Rubin, 2010; Renneboog et al., 2008; Hong and Kacperczyk, 2009). This hypothesis holds true for many reasons. First of all, based on the idea of Barnea and Rubin (2010), socially responsible activities that represent lavish expenditures of managers motivated by personal benefits, such as public appreciation rather than the altruistic motive of non-financial utility, lead to a significant decrease in shareholder value and inferior financial performance. Thus, an agency problem occurs. As described by Krüger (2015), investors will react negatively (positively) to the announcement of socially responsible activities of firms with a high (low) amount of liquidity and can therefore be seen as wasteful investments. Furthermore, as stated by Heinkel et al. (2001), and Hong and Kacperczyk (2009), socially responsible investors and institutions which are subjected to social norm pressures (such as pension funds, universities, and religious organizations) exclude "sin stocks" from their investment decisions resulting in a lower demand, respectively, price and therefore a higher return in comparison with stocks which have a high ESG rating. Another reason supporting the *doing good but not well*-hypothesis is the trade-off theory stated by Aupperle et al. (1985). In the case of socially responsible investments, the theory argues that ESG-based activities exhaust financial resources which are lacking in other places. Thus, companies with a low level of expenditure on CSR achieve a competitive advantage in the long run, which may be especially relevant for smaller firms who are on a tighter budget. For small companies, the trade-off theory is strengthened even further by the findings of Aouadi and Marsat (2018). Since they examine the connection between firm visibility, CSP and CFP they conclude that only for high-attention firms (firms that are larger, more present in the media and more greatly observed by analysts), the ESG rating plays a role. In conclusion, if smaller firms invest in CSR, this could be seen as a waste of precious financial resources and therefore reduce firm value.

A third view suggests that there is no clear positive or negative relationship between the CSP and the CFP of a firm. Among others, the recent studies of Halbritter and Dorfleitner (2015) and Auer and Schuhmacher (2016) indicate that there is no statistical difference in the risk-adjusted returns of a portfolio consisting of either high ESG-rated or low ESG-rated firms. This third point of view does not necessarily conclude the absence of a connection between CSP and CFP but may, in contrast, on the one hand, indicate that the market prices CSP properly which leads to an absence of risk-adjusted returns, or, on the other hand, that the benefits resulting from the ESG-based activities will be offset by their respective drawbacks such as, for example, their costs or the occurrence of agency problems.

Whatever the relationship between CFP and CSP reveals itself to be in a specific context, the question of informational efficient markets still arises. As the stock selection of corresponding investment strategies is frequently based on the evaluation of certain ESG-based ratings, one may argue, as these scores are publicly available, that financially motivated investors could not generate a risk-adjusted excess return over conventional or non-ESG-based investments, due to of market efficiency. Fama (1965, 1970) describes, with the efficient market hypothesis (EMH), a framework in which, if the semi-strong form holds true, all information regarding the CSR of a company such as sustainability reports, ESG ratings, and even ESG-based scandals, should be correctly incorporated into the price of the respective stock shortly after being made public. Therefore, an outperformance of an ESG-based stock selection strategy would not be possible. However, Grossman (1976), and Grossman and Stiglitz (1980), for example, argue that a perfect information-efficient market could not exist, as there would be no incentive for investors to gather information or to actively manage a portfolio whatsoever, because they could not generate any excess returns.

In the case of SRI, Mynhardt et al. (2017) examine the efficiency of socially responsible indices by calculating a Hurst coefficient. The results indicate that most socially responsible indices are significantly less efficient than conventional ones. With a few exceptions, the Hurst coefficient of most of these indices differs from an efficient market (where the Hurst coefficient would be exactly 0.5), ranging either from 0.3 to 0.45 (signaling fat tails with an anti-persistent return series which is negatively correlated) or from 0.55 to 0.6 (indicating fat tails with a tendency to persistent return series with a slight positive correlation), which raises the question of whether ESG-based information is priced immediately and correctly and is considered in its entirety. This appears to be especially crucial in terms of ESG-based scandals as, whereas the occurrence of a scandal is publicly perceived and indeed undoubtedly immediately priced, the impact of the absence of these scandals has often been overlooked as companies with a low amount of scandals "fly under the radar". In this regard, the controversy score represents a good opportunity to decrease this inefficiency

and can add significant value to ESG investing as this score is comparable to credit default ratings as these ratings also evaluate the absence of an infrequent event. Dorfleitner et al. (2018) also address the aspect of information inefficiency in the context of SRI as they argue that the future financial benefits of socially responsible activities are not immediately perceivable and therefore the economic nature of CSR remains fairly opaque. Within their results, they conclude that ESG-based activities lead to significant earnings surprises and unexpected additional cashflows in the long run. Edmans (2011) proves something similar with respect to the intangible asset of being one of the best companies to work for, due to the particularly good of their employees.

2.3 Data and methodology

2.3.1 Data

Due to their transparent scoring methodology we choose Thomson Reuters[1] as the world's largest ESG rating database for our data source (see, i.e., Cheng et al., 2014a; Durand and Jacqueminet, 2015). Therefore, our dataset includes all Thomson Reuters scores (in the following referred to as TR scores), controversies and combined scores for the European, US, as well as the global market (including the US and European market) in the period under review from 2002 to 2018. These three scores represent the starting point for further calculations and are explained in more detail below.

First, the controversies scores, which pertain to Thomson Reuter's latest scoring methodology, add a new dimension to previous approaches by capturing negative media stories from global media sources. This score is a percentile ranking that takes ESG-based scandals into account concerning and infringing on any of the following controversy topics and that occur during a company's fiscal year. Its rating methodology consists of 23 ESG controversy topics such as "controversies privacy" or "business ethics controversies" (see Thomson Reuters, 2019). This score is also benchmarked on the respective industry groups.

Thus if a scandal occurs, it has a negative impact on the evaluation of the company involved. Ongoing legislation disputes, lawsuits, and fines may also affect the ensuing years and may still be visible in further controversy ratings. Furthermore, the valuation is as follows:

$$\text{score} = \frac{\#\text{ comp. with a worse value} + \frac{\#\text{ comp. with the same value included current one}}{2}}{\#\text{ comp. with a value}} \tag{2.1}$$

In brief: the fewer scandals that affect a company, the higher its score is[2].

[1] The scores are currently published by Refinitiv.

[2] For more detailed information on the calculation, see Thomson Reuters (2019).

The TR score evaluates a company's environmental, social and corporate governance performance (ESG) with regard to ten main categories based on publicly available company-reported data. Each of these categories (for instance, resource use, innovation, and emissions in the environmental pillar, human rights, and workforce in the social pillar, and management in the corporate governance pillar) receives an individually calculated category score and a related category weighting within its associated pillar. These data result in three so-called pillar scores, one for each ESG pillar. To calculate the overall ESG score, these pillar scores are aggregated[3] and in the last step, the TR score is ranked by percentile and benchmarked against the industry. Therefore, the TR score implies an easy way to implement a best-in-class approach (see Thomson Reuters, 2019).

Next, the combined score comprises both the TR and the controversies score and thus offers a broadly diversified scoring with regard to performance-based ESG data and controversies collected from worldwide media sources (see Thomson Reuters, 2019). The controversies score has no impact on the TR score if it is greater than or equal to 50. In this case, the combined score equals the TR score. However, if the TR score is less than the controversies score, the combined score also equals the TR score. Only if the TR score is greater than the controversies score (< 50), the combined score equals the average of both scores[4].

In order to determine our data universe, we only consider companies for which all three ratings are present. Moreover, penny stocks are deleted. As a result, we obtain a monthly-based dataset with over 529,000 observations in total at an average of approximately 2,500 companies in a single month during our time period of 2002–2018 (192 months), more precisely between 900 and 4,700 at each point in time. For all observed companies, we have a comparable dataset of the three ratings (TR, combined and controversies). Table 2.1 shows the descriptive statistics of our data universe.

Table 2.1: Descriptive statistics.

Score	Mean	SD	Min	Max
TR	50.58	16.86	5.16	97.51
Controversies	49.49	20.27	0.08	90.91
Combined	45.46	15.51	5.16	95.22

This table presents the mean, standard deviation, minimum, and maximum values of the TR, controversies, and combined scores of the full dataset.

Concerning the TR rating, the mean value of the rating universe corresponds almost exactly to 50 with a standard deviation of approximately 17. The controversies score is approximately the same as the TR score in terms of mean value and standard deviation.

[3]The weightings of the three pillars are 34% for the environmental, 35.5% for the social and 30.5% for the governance pillar.

[4]For more detailed information on the calculation, see Thomson Reuters (2019).

As can be expected with regard to the calculation, the combined score has a lower mean value than the TR and controversies score with a standard deviation of 15.

Regarding the correlation between the three scores it is noteworthy that the correlation between the controversies score and the TR score is negative (-0.3107). Thus, companies with a high TR score tend to have a low controversies score.

One explanation for this may be that companies that tend to have high ESG scores are affected more greatly by controversies, as reflected by the saying "the higher you fly, the harder you fall".

Furthermore, as would be expected from the composition, the correlation between TR score and combined score is positive (0.7774) as well as between controversies score and combined score (0.3077).

The analysis in this paper is carried out from the perspective of an US investor, so all data is converted into US dollars. The total returns and market capitalization of the considered companies are received from Thomson Reuters Eikon. Discarded (delisted) or insolvent companies are considered until the last available rating or financial information. Thus, our results are not influenced by a potential survivorship bias. For more detailed insights, some descriptives for the European and US market are displayed in Table 2.2. While for the European market we consider over 158,000 observations based on an average of approximately 820 companies (between 400 and 1,000), for the US market, our data consist of over 191,000 observations at an average of approximately 1,000 companies (between 400 and 2,300).

Table 2.2: Descriptive statistics for the European and US market.

	Europe			USA		
Score	Mean	SD	Observations	Mean	SD	Observations
TR	56.64	15.99	158,248	48.15	16.05	191,661
Controversies	48.36	21.24	158,248	46.53	21.91	191,661
Combined	50.30	15.50	158,248	42.08	14.03	191,661

This table presents the mean, standard deviation, and number of observations of the TR, controversies, and combined scores of the European and US datasets.

2.3.2 Methodology

As a first step, we construct several portfolios by generally sorting stocks according to each score. To calculate the monthly returns, we select the best-rated and worst-rated stocks, respectively, and combine them in a portfolio, one being for each of the three scores. Following this procedure, we consider a best-only and worst-only strategy as well as a

best-minus-worst strategy, which is long in the best-performing companies and short in the worst-performing ones. As a next step, we consider three different weighting approaches upon which to construct the portfolios. We include the common value-weighted and equally-weighted strategies and also a rank-weighted strategy that we present in detail below in Section 2.3.3.

We obtain nine stock portfolios[5] for value- and equally-weighted and rank-weighted strategies, which is the object of contemplation in Section 2.4.3, respectively in the European, US and global market – in total 27 per market. In order to determine the performance of our portfolios, we apply the Fama and French (2015) five-factor model, which is based on the regression:

$$\begin{aligned} R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t \\ + r_i RMW_t + c_i CMA_t + e_{it}. \end{aligned} \tag{2.2}$$

In this model, the return of portfolio i for period t is represented by R_{it} while R_{Ft} comprises the risk-free return. R_{Mt} denotes the return of the market portfolio, SMB_t represents the small-minus-big factor (returns of small stocks minus returns of big stocks) and HML_t is the performance difference between companies with a high and low book-to-market value. The factor RMW_t indicates the difference between the returns of stocks with a weak and a robust profitability. CMA_t describes the returns of conservative (i.e., low-investment firms) minus aggressive (i.e., high-investment firms) stocks. Moreover, b_i, s_i, h_i, r_i, and c_i are the estimated regression coefficients which are calculated by OLS regression, in which e_{it} denotes a (zero-mean) residual and a_i the intercept.

Since a Breusch and Pagan (1979) test applied to all portfolios indicates that the residuals of the regressions are subject of heteroskedasticity and a Godfrey (1978) and Breusch (1978) test as well as a Durbin and Watson (1971) test show autocorrelations for most of the models, we use the approach of Newey and West (1987) to calculate standard errors.

2.3.3 A different approach: rank-weighted portfolios

Besides equally-weighted and value-weighted portfolios, we also consider a new portfolio composition strategy following a similar approach to Frazzini and Pedersen (2014) which reflects the great importance of the ESG ratings for those investors, who may wish to award a different level in the scores through a corresponding weight. Consequently, we build portfolio weights based on the respective score placements. Our new approach is to award better scores and to consequently include them with higher weights in a best-portfolio strategy and vice versa in order to reward worse scores with higher weights in the worst portfolio. In addition, the best portfolios constructed this way have, by definition, a

[5]This results from three different scores and three different portfolio sets.

higher ESG rating than value-weighted or equally-weighted strategies, whereas the worst portfolios have lower ratings. First, we determine the best and worst stocks. Next, we divide the companies up by rank in ascending and descending order. In the best portfolios, the company with the highest score receives the (numerically) highest rank. In contrast, the company with the worst score receives the highest rank in the worst portfolios. To calculate the weights $w_{i,t}$ of a company $c \in C_t \subseteq C$, where C is the set of all companies within the respective data and C_t is the set of all companies within the portfolio at time t, we use

$$\begin{aligned} w_t \colon C_t \times T &\longrightarrow [0,1] \\ (c,t) &\longmapsto w_t(c,t) = \frac{(N_t - Rk_t(c)) + 1}{\sum_{\tilde{c} \in C_t} Rk_t(\tilde{c})} \end{aligned}$$

and for each $t \in T$ there holds

$$\sum_{\tilde{c} \in C_t} w_t(\tilde{c}, t) = 1,$$

where $Rk_t(c)$ note the rank of a company c at t, $N_t = |C_t|$ the cardinality of the portfolio selection at t, in the monthly period under review. If a company $\hat{c} \in C \backslash C_t$ does not appear in the portfolio selection at time t by definition, its weight is

$$w_t(\hat{c}, t) \coloneqq 0.$$

2.4 Results

2.4.1 Equally- and value-weighted portfolios

Table 2.3 presents some measures of all 27 equally-weighted 10% portfolio strategies. Concerning the Sharpe ratio, the Sortino ratio, and the Treynor ratio, it is noteworthy that all controversies best and TR worst portfolios show higher values than the respective market portfolio, which is a first indication that the performance of these portfolios is high. Furthermore, most best and worst portfolios have a higher risk than their respective market in terms of maximum drawdown (MDD), while the controversies best-minus-worst portfolios have a much lower risk in all three markets. Additionally, the MDD is lower than that of the corresponding market for the following portfolios: combined best-minus-worst (US, global), controversies best (Europe, global), TR worst (global) and combined worst (European).

Table 2.3: Measures for equally-weighted 10% portfolios.

		MDD	Skewness	Kurtosis	Sharpe ratio	Sortino ratio	Treynor ratio
Europe							
TR	Best	0.6245	−0.3056	1.5780	0.3476	0.1939	0.0687
	Worst	0.6387	−0.3815	1.8294	0.6442	0.3244	0.1287
	Best-worst	0.6213	−0.2553	0.8853	−0.9329	−0.3059	−1.9748
Controversies	Best	0.5696	−0.4338	2.0089	0.6817	0.3352	0.1363
	Worst	0.6414	−0.2846	1.9547	0.2721	0.1636	0.0542
	Best-worst	0.1652	−0.6429	2.6383	0.4591	0.2070	−0.1891
Combined	Best	0.6213	−0.5126	2.0035	0.3854	0.2065	0.0760
	Worst	0.5696	−0.4055	2.1586	0.4544	0.2401	0.0916
	Best-worst	0.6414	−0.3854	0.8504	−0.4932	−0.1628	0.9960
Market		0.5903	−0.6565	1.7155	0.3521	0.1818	0.0650
USA							
TR	Best	0.5112	−0.3836	3.1051	0.4932	0.2452	0.0787
	Worst	0.5119	−0.2851	2.5200	0.6032	0.3043	0.0985
	Best-worst	0.5458	−0.5538	2.6846	−0.7360	−0.2448	0.3503
Controversies	Best	0.5320	−0.1696	1.8906	0.6769	0.3428	0.1121
	Worst	0.5571	−0.1891	2.8373	0.4623	0.2403	0.0745
	Best-worst	0.1529	0.5305	1.6073	0.3448	0.1798	−2.3288
Combined	Best	0.5137	−0.2660	3.4409	0.5532	0.2790	0.0899
	Worst	0.5710	−0.2159	2.6147	0.5870	0.2987	0.0957
	Best-worst	0.3712	−0.1706	2.2610	−0.4897	−0.1711	0.3478
Market		0.5039	−0.6927	1.6337	0.4783	0.2238	0.0687
Global							
TR	Best	0.5591	−0.4751	2.3367	0.4776	0.2395	0.0760
	Worst	0.5259	−0.3081	2.5068	0.7753	0.3793	0.1266
	Best-worst	0.6416	−0.7139	2.5614	−1.0850	−0.3442	−8.5105
Controversies	Best	0.5136	−0.4776	2.3364	0.7892	0.3774	0.1273
	Worst	0.6084	−0.4332	2.5499	0.3906	0.2038	0.0631
	Best-worst	0.1201	0.1383	1.3355	0.4274	0.2139	−0.1457
Combined	Best	0.5676	−0.5478	2.9513	0.5282	0.2598	0.0840
	Worst	0.5637	−0.2991	2.6915	0.6707	0.3313	0.1094
	Best-worst	0.4704	−0.7383	3.1132	−0.7641	−0.2549	2.3499
Market		0.5363	−0.8494	2.4412	0.4457	0.2094	0.0670

This table shows the maximum drawdown (MDD), skewness, kurtosis (excess), Sharpe ratio, Sortino ratio, and Treynor ratio for portfolios from 2002 to 2018. The variables are calculated individually for each equally-weighted portfolio based on a 10% cutoff of each score, market, and portfolio set as well as for the respective total market.

Table 2.4: Equally-weighted 10% portfolios: regressions based on the three observed markets.

		Alpha	MKT	SMB	HML	RMW	CMA	Adj. R^2
Europe								
TR	Best	0.0016	1.0530***	−0.2484***	0.3284**	−0.0451	−0.1075	0.8843
	Worst	0.0048***	1.0084***	0.4390***	0.3637**	−0.1765	−0.2130	0.8831
	Best-worst	−0.0043***	0.0464	−0.6822***	−0.0463	0.1297	0.1104	0.3869
Controversies	Best	0.0049***	0.9926***	0.2184***	−0.0461	−0.0545	0.0385	0.8546
	Worst	0.0020	1.0651	−0.0946	0.2418	−0.3835*	−0.3656*	0.8699
	Best-worst	0.0020	−0.0706**	0.3181***	−0.2990**	0.3272*	0.4090***	0.3312
Combined	Best	0.0004	1.0816***	−0.0010	0.3257**	0.1577	−0.0421	0.8845
	Worst	0.0035*	1.0448***	0.3742***	0.2493	−0.3092*	−0.4445*	0.8567
	Best-worst	−0.0040**	0.0387	−0.3700***	0.0654	0.4652***	0.4073**	0.1987
USA								
TR	Best	0.0017	1.0964***	0.0786	0.2128***	−0.0770	−0.2334	0.8192
	Worst	0.0044***	1.1448***	0.5243***	0.3307***	−0.0966	−0.5281***	0.8341
	Best-worst	−0.0037***	−0.0446	−0.4440***	−0.1228**	0.0231	0.2694	0.3687
Controversies	Best	0.0049**	1.0739***	0.4290***	0.1796*	−0.1431	−0.3313*	0.7881
	Worst	0.0019	1.1495***	0.1577*	0.3112***	−0.0437	−0.3660	0.8151
	Best-worst	0.0020	−0.0718	0.2730***	−0.1364*	−0.0963	0.0390	0.0828
Combined	Best	0.0019	1.1568***	0.3669***	0.3015***	0.1347	−0.3785*	0.8233
	Worst	0.0045***	1.1546***	0.4696***	0.3720***	−0.1067	−0.6109***	0.8341
	Best-worst	−0.0035***	0.0060	−0.1009	−0.0754	0.2445***	0.2370**	0.1165
Global								
TR	Best	0.0025*	1.1249***	−0.0934	0.1997**	−0.3808***	−0.0858	0.9011
	Worst	0.0071***	1.0647***	0.3075***	0.1991	−0.4761***	−0.4157	0.8664
	Best-worst	−0.0056***	0.0633**	−0.3911***	−0.0117	0.1004	0.3381	0.1669
Controversies	Best	0.0056***	0.9958***	0.2406***	0.1073	−0.3080***	−0.1590	0.8772
	Worst	0.0022	1.1654***	−0.0865	0.2515	−0.4790***	−0.2810	0.8737
	Best-worst	0.0023*	−0.1666***	0.3369***	−0.1565	0.1761	0.1302	0.2535
Combined	Best	0.0020	1.1496***	0.0970	0.2779***	−0.1339	−0.1500	0.9010
	Worst	0.0061***	1.0859***	0.2420***	0.2294*	−0.4990***	−0.4516*	0.8645
	Best-worst	−0.0051***	0.0668**	−0.1353*	0.0361	0.3701***	0.3099***	0.0887

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each equally-weighted portfolio based on a 10% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 10% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas, all estimated coefficients of the five Fama and French (2015) factors and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Table 2.5: Value-weighted 10% portfolios: regressions based on the three observed markets.

		Alpha	MKT	SMB	HML	RMW	CMA	Adj. R^2
Europe								
TR	Best	−0.0028**	1.0161***	−0.3915***	0.3611***	0.2073	−0.1933	0.8690
	Worst	−0.0037	0.8806***	0.4401*	0.2633	−0.1965	−0.0173	0.4343
	Best-worst	−0.0001	0.1373	−0.8265***	0.0868	0.4020	−0.1711	0.0684
Controversies	Best	0.0019	0.9588***	−0.0932	−0.0545	0.4038***	0.2531*	0.7984
	Worst	−0.0015	1.0022***	−0.3708***	0.2838**	0.2134	−0.0585	0.8736
	Best-worst	0.0024	−0.0415	0.2827***	−0.3493***	0.1885	0.3165**	0.1851
Combined	Best	−0.0040**	1.0891***	−0.1922*	0.2496*	0.2226	0.0047	0.8218
	Worst	−0.0050	0.9880***	0.2460	0.0022	−0.3334	−0.1350	0.5185
	Best-worst	0.0000	0.1030	−0.4331*	0.2364	0.5543	0.1445	0.0108
USA								
TR	Best	−0.0002	0.9763***	−0.2039***	0.2189***	−0.0133	−0.2165**	0.8199
	Worst	0.0016	1.0369***	0.1796**	0.1176	−0.0991	−0.5176***	0.7567
	Best-worst	−0.0028	−0.0569	−0.3817***	0.0965	0.0889	0.3057**	0.1604
Controversies	Best	0.0017	0.9489***	0.1649**	0.1628*	0.0511	−0.3559***	0.7433
	Worst	−0.0006	1.0348***	−0.2573***	0.2047***	−0.0140	−0.2468*	0.8289
	Best-worst	0.0012	−0.0821	0.4239***	−0.0467	0.0683	−0.1044	0.1300
Combined	Best	0.0003	1.0341***	0.1473**	0.1858**	0.1454	−0.3361***	0.8147
	Worst	0.0016	1.1014***	0.0365	0.0755	−0.1457	−0.5575***	0.7864
	Best-worst	−0.0023	−0.0635	0.1126	0.1055	0.2942***	0.2260*	0.0900
Global								
TR	Best	−0.0009	1.0247***	−0.3855***	0.2376***	−0.1266	−0.1252	0.8919
	Worst	0.0013	0.9584***	0.0214***	−0.1020	−0.0148	−0.3126*	0.7645
	Best-worst	−0.0033*	0.0694	−0.3971***	0.3273***	−0.1067	0.1957	0.1411
Controversies	Best	0.0033***	0.8916***	0.0007	−0.0719	0.1870	−0.1538	0.7969
	Worst	0.0002	1.0422***	−0.4235***	0.1572*	−0.1315	−0.1250	0.8915
	Best-worst	−0.0021	−0.1474***	0.4340***	−0.2414**	0.3236**	−0.0205	0.2313
Combined	Best	−0.0004	1.0376***	−0.0670	0.1147	−0.0622	−0.2059*	0.8761
	Worst	0.0015	1.0261***	−0.0456	−0.2160*	−0.1146	−0.3610**	0.8254
	Best-worst	−0.0030*	0.0145	−0.0116	0.3183***	0.0575	0.1633	0.0734

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each value-weighted portfolio based on a 10% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 10% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas, all estimated coefficients of the five Fama and French (2015) factors and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

To examine a potential over-performance of the strategies in more detail, we consider the alphas of the respective portfolios. The results of the Fama and French (2015) five-factor regressions are presented in Table 2.4 for equally-weighted portfolios and in Table 2.5 for value-weighted portfolios. Some results immediately catch the eye: Regarding the equally-weighted strategy, the worst portfolios based on the TR and combined scores, as well as the best portfolios of the controversies score, indicate positive and significant outperformance. For the controversies score best portfolios, consistently positive and significant alphas can be observed for all portfolios. These portfolios show strongly significant returns of up to almost 7% p.a.[6]. In contrast to this, the controversies score worst and best-minus-worst portfolios do not exhibit any striking features.

Surprisingly, when considering combined score portfolios, a best portfolio strategy does not lead to a significant performance. However, the performance of the worst portfolio shows a consistently strong and significant outperformance of up to about 7.6% p.a., which can be observed in all three markets. As a result of this, the calculations indicate a significant underperformance of the best-minus-worst portfolios. Therefore, this effect cannot be caused by the controversies score, but instead appears to be determined by the second component of the combined score, namely the TR score.

When taking a closer look at the ESG portfolios, we notice the following. While the performance of the best portfolios—apart from a slight significance in the global market—does not show any over-performance, a strongly significant outperformance of up to almost 9% (8.86%) p.a. can be observed for the worst TR score portfolios in all three markets. These results resemble those of the combined score portfolios.

On the contrary, we compare this with the results of the value-weighted portfolios in Table 2.5. Apart from very few exceptions neither best nor worst portfolios based on the three ratings obtain any ongoing positive and significant alphas within the European, US or global market. So, it becomes relatively clear that there are no ongoing tendencies recognizable in terms of any benefits of best or worst strategies. Apart from some isolated outliers, the results lead us to the assumption that the value-weighted strategy does not result in any excess return for investors, which is consistent with the findings of Halbritter and Dorfleitner (2015). It should also be pointed out that the adjusted R^2 values of all long and short portfolios are consistently high, which indicates a strong explanatory power of our underlying factor model.

There is a clearly recognizable difference between Tables 2.4 and 2.5: Since the results of the value-weighted and the equally-weighted portfolios are very distinct, this points to the fact that the significant outperformance of the equally-weighted portfolios is strongly driven by the small companies. In particular, the TR portfolios support the above finding

[6]The annualized performance of the global controversies score best portfolio is: $1.0056^{12} - 1 = 0.0693$.

as the equally-weighted portfolios based on low TR scores achieve strong outperformance. These results provide some evidence of the trade-off hypothesis (see Aupperle et al., 1985), as investors appear to reward smaller companies for not investing their money in ESG improvements. They may consider this spending as a wasteful investment and prefer companies that invest in growth and innovation. As no or even negative significant results were shown for value-weighted best portfolios, we can conclude that, for large companies, the benefits of expenditures improving CSP are already reflected in the stock price of these companies.

Looking at the data, it becomes apparent that an equally-weighted portfolio strategy based on a high controversies score leads to a high outperformance. Therefore, this demonstrates that small companies in particular generate a sustained stock performance if they have a "clean coat" with regard to controversies. Thus, one might say that they "fly under the radar".

Last but not least, the above observations also find their reflection in the combined score portfolios. On the one hand, the effect of the TR worst portfolios also occurs in the combined score worst portfolios, which are by definition strongly influenced by the TR score. On the other hand, it is not surprising that a slight decrease in the returns appears in these portfolios compared with corresponding TR worst portfolios, which can be explained due to the influence of the controversies score.

To discuss these results against the background of current literature, it is necessary to divide this step into two parts. As already published by previous studies such as Halbritter and Dorfleitner (2015), we confirm the recent observation, being that a market-weighted ESG strategy does not result in ongoing significant overperformance, so for this strategy, there is no clear out- or underperformance of best or worst portfolios.

The hypothesis of a positive relationship between the CSP and the CFP of a company (see, e.g., Kempf and Osthoff, 2007) could only partly be confirmed. Evidently, there is no performance loss when investing in ESG portfolios, but the data suggest that there is also no ongoing positive outperformance for companies with high ESG ratings, so for these portfolios, we strongly support the results of Revelli and Viviani (2015), being that neither weaknesses nor strengths can be detected for value-weighted positive CSP strategies.

However, this is reverted when considering equally-weighted portfolios. Remarkably, no significant negative performance is detected when investing in best ESG portfolios with an equally-weighted strategy. Thus, there are no ESG-based performance losses for investors. Moreover, Statman and Glushkov (2009) find that investors can achieve positive abnormal returns with socially responsible top-minus-bottom strategies using equally-weighted portfolios. Thus, in relation to the results of our best-worst portfolios, there is no reason for investors to pursue this strategy nowadays because, in particular, the

worst portfolios based on the TR score reveal a significant overperformance. However, this also stands in contradiction to Auer (2016), who claims that investors should eliminate firms with the worst ESG ratings, whereas we find evidence of the fact that these represent some potential for (ESG neutral) investors. Moreover, this finding contradicts even Kempf and Osthoff (2007), who use a long-short strategy and obtain an overperformance. Contrary to this and related to our results, doing good while doing well did not manifest itself at all during our work.

Market efficientists would expect an immediate reaction on the stock market in the face of a controversy. Therefore, no long-term overperformance can be expected with regard to market-efficiency aspects, so it is surprising that there are several corresponding findings for the controversies score portfolios. Although the occurrences of controversies may be immediately priced by the market, which is indicated by the non-existing underperformance of the worst controversies score portfolio, the absence of controversies appears to be incorrectly evaluated for small companies. The significant outperformance of the best-rated companies therefore indicates a less efficient market regarding ESG-based information as discussed by Edmans (2011), Mynhardt et al. (2017), and Dorfleitner et al. (2018). Smaller companies without an unwanted boost in public perception due to a controversy remain "silent saints" so-to-speak, and "fly under the radar". The controversies score enables a valuation of controversies that do *not* take place and may therefore be a good tool to enhance ESG investment as it reveals companies with a low amount of scandals with a specific potential for an increase in market value and stock price.

An additional consideration of the Fama and French factor coefficients yields some interesting insights regarding the differences between value and equally weighting. First, it can be seen that the market betas are generally around 1, but tend to be lower for value-weighted portfolios. This is not surprising, as smaller companies may have higher market betas and these companies are represented with higher weigths in the equally-weighted portfolios. Second, we notice that the controversies best, TR worst, and combined worst equally-weighted portfolios have significant positive SMB_t factor coefficients and reveal a higher absolute value compared to the respective value-weighted portfolios, which is again explainable by the higher weights for smaller companies. Third, the remaining factors show no systematically deviating patterns.

2.4.2 Portfolios based on market capitalization

To further investigate whether the observed strong overperformance of equally-weighted portfolios with low TR ratings and high controversies scores is driven by company size, we divide our dataset at the median of the market capitalization and create new portfolios based on companies with high and low market capitalizations. Table 2.6 displays these

portfolios based on a 10% cutoff for the European, US and global markets. From this table, it is apparent that the main results remain consistent, namely a significant outperformance of portfolios based on small companies with low TR score ratings as well as portfolios based on small companies with fewer controversies and therefore high controversies score. It also can be seen from Table 2.6 that even the value-weighted calculations based on firms with low market capitalization mostly show significant and positive alphas for controversies best, TR worst portfolios and ensure our results.

2.4.3 Rank-weighted portfolios

Table 2.7 displays best and worst rank-weighted portfolios based on a 10% cutoff for the European, US and global market. When considering these portfolios, nearly all returns of the best and worst portfolios are higher than with the corresponding equally-weighted strategies. Based on these calculations, the returns improve by up to 42.86%[7] for the best, by up to 32.24%[8] for the worst and by up to 84.28%[9] for the best-minus-worst portfolios, compared with the corresponding equally-weighted portfolios. Note that rank-weighted portfolios also reveal a lower significance level in terms of p-values, which indicates a real potential for investors.

On the one hand, there are a number of promising investment strategies for investors who strongly attach importance to ESG scores. As we previously mentioned, the controversies score represents a huge potential for investors in particular, and together with a rank-weighted portfolio strategy the corresponding alphas even increase, so this score describes a way in which to detect companies with a specific management culture that apparently leads to higher future cash flows and therefore to higher and more significant alphas. Surprisingly, companies with a high controversies score do not necessarily have a high ESG score. This noteworthy observation remains open for future research.

On the other hand, investors pursuing exactly the opposite strategy also benefit from rank weighting portfolios. This is particularly evident in the outperformance of the TR worst portfolios. Obviously, stronger weightings for firms with very low TR scores lead to significant overperformance, which can be traced back to a trade-off interpretation (see Aupperle et al., 1985). In summary, one can conclude that the rank weighting portfolios represent a useful tool for investors who wish to profit from ESG ratings either by investing in high ranked companies or by investing in low-ranked firms. Finally, to put it in a nutshell: buy the "saints" or invest in the "small sinners".

[7]This displays the improvement in annual returns from 0.0693 to 0.0990 of the global controversies best portfolio.

[8]This displays the improvement in annual returns from 0.0428 to 0.0566 of the Europe combined worst portfolio.

[9]This displays the improvement in annual returns from 0.0280 to 0.0516 of the global controversies best-worst portfolio.

Table 2.6: Alphas of equally- and value-weighted 10% portfolios: regression based on high and low market capitalization.

		Europe				USA				Global			
		High MC		Low MC		High MC		Low MC		High MC		Low MC	
		EW	VW	EW	VW	EW	VW	EW	VW	EW	VW	EW	VW
TR	Best	0.0014	−0.0017	0.0032	0.0021	0.0023*	0.0007	0.0050*	0.0035	0.0013	−0.0016	0.0058**	0.0046**
	Worst	0.0003	−0.0043	0.0079***	0.0047***	0.0005	−0.0013	0.0064***	0.0034*	0.0016	−0.0011	0.0107***	0.0057***
	Best-worst	0.0001	0.0016	−0.0057***	−0.0036*	0.0008	0.0009	−0.0024	−0.0009	−0.0013	−0.0016	−0.0059***	−0.0021*
Controversies	Best	0.0020	0.0011	0.0078***	0.0061***	0.0007	0.0008	0.0077***	0.0040*	0.0022**	0.0029*	0.0087***	0.0061***
	Worst	0.0024	−0.0011	0.0034	0.0007	0.0013	−0.0005	0.0031	0.0012	0.0023*	−0.0002	0.0033	0.0019
	Best-worst	−0.0014	0.0012	0.0034	0.0044	−0.0016	0.0002	0.0035	0.0018	−0.0011	0.0020	0.0044**	0.0032*
Combined	Best	0.0001	−0.0047**	0.0025	0.0021	0.0014	0.0005	0.0047**	0.0030	−0.0002	−0.0020	0.0053**	0.0046**
	Worst	−0.0007	−0.0025	0.0055**	0.0036*	0.0010	0.0015	0.0050*	0.0023	0.0016	−0.0008	0.0085***	0.0042***
	Best-worst	−0.0002	−0.0032	−0.0039**	−0.0025	−0.0006	−0.0021	−0.0013	−0.0003	−0.0028**	−0.0022	−0.0042**	−0.0007

This table shows the alphas of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each equally- and value-weighted portfolio based on a 10% cutoff of each score, market, and portfolio. The calculations are performed on the basis of our dataset divided by the median of the market capitalization. The best (worst) portfolios consist of the 10% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Table 2.7: Rank-weighted 10% portfolios: regressions based on the three observed markets.

		Europe		USA		Global	
		Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2
TR	Best	0.0020	0.8718	0.0017	0.7899	0.0022	0.8918
	Worst	0.0057***	0.8716	0.0047**	0.8189	0.0077***	0.8502
	Best-worst	−0.0047***	0.3329	−0.0040***	0.3344	−0.0065***	0.1627
Controversies	Best	0.0064***	0.8575	0.0062***	0.7957	0.0079***	0.8777
	Worst	0.0031*	0.8541	0.0014	0.8216	0.0027	0.8667
	Best-worst	0.0023	0.3216	0.0038**	0.2049	0.0042***	0.2429
Combined	Best	0.0010	0.8761	0.0017	0.8177	0.0018	0.9021
	Worst	0.0046**	0.8436	0.0040*	0.8163	0.0063***	0.8515
	Best-worst	−0.0045**	0.2231	−0.0033***	0.1522	−0.0056***	0.0992

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each rank-weighted portfolio based on a 10% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 10% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

2.5 Robustness checks

To check our results for robustness, we run some further regressions. First of all, we construct the equally-weighted portfolios based on the 20% (instead of 10%) best and worst companies. Again we use the Fama and French (2015) five-factor regression model. The results are presented in Table 2.8 and indicate that all previous results remain materially the same for the 20% equally-weighted selection, i.e., an outperformance of the controversies score best and the TR and combined score worst portfolios.

Moreover, with regard to the rank-weighted strategy, the 20% portfolios are also examined. Following the same procedure, this leads to the results displayed in Table 2.9. Also, in this case, all results of previous calculations remain approximately unchanged. Compared with the 20% equally-weighted portfolios, most of the alphas are higher. For instance, we can observe an almost 20% increase in the alpha of the controversies best portfolio in the global market from 0.0046 to 0.0055, both being significant at a 1% level.

As a next step, we divide our portfolios into bull and bear market periods to monitor how the portfolio strategies perform in different market phases. The results are shown in Table 2.10. The data suggest that the majority of the strategies work in bull markets. Moreover, one argument against this cannot be ignored: In our investigation period, there were mostly bullish phases and only a few bearish time periods, those of which are comparatively short. Since we are nevertheless also able to detect a number of positive significant results in bearish market phases, for example the best controversies portfolio in the US market or most portfolios in the global market, this points to the fact that the strategies are robust against various market movements.

Table 2.8: Equally-weighted 20% portfolios: regressions based on the three observed markets.

		Europe		USA		Global	
		Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2
TR	Best	0.0014	0.8956	0.0020	0.8297	0.0023*	0.9044
	Worst	0.0043**	0.8871	0.0041**	0.8549	0.0059***	0.8804
	Best-worst	−0.0039***	0.4758	−0.0031***	0.4006	−0.0046***	0.2167
Controversies	Best	0.0051***	0.8952	0.0038***	0.8102	0.0046***	0.8780
	Worst	0.0018	0.8854	0.0017	0.8279	0.0021	0.8854
	Best-worst	0.0024**	0.2740	0.0011	0.0577	0.0015	0.1443
Combined	Best	0.0020	0.8860	0.0023	0.8226	0.0026*	0.9103
	Worst	0.0030*	0.8864	0.0030**	0.8549	0.0053***	0.8850
	Best-worst	−0.0019*	0.2459	−0.0018**	0.0850	−0.0038***	0.0920

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each equally-weighted portfolio based on a 20% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 20% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas and adj. R^2 are reported upon. In oder to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Table 2.9: Rank-weighted 20% portfolios: regressions based on the three observed markets.

		Europe		USA		Global	
		Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2
TR	Best	0.0018	0.8884	0.0016	0.8214	0.0024*	0.9012
	Worst	0.0049***	0.8853	0.0041**	0.8455	0.0069***	0.8728
	Best-worst	−0.0042***	0.4182	−0.0035***	0.4105	−0.0056***	0.1868
Controversies	Best	0.0053***	0.8838	0.0046**	0.8128	0.0057***	0.8789
	Worst	0.0022	0.8772	0.0016	0.8311	0.0022	0.8804
	Best-worst	0.0021*	0.3409	0.0020	0.1333	0.0025**	0.2523
Combined	Best	0.0015	0.8831	0.0022	0.8184	0.0023*	0.9056
	Worst	0.0041**	0.8738	0.0036**	0.8416	0.0058***	0.8729
	Best-worst	−0.0036***	0.2667	−0.0025***	0.1275	−0.0045***	0.1019

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each rank-weighted portfolio based on a 20% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 20% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Furthermore, we split our portfolios up into two subperiods (Table 2.11). The first subperiod dates from April 2002 to March 2010 and the second from April 2010 until April 2018. The findings show for the US and global portfolios in particular that the abnormal returns are maintained even under this sample split. Eventually, we also check the results for a winsorization of the returns at the 1% level and re-run all regressions. The results remained unchanged.

In addition, we also construct equally- and value-weighted portfolios based on 20% (instead of 10%) best and worst companies with high and low market capitalization. The results of these regressions are displayed in Table 2.12. All previous major results remain materially unchanged for the 20% portfolios.

In order to include transaction costs, it is necessary to account for the turnover rate of the considered portfolios. For the 10% cutoff and US portfolios, we observe an average monthly turnover of 6.74% for the best TR and 8.55% for the worst TR, respectively 11.82% and 9.15% for the controversies score, as well as 8.84% and 9.69% for the combined score portfolios. This remains on an equal level for the other markets under review, so that the average monthly turnover rate stands at approximately 10%. Even for all other cutoffs, the turnover rate is materially the same. Thus, in line with Frazzini et al. (2018), the results of these portfolio strategies lead to expected annual trading costs between 90 and 150 bps, which implies that the significant alphas remain positive even after transaction costs.

Table 2.10: Bull and bear market portfolios.

		Europe				USA				Global			
		Alpha bull	Adj. R^2	Alpha bear	Adj. R^2	Alpha bull	Adj. R^2	Alpha bear	Adj. R^2	Alpha bull	Adj. R^2	Alpha bear	Adj. R^2
TR	Best	0.0003	0.8743	0.0005	0.8840	0.0000	0.8404	0.0186*	0.7629	0.0008	0.8943	0.0127**	0.9186
	Worst	0.0042**	0.8550	−0.0002	0.9132	0.0030**	0.8140	0.0148	0.8067	0.0051***	0.8276	0.0104**	0.9259
	Best-worst	−0.0048***	0.3944	−0.0006	0.4646	−0.0039***	0.4258	0.0022	0.2103	−0.0053***	0.2048	0.0009	0.3559
Controversies	Best	0.0048**	0.8129	0.0058	0.8750	0.0033*	0.7553	0.0151*	0.7963	0.0049***	0.8410	0.0107*	0.8914
	Worst	0.0003	0.8578	−0.0007	0.8780	0.0000	0.8214	0.0160	0.7485	0.0001	0.8666	0.0130**	0.8729
	Best-worst	0.0036**	0.3118	0.0052	0.5556	0.0023	0.1195	−0.0023	−0.0921	0.0037**	0.2072	−0.0037	0.6243
Combined	Best	0.0003	0.8755	−0.0004	0.8502	−0.0002	0.8349	0.0142	0.7520	0.0009	0.8842	0.0084**	0.9166
	Worst	0.0033	0.8174	−0.0051*	0.8999	0.0033**	0.8102	0.0143	0.8099	0.0044***	0.8242	0.0101**	0.9055
	Best-worst	−0.0039**	0.1933	0.0034	0.0940	−0.0044***	0.1514	−0.0015	0.0100	−0.0044***	0.0748	−0.0031	0.3928

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 divided into bull and bear market periods. The regressions are calculated individually for each equally-weighted portfolio based on each score, market, and portfolio set. The best (worst) portfolios consist of the best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Table 2.11: Subperiod portfolios.

			Europe				USA				Global			
			10%		20%		10%		20%		10%		20%	
			Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2	Alpha	Adj. R^2
TR	Best	4/02 - 3/10	0.0029	0.8772	0.0021	0.8896	0.0053*	0.8049	0.0056**	0.8156	0.0057**	0.8991	0.0051**	0.9044
		4/10 - 3/18	0.0004	0.8936	0.0009	0.9052	−0.0009	0.8655	−0.0010	0.8689	−0.0008	0.9145	−0.0005	0.9108
	Worst	4/02 - 3/10	0.0068***	0.8848	0.0066**	0.8886	0.0062**	0.8308	0.0065**	0.8418	0.0098***	0.8981	0.0089***	0.8909
		4/10 - 3/18	0.0029	0.8794	0.0019	0.8916	0.0040**	0.8453	0.0030*	0.8835	0.0043**	0.8232	0.0029*	0.8709
	Best-worst	4/02 - 3/10	−0.0057***	0.3237	−0.0064***	0.4403	−0.0028*	0.2938	−0.0027**	0.2843	−0.0060***	0.2234	−0.0057***	0.2416
		4/10 - 3/18	−0.0026	0.4556	−0.0011	0.5545	−0.0051***	0.5220	−0.0041***	0.6138	−0.0052***	0.2282	−0.0035***	0.2776
Controversies	Best	4/02 - 3/10	0.0076***	0.8817	0.0083***	0.9039	0.0096***	0.8036	0.0078***	0.8066	0.0084***	0.9047	0.0070***	0.9068
		4/10 - 3/18	0.0028	0.8273	0.0019	0.8957	0.0016	0.7811	0.0010	0.8302	0.0035**	0.8420	0.0023	0.8439
	Worst	4/02 - 3/10	0.0040	0.8762	0.0030	0.8895	0.0067**	0.8078	0.0056**	0.8233	0.0057**	0.8766	0.0053**	0.8903
		4/10 - 3/18	−0.0003	0.8710	0.0002	0.8889	−0.0019	0.8566	−0.0013	0.8446	−0.0014	0.8815	−0.0013	0.8895
	Best-worst	4/02 - 3/10	0.0017	0.3875	0.0034*	0.2931	0.0010	0.1029	−0.0014	0.0883	0.0008	0.3832	−0.0002	0.3262
		4/10 - 3/18	0.0029	0.2537	0.0015	0.2737	0.0033	0.1174	−0.0029***	0.2917	0.0047**	0.1271	0.0035*	0.0759
Combined	Best	4/02 - 3/10	0.0004	0.8746	0.0021	0.8819	0.0059**	0.8089	0.0063**	0.8089	0.0046**	0.9044	0.0058**	0.9113
		4/10 - 3/18	0.0065	0.8946	0.0015	0.8909	−0.0018	0.8559	−0.0010	0.8581	−0.0006	0.8984	−0.0006	0.9142
	Worst	4/02 - 3/10	0.0039	0.8806	0.0048*	0.8843	0.0067**	0.8289	0.0058**	0.8441	0.0088***	0.8905	0.0084***	0.8987
		4/10 - 3/18	0.0021	0.8226	0.0011	0.8954	0.0093**	0.8560	0.0018	0.8834	0.0033*	0.8335	0.0021	0.8737
	Best-worst	4/02 - 3/10	−0.0054***	0.1895	−0.0046**	0.1812	−0.0027*	0.1291	−0.0014	0.0883	−0.0060***	0.2206	−0.0045***	0.2128
		4/10 - 3/18	−0.0016	0.2368	0.0002	0.3785	−0.0059***	0.3071	−0.0029***	0.2917	−0.0041**	0.1694	−0.0029**	0.1757

This table shows the results of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis divided into two subperiods. The first subperiod dates from April 2002 to March 2010 and the second from April 2010 until April 2018. The regressions are calculated individually for each equally-weighted portfolio based on a 10% and 20% cutoff of each score, market, and portfolio set. The best (worst) portfolios consist of the 10% and 20% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas and adj. R^2 are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

Table 2.12: Alphas of equally- and value-weighted 20% portfolios: regression based on high and low market capitalization.

		Europe				USA				Global			
		High MC		Low MC		High MC		Low MC		High MC		Low MC	
		EW	VW	EW	VW	EW	VW	EW	VW	EW	VW	EW	VW
TR	Best	0.0010	−0.0026**	0.0029	0.0019	0.0013	−0.0003	0.0042	0.0028	0.0014	−0.0010	0.0048**	0.0035**
	Worst	0.0004	−0.0025	0.0057**	0.0027*	−0.0006	−0.0012	0.0062***	0.0037**	0.0008	−0.0002	0.0092***	0.0052***
	Best-worst	−0.0003	−0.0011	−0.0038***	−0.0017	0.0009	−0.0001	−0.0030**	−0.0019*	−0.0004	−0.0018	−0.0054***	−0.0027***
Controversies	Best	0.0032**	0.0014	0.0065***	0.0053***	−0.0004	−0.0003	0.0077***	0.0047**	0.0008	0.0014	0.0077***	0.0050***
	Worst	0.0005	−0.0008	0.0033	0.0014	0.0005	−0.0005	0.0055*	0.0028	0.0014	0.0002	0.0053**	0.0035*
	Best-worst	0.0017	0.0013	0.0022	0.0029	−0.0019	−0.0008	0.0012	0.0009	−0.0017	0.0003	0.0013	0.0005
Combined	Best	0.0006	−0.0029	0.0028	0.0023	0.0007	0.0002	0.0057**	0.0035*	0.0006	0.0011	0.0050**	0.0037**
	Worst	−0.0001	−0.0018	0.0050**	0.0027*	0.0001	−0.0007	0.0048**	0.0020	0.0014	0.0004	0.0078***	0.0043***
	Best-worst	−0.0003	−0.0021	−0.0032**	−0.0014	−0.0004	−0.0001	−0.0001	0.0005	−0.0018**	−0.0004	−0.0038***	−0.0017**

This table shows the alphas of the Fama and French (2015) five-factor regression for portfolios from 2002 to 2018 on a monthly basis. The regressions are calculated individually for each equally- and value-weighted portfolio based on a 20% cutoff of each score, market, and portfolio. The calculations are performed on the basis of our dataset divided by the median of the market capitalization. The best (worst) portfolios consist of the 20% best (worst) rated companies regarding a particular score. The best-worst portfolios are long in the best-performing companies and short in the worst-performing ones. Monthly alphas are reported upon. In order to estimate standard errors, we use the Newey and West (1987) procedure. ***,**, and * indicate a significance level of 1%, 5%, and 10%.

2.6 Conclusion

In this paper, we examine a dataset that includes over 4,700 companies and the associated TR, controversies, and combined scores in the Thomson Reuters Eikon universe in the investigation period from 2002 to 2018. All calculations are performed for the European, US and global markets. This paper is the first one investigating positive screened portfolios dependent on the controversies score, which measures the amount of ESG-based controversies a company has faced. The calculations based on the Fama and French (2015) five-factor model show that there is still potential for an investor to achieve a significant outperformance. Even though a value-weighted investing strategy does not show any significant over- or underperformance and therefore confirms many of the previous literature findings (see Halbritter and Dorfleitner, 2015), we can find some noteworthy results.

First of all, the inclusion of the controversies score in an ESG-based portfolio selection approach enables for a simple implementation as a way to quantify and evaluate the absence of a certain event, namely an ESG-based scandal, which might help to improve the information efficiency of the market with regard to the absence of these. Furthermore, from an investor's standpoint, having a "clean coat" with regards to controversies is especially profitable for smaller companies, as the absence of these scandals may be overlooked and incorrectly incorporated in the market prices. Thus, one might say that the respective companies "fly under the radar".

In addition, equally-weighted portfolio strategies based on worst TR and combined scores show significant outperformance, which leads to the conclusion that for the respective (small) companies there are indications in favor of the trade-off theory. Moreover, the results hold true for various robustness checks such as the variation of cutoff levels or the splitting of the period under review. Besides the two standard approaches in the context of portfolio formation, namely value- and equally-weighting, we discover new potential in the rank-weighted strategy for investors, which leads to improvements in terms of both, alpha and level of significance, within most of the investigated portfolios. For investors who attach great importance to ESG ratings, this represents an enormous opportunity to reward better scoring placements of companies and additionally to gain higher returns.

In light of these findings, it must, however, still be considered that there are hidden opportunities for investors that can be exploited in order to benefit from ESG-based ratings. The empirical results and arguments provided above prove that it is worth remaining vigilant concerning this issue.

Chapter 3

To sin in secret is no sin at all: On the linkage of policy, society, culture, and firm characteristics with corporate scandals

This research project is joint work with Gregor Dorfleitner (University of Regensburg) and Christian Kreuzer (University of Regensburg). The paper has been published as:
Dorfleitner, G., Kreuzer, C., Sparrer, C. (2022), To sin in secret is no sin at all: On the linkage of policy, society, culture, and firm characteristics with corporate scandals. *Journal of Economic Behavior and Organizations*, 202, 762–784.

Abstract Using industry-based ratings which aggregate the scandals of a firm on a yearly basis for 5,700 companies from 44 countries, and a hybrid panel data model which allows us to separate the within-firm and the between-entity effects, our empirical approach reveals a broad spectrum of diverse political, cultural, societal, and firm-specific variables that are linked to patterns of unethical corporate behavior and their disclosure. We argue that companies tend to have fewer scandals if there is a high level of institutional pressure or if corporate scandals pose a high-level threat to organizational legitimacy. Moreover, in highly moral societies that closely monitor corporate behavior, more corporate scandals can be observed. Our results are further confirmed through the use of an alternative model which examines the number of scandals mentioned in the media in contrast to the scandal rating.

Keywords corporate controversy, hybrid model, institutional theory, legitimacy theory, corporate scandal, Janus phenomenon
JEL M14, M12, G30

3.1 Introduction

The academic literature on corporate social responsibility (CSR)[1] has seen tremendous growth over recent years. This focus on CSR-related issues is, however, biased toward the notion of *good* social performance (Aouadi and Marsat, 2018), while mostly neglecting the occurrence of CSR-related scandals. Corporate scandals not only harm a firm and its shareholders directly, as the disclosure of scandals usually comes with a stock price decline (Flammer, 2013; Kang et al., 2016). These events can also inflict severe damage to the environment, as was the case with the Deepwater Horizon oil spill in 2010, or to society, which can be illustrated by the loss of public trust in regulatory agencies after they failed to detect Wirecard's accounting fraud in 2020.

This paper extends the understanding of irresponsible corporate behavior by shifting the academic focus toward publicly perceived, CSR-based corporate scandals. Within this empirical study, we define two prerequisites for a corporate scandal (unethical corporate behavior and the societal disclosure thereof) and analyze the link of various country- and company-specific variables with corporate scandals. We are, therefore, the first to answer the following key question: Which nation-level institutions or determinants and which company-specific factors support patterns of unethical corporate behavior or foster the disclosure of corporate scandals?

Our paper differentiates from other work on corporate scandals, such as Francis et al. (1994), who analyze the reaction to the disclosure of misleading information on financial figures and focus on one special type of shareholder litigation. Also, Utz (2019) and Fauser and Utz (2021) base their empirical work on a limited number of concrete incidents of corporate scandals and investigate the consequences in terms of corporate social performance and stock market performance. Unlike such contributions, we utilize measures that aggregate the scandals of a firm on a yearly basis and thereby implicitly cover thousands of corporate scandals by observing a manifold of different companies all over the world.

Drawing upon institutional theory, we argue that high institutional and stakeholder pressure can alter a firm's behavior to adopt ethical standards. By employing the legitimacy theory, we hypothesize that, if corporate scandals pose a direct threat towards organizational legitimacy, companies will act more ethically. Furthermore, we argue that societies with high moral standards that closely monitor and scrutinize corporate behavior are more likely to perceive, condemn, and disclose corporate scandals.

We show that, for example, smaller companies, firms operating in uncertainty-avoiding societies, or firms located in countries with strong legal systems will have fewer scandals. In contrast, firms in individualistic societies, firms with a good CSR reputation, or a low

[1] Following Liang and Renneboog (2017), we define CSR as business activities that enhance social welfare, regardless of accordance with profit maximization.

dependency on capital markets are associated with more scandals. These insights are important not only for value-oriented investors to identify ethical firms but also for the decision process of managers. They may be apt to guide regulators and policy-makers and to sensitize general societal awareness towards (un-)ethical behavior. Despite its rich theoretical foundation, this paper refrains from formulating hypotheses and is intended as a first empirical study to identify a broad range of different variables that are linked with corporate scandals.

This paper proceeds as follows. First, we lay the theoretical foundation and define the prerequisites for the occurrence of corporate scandals. Second, we describe our data and discuss how different nation- and company-level variables are linked with corporate scandals. Third, we describe our empirical models. Next, we present and discuss the empirical results and apply several robustness checks to verify our results. Finally, we conclude and address the aspect of potential further research.

3.2 Theoretical Development

To establish our multi-level framework, a formal definition of the term *corporate scandal* is indispensable. In order for a corporate scandal to occur, we follow the definition of a media scandal of Thompson (2005) and posit two aspects: (1) the *unethical corporate behavior* itself and (2) the process of *societal disclosure* of corporate scandals. This implies that the unethical corporate behavior alone does not result in a scandal because stakeholders must perceive this pattern of unethical behavior and it has to cause a certain level of indignation in order to be considered relevant enough for them to act (Aouadi and Marsat, 2018; Weick et al., 2005). In some cases, such as the Volkswagen emission scandal (commonly known as "Dieselgate") around 2015, the actual unethical corporate behavior remains hidden for a long time before the corporate misconduct is publicly disclosed.

We define unethical corporate behavior as corporate environmental, social, or governance offenses[2] (Aouadi and Marsat, 2018) that are caused by a company either willingly and knowingly or because of negligence. Examples of unethical corporate behavior comprise offenses such as Nestlé's child labor scandal in 2005, the Deepwater Horizon oil spill in 2010, and Siemens AG's bribery of the Argentine government in 2008.

Within this dimension of our model, we mainly draw upon institutional theory (see e.g., DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Oliver, 1991) and legitimacy theory (see e.g., Aldrich and Fiol, 1994; Ashforth and Gibbs, 1990; Suchman, 1995) to examine the occurrence of corporate scandals[3]. We argue that a high level of institutional pressure

[2]We align ourselves with Godfrey (2005) who also use the term *offense* instead of *crime* due to the fact that a scandal is not always the result of an illegal action.

[3]Legitimacy theory is a sub-theory of institutional theory. Thus, some authors subsume these two

forces companies to adopt ethical behavior and that the threat of losing legitimacy through involvement in a corporate scandal incentivizes firms to behave ethically.

According to institutional theory, organizational choice is limited through the application of pressure of external institutions on an organization[4]. Organizations must respond to institutional expectations and demands in order to survive (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Pfeffer and Salancik, 1978). This strategic response takes place even in the absence of an increase in internal organizational efficiency (DiMaggio and Powell, 1983), which clearly emphasizes that the position of power is ascribed to the institutions. Thus, institutional theory argues that the predominant motivation for ethical corporate behavior in general is mainly to address and respond properly to the tremendous pressure placed on the organization by customers, employees, shareholders, NGOs, or the government.

Legitimacy theory, on the other hand, primarily emphasizes the benefit of conformity to the needs and expectations of various stakeholders. Organizations that adhere to external rules and norms gain or retain legitimacy (Ashforth and Gibbs, 1990; Dowling and Pfeffer, 1975; Oliver, 1991), which Suchman (1995) defines as the assumption or generalized perception that an entity acts in a desirable, proper, or appropriate way and that these actions are in line with the societal system of norms, values, and beliefs. Society awards organizations with a "license to operate" as long as they fulfill societal needs and enhance societal welfare (Baldini et al., 2018). A lack of organizational legitimacy leaves the organization vulnerable to greater external scrutiny (Ashforth and Mael, 1989) or claims that the organization is unnecessary (Meyer and Rowan, 1977; Suchman, 1995). This can ultimately result in a revocation of the "license to operate" and pose a direct threat to the economic survival[5]. Particularly in the context of corporate scandals, the revocation of legitimacy manifests itself in various forms: socially responsible investors shun investment in unethical firms, value-oriented customers refuse to buy the firm's products or even call for a boycott, suppliers end contracts, or capital markets impede the access to financial resources.

The second requirement in our model, i.e. the process of societal disclosure, consists of three steps: perception, disapproval, and publication. To evaluate corporate behavior, it must first be perceptible to society. Societies with, for example, high moral standards

theories in the so-called "neo-institutional theory" (Schaltegger and Hörisch, 2017, Baldini et al., 2018; Drempetic et al., 2019). Our study, however, draws upon arguments of both theories separately, as this allows a more in-depth discussion of the interaction of our employed variables with the dimensions of corporate scandals.

[4]Institutional environments not only comprise regulatory or cultural structures, governmental agencies, and laws (Oliver, 1991; Scott, 1987), but also stakeholders or interest groups (Drempetic et al., 2019) with both their behavioral norms and values (North, 1990).

[5]Organizational behavior may diverge temporarily from external expectations and rules or norms, but can simultaneously maintain legitimacy, because the divergence either remains hidden from societal perception or incites no public disapproval. This, once again, emphasizes the importance of interweaving unethical corporate behavior and its disclosure.

will monitor corporate behavior more closely and uncover corporate scandals more eagerly. Next, society has to classify this perceived behavior as unethical. As political, societal, and cultural institutions directly influence values and ethical standards (Alas, 2006; Beekun and Westerman, 2012), they also shape the perception and definition of unethical corporate behavior. In some countries, unethical actions such as bribery or excessive pollution are more likely to be tolerated because they appear to be appropriate forms of corporate behavior. Thus these patterns of unethical corporate behavior are neglected and may remain concealed, whereas, in other countries, the same kind of bad behavior is uncovered and condemned quickly. Finally, the unethical behavior has to be severe enough, so that stakeholders, such as NGOs, the media, or employees decide to disclose this information to the broader society (Weick et al., 2005).

Figure 3.1 summarizes our theoretical model for the occurrence of corporate scandals. Following recent literature (see e.g., Baldini et al., 2018; Ioannou and Serafeim, 2012), we separate our variables into nation-level institutional and company-specific factors. Thus, we examine the linkage of country- and company-specific determinants with both unethical behavior and the process of disclosing scandals.

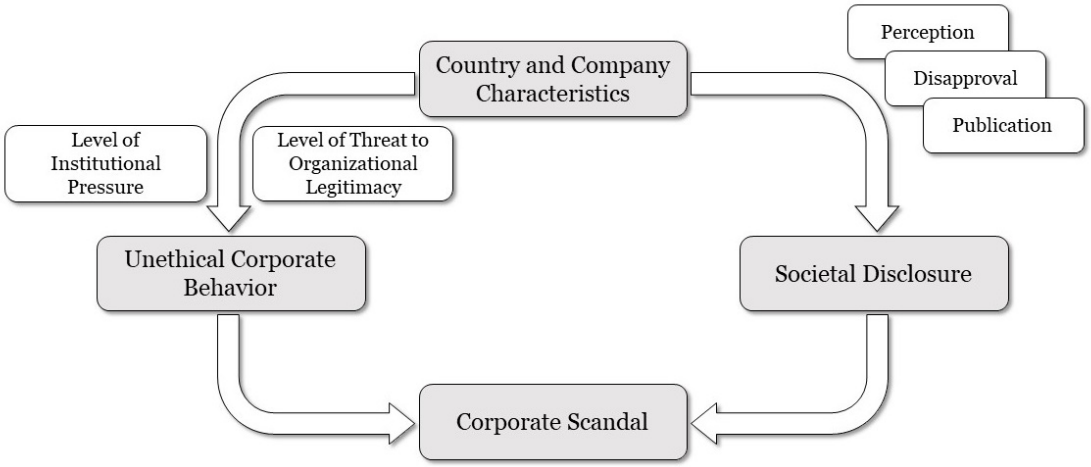

Figure 3.1: A theoretical model of corporate scandals.

3.3 Data Measurement and Summary Statistics

3.3.1 Dependent variables: measurement of corporate scandals.

To investigate and measure corporate scandals we use two metrics that capture negative news in global media: the *Number of scandals*, as a raw count variable, and the so-called Refinitiv *ESG controversies* score, which represents a rating methodology that incorporates

these number of scandals and that is benchmarked in relation to the respective industry group[6]. Thus, it offers an easy and comfortable opportunity for investors and researchers to compare and evaluate the level of disclosed unethical behavior of companies.

The absolute *Number of scandals* variable considers 23 ESG-related scandal topics such as privacy or business-ethics related scandals, which indicate whether scandals affect a firm concerning the respective topic and, if so, in how many cases. In particular, this variable is calculated for every firm by adding up the count of these scandal topics on an annual basis and therefore measures the exact number of all scandals for each company per year. If a scandal affects several topics, then it is accounted for in each of these topics. Thus, the more serious a scandal, the higher the aggregated number of counts, which captures the severity and magnitude of a scandal. As a concrete example, we consider VW's Dieselgate: the absolute number of scandals of Volkswagen reveals a peak of 109 in 2016, when this event was mainly reviewed.

In this work, the main variable of interest is the ESG *Controversies score*. This score is based on the absolute number of scandals and calculated as an inverse percentile ranking within the respective industry (Refinitiv, 2020). Therefore, it inherits the property of measuring the severity and magnitude of a scandal from the count variable. If a scandal occurs, this decreases the score of the company involved. In contrast to minor scandals, that affect only one fiscal year, high-profile scandals with ongoing legislation disputes and lawsuits may also affect the ensuing years and are then accounted for in the scores of later years. Again, a prominent example is provided by the Volkswagen emissions scandal, which led to a sharp drop in VW's *Controversies score* around 2015, and the score also lingered on a low level for the following years.

To allow an intuitive approach, so that high values represent a high scandal density, we rescale the Refinitiv ESG *Controversies score* according to

$$\text{Rescaled ESG Controversies score} = 100 - \text{Refinitiv ESG Controversies score}.$$

Whenever the ESG *Controversies score* is mentioned in the following, we refer to the rescaled ESG *Controversies score*.

3.3.2 Independent variables: nation-level determinants.

Many diverse political, societal, and economic stakeholders can influence a firm's behavior (Campbell, 2007; Ioannou and Serafeim, 2012) by shaping the formation of societal norms and values (Alas, 2006; Beekun and Westerman, 2012). Inspired by Whitley's (1999)

[6] In general, a scandal describes a clearly deplorable behavior, while the term controversy comprises two possible opposite perspectives. Nevertheless, in the context of companies, every controversially discussed issue harms the reputation and can therefore be considered a scandal.

well-established "national business systems" (NBS) institutional framework, we capture these effects within a set of nation-level determinants which comprise four dimensions: (1) the political and legal system, (2) the cultural system, (3) the labor and education system, as well as (4) the financial system. Variables within these dimensions may vary over time and between different countries, but not between different entities located in the same country.

Political and legal system. A country's political and legislative environment mainly covers formal institutions (North, 1990), such as political institutions, law enforcement, and valid regulations. These formal institutions play a key role in the development of the relationships of companies with their key stakeholders (Ioannou and Serafeim, 2012; Liang and Renneboog, 2017). Whitley (1999) and Rodriguez et al. (2005) stress the importance of the government, which regulates market entries and exits and constrains the activities of economic actors.

We capture these aspects within several political factors from World Bank. These variables measure, for example, the implementation and enforcement of regulations and laws, the overall level of corruption, and the political stability. Due to high levels of collinearity, we run a principal component analysis (PCA) to determine a set of political factors that can be used in statistical analyses and obtain three variables[7]. *Legislative and corruption* predominantly measure the efforts and effectiveness of a government to formulate, establish and enforce laws, as well as the absence of corruption in a country. The remaining two PCA variables mainly cover aspects of political participation and political stability and are specified as *Political participation* and *Political stability*. Since corporate scandals are detected by global media, we also consider the *World press freedom index (WPI)*. Here, criteria such as pluralism, media independence, transparency, environment- and self-censorship, and violence against journalists are taken into account.

As posited by institutional theory, a strong legal environment and stable national governments can pressurize firms into adopting proper ethical behavior through enacting and enforcing new laws (Aguilera et al., 2007). Besides the enactment of laws, a strong level of law enforcement and effective penalization for noncompliance are key components to ensure ethical corporate behavior. Companies only adopt reasonable social behavior when they fear detection of and penalization for noncompliance (Becker, 1968; Coluccia et al., 2018; Kagan et al., 2003; Oliver, 1991). In the long run, once appropriate laws have been passed, and their enforcement has been ensured, firms will be more likely to comply with institutional pressure toward social responsibility (Oliver, 1991).

The power of the government to push companies toward ethical standards depends not just on the presence or the amount of regulation per se (Campbell, 2007), but also on

[7]A detailed description of the political factors as well as the weights of the PCA (see Table A1) can be found in the appendix.

the actual, or at least perceived, societal conformity to these standards. Suchman (1995) states that legitimacy depends on the societal definition of desirable actions. In countries with high levels of corruption or in countries with an unstable political system, dubious actions, such as bribery, often appear to be appropriate forms of behavior. They award organizations legitimacy (Suchman, 1995) and firms may engage in unethical practices in order to achieve a competitive advantage (such as cutting costs at the expense of product safety). Turning to the societal disclosure dimension, unethical behavior, although it may be perceived by society, is mostly not characterized as unethical and thus is not considered a scandal in these countries. Consequently, this urges other companies to emulate this kind of behavior to ensure economic survival (Rodriguez et al., 2005). The societal inability or the unwillingness to disclose corporate misconduct is even further strengthened if the government fails to ensure and encourage both press freedom as well as political participation.

Cultural system. Informal institutions (North, 1990), such as a country's national culture, structure the communication and relationship between business partners, employees, and the firm itself (Whitley, 1999), directly influence the values and moral beliefs an individual possesses (Alas, 2006), and strongly impact the perception of ethical standards and actions (Beekun and Westerman, 2012). These moral standards are not established by a superordinate political body, but instead obtain their validity through inner justification (Velasquez and Velazquez, 2002).

In order to quantify such ethical standards and societal norms of corporate behavior based on geographical country-specific influences, we use the well-known Hofstede cultural dimensions (Hofstede, 2001; Hofstede et al., 2010). These variables are part of a well-established framework, in which the behavior and norms of societies, organizations, or a wider range of stakeholders can be understood within the context of national culture (Williams and Zinkin, 2008; Liang and Renneboog, 2017). For example, Crossland and Hambrick (2011) and Ioannou and Serafeim (2012) argue that a nation's culture determines management discretion and decision-making processes.

Hofstede's cultural dimensions are designed to explicitly examine cross-cultural differences (Beekun and Westerman, 2012) and are therefore perfectly suited to cross-country analyses. In contrast to all other variables, these variables are time-invariant. Thus they display long-term cultural developments and are not subject to short-term changes but rather function as a cross-country ranking system depicting cultural differences. Specifically, the following four cultural dimensions are utilized.

The *Power distance index (PDI)* indicates the degree to which the power imbalances within organizations are accepted and expected in a society (Hofstede and McCrae, 2004). Low PDI stands for open discussion, criticism, and freedom of expression (Tyler et al., 2000). The integration of individuals into (social) groups is described by the factor *Individualism vs.*

collectivism (IDV). Here, strongly individualistic nations display a stronger self-orientation of society and a decrease in ethical responsibility, whereas in collectivist societies, the welfare of the group is paramount (Ho et al., 2012; Hofstede and McCrae, 2004). The higher the value, the more individualistic the society. Next, the *Uncertainty avoidance index (UAI)* describes the social tolerance toward ambiguous situations. The higher its score, the more the respective society tries to avoid ambiguity and unknown situations and tends to implement stable social norms. Finally, as a proxy for the influences of gender-specific role patterns, we add Hofstede's *Masculinity vs. femininity (MAS)*. Within masculine societies, cultural traits such as power, assertiveness, and success are considered to be particularly important (Ho et al., 2012).

When applying Hofstede's framework to our theoretical model, we argue that societies with a high *PDI* or high *UAI* create a cultural environment, in which managers and decision-makers must comply with institutional pressure and act in accordance with social norms in order to retain their position of power and legitimacy (Ioannou and Serafeim, 2012; Waldman et al., 2006a; Waldman et al., 2006b; DiMaggio and Powell, 1983). In contrast, societies with a high value of *IDV* or *MAS*, encourage managers to pursue personal goals rather than the needs of society and long-term relationships with stakeholders (Ringov and Zollo, 2007; Waldman et al., 2006a; Vitell et al., 1993; Rallapalli et al., 1994). So these managers feel less pressure to act ethically.

Again turning to the disclosure of scandals, cultural norms also affect the perception of undesired and unethical behavior (Beekun and Westerman, 2012) and consequently the disclosure of thereof. In collectivist societies, or in societies with high *PDI*, criticism of and the discourse with authorities is undesired (Crossland and Hambrick, 2011; Tyler et al., 2000). Loyalty towards the actions and beliefs of the personal peer-group is mandatory (Hofstede and McCrae, 2004). Individuals, as well as stakeholders, accept the decisions of their superiors without questioning them (Hofstede et al., 2010; Williams and Zinkin, 2008), even if they disagree with them. As a result, unethical behavior is often not classified as a scandal or, if it is considered a scandal, the behavior is less likely to be publicly disclosed.

Labor and education system. Besides political and cultural institutions, Whitley (1999) also emphasizes the importance of labor and education systems, which we capture within the *Skilled labor* variable. This variable evaluates a country's education system by assessing the availability of skilled labor which is crucial for the survival of any firm.

Especially, if the availability of skilled labor is limited in a certain country, companies have to compete for highly qualified workers. Prior studies (e.g., Brammer et al., 2007; Greening and Turban, 2000; Ioannou and Serafeim, 2012; McWilliams and Siegel, 2001; Peterson, 2004; Sánchez, 2000; Turban and Greening, 1997) argue that firms associated with high levels of CSR attract and retain higher-qualified workers because these employees expect a certain level of ethical behavior from the company (e.g., labor safety, non-discrimination

policies in the recruitment process). As job choice is a process with imperfect information (Bauer and Aiman-Smith, 1996; Rynes et al., 1991), firms can use different channels, such as their CSR policies, to communicate their compliance with these ethical values.

Corporate scandals, however, send negative signals concerning the company and its values, which can scare potential high-qualified job applicants off (Bauer and Aiman-Smith, 1996; Rynes et al., 1991). They reduce the attractiveness of companies as a potential employer, which puts these companies at a competitive disadvantage. This, in turn, incentivizes firms into behaving ethically correctly in order to avoid disadvantages. Finally, we do not expect a direct effect of the labor market on the dimension of societal disclosure.

Financial and economic system. Last, financial and economic systems determine how capital is made available to firms and how it is priced (Whitley, 1999), which is of vital importance to any firm. While we address the role of financial markets and their interactions with firms on the company-level later, we only consider general economic conditions on the country level, as they also shape corporate behavior.

Here, we add the *Herfindahl-Hirschman index (HHI)* and the *Number of publicly listed companies (LC)* to measure the competitiveness of a country's economy and financial market. The level of competition can directly affect corporate conduct, as firms alter their behavior to achieve advantages in the competition for customers, investors, or capital lenders. Campbell (2007) and Shleifer (2004) argue that companies operating within tight competitive environments may abandon ethical standards (such as product safety or fair payments) to cut costs and guarantee economic survival. As opposed to that, firms that do not face any competitive pressure may have little incentives to act ethically, because a firm's reputation or customer loyalty will not likely affect sales or profitability and, thus, corporate scandals do not pose a threat to organizational legitimacy (Campbell, 2007).

Next, we incorporate two variables to measure the general state of economic and societal development, which determines the perception of ethical standards as well as the disclosure of potential scandals. First, the *Human development index (HDI)* evaluates the level of development and prosperity within society and covers aspects such as life expectancy and the general level of social welfare (Gomanee et al., 2005). Second, the *Gross domestic product growth rate (GDP growth)*, which captures the level of national economic development. While their basic needs appear largely to be satisfied, people in developed countries tend to pursue additional higher goals, such as sustainable management of natural resources or no sexual or racial discrimination (Liang and Renneboog, 2017; Ho et al., 2012). According to institutional theory, the pressure on companies to comply with these societal needs and to behave ethically strongly increases the further a country is economically and socially developed (McWilliams and Siegel, 2001; Muhammad et al., 2011). Regarding the disclosure dimension of scandals, even a slight misconduct by a company can cause disapproval which will be publicly exposed and punished by the broader society.

The acceptable standards for corporate behavior may also spill over to other countries (Liang and Renneboog, 2017), and firms operating in more globalized countries must bow to the international pressure and adopt appropriate ethical standards to retain legitimacy. In addition, globalized countries can more easily disseminate and publish news about unethical corporate behavior because of the faster flow of information and global networking. Hence, we include the *KOF globalization index (KOFGI)* as a measure of globalization.

3.3.3 Independent variables: company-level determinants.

In addition to country-related factors, we examine four micro-level dimensions that describe the relationship of a company with its key stakeholders: (1) CSR reputation, (2) firm size and visibility, (3) dependency on capital markets, and (4) the risk and return of a company. These company-specific drivers vary both over time and between different entities located in the same country.

CSR reputation. A high level of corporate commitment toward CSR establishes an ethical reputation and strategic value (McWilliams and Siegel, 2001; Porter and Kramer, 2002), which is directly linked to corporate scandals.

We measure the CSR reputation of a company with the *Refinitiv ESG* score, which evaluates a company's environmental, social, and governance performance with regard to 10 main themes (i.e. resource utilization, emissions, human rights, workforce, or management) based on publicly available company-reported data. These data result in three pillar scores (one for each ESG segment) and are finally summarized in the percentile-ranked ESG score, which is benchmarked against industry (Refinitiv, 2020).

Prior work (see e.g., Bhattacharya and Sen, 2004; Gardberg and Fombrun, 2006; Godfrey, 2005; Godfrey et al., 2009; Knox and Maklan, 2004; Peloza, 2006; Kang et al., 2016) argues that companies with a good CSR reputation face alleviated sanctions following a scandal, which is mainly due to the positive effect of CSR building up relationship-based intangible assets[8]. For example, Fombrun et al. (2000) assert that CSR reinforces the network with various stakeholders (i.e., the government, customers, and employees). In case of a scandal, the involved firm will receive support and backup from the network and thus stakeholders are much more inclined to "give the company a second chance". As a consequence, companies with a high *ESG score* face attenuated institutional pressure, which eventually reduces the threat posed by corporate scandals to their organizational

[8]This type of relational wealth (see Business Ethics Quarterly, 2002) comprises aspects such as employees' affective commitment toward the company (Brammer et al., 2007; Fombrun et al., 2000; Mayer and Schoorman, 1992; Meyer and Allen, 1991; Peterson, 2004), societal and political legitimacy (Fombrun et al., 2000; Handelman and Arnold, 1999 Sánchez, 2000), competitive advantages such as supplier and customer loyalty and trust (Bhattacharya and Sen, 2004; Brown and Dacin, 1997; Fombrun et al., 2000), or brand equity (Gardberg and Fombrun, 2006; McWilliams and Siegel, 2000).

legitimacy.

Besides the effect on unethical corporate behavior, CSR reputation may also play a crucial role in the context of societal disclosure. Companies associated with a high *ESG score* draw more public attention to their actions. Uncovering a major CSR-related scandal of one of the high ESG companies seem much more newsworthy, which is why external organizations such as NGOs or the media scrutinize them more closely.

Firm size and visibility. As larger firms tend to be more visible among the broader society, they attract a wider spectrum of diverse stakeholders that influence the company (Fiss and Zajac, 2006; Hackston and Milne, 1996; Knox et al., 2005). Institutional theory suggests that large companies in particular are often confronted with diverse or even conflicting institutional demands (Ashforth and Gibbs, 1990; Oliver, 1991).

Based on DiMaggio and Powell (1983), who note that institutional pressure is a function of an organization's dependency on its institutional environment or its resources, larger companies, which are less reliant on a single stakeholder, can withstand external pressure more easily. Drawing upon legitimacy theory, both Meznar and Nigh (1995), and Pfeffer and Salancik (1978), emphasize that because the societal costs of revoking legitimacy from larger firms are far higher than those for smaller firms, larger companies are more resistant to the threat corporate scandals pose to organizational legitimacy. This may encourage larger firms to neglect or defy certain stakeholder demands and ultimately result in a conflicting or even unethical action that can lead to a corporate scandal. To examine the influence of firm size, we use the variable *Size*, which represents the logarithm of total assets.

Besides the actual unethical corporate behavior, the perception and disclosure of this corporate misconduct rely on third-party institutions (i.e. Media or NGOs) to publicly disseminate this information. Drempetic et al. (2019) and Schreck and Raithel (2018) state that firm visibility directly affects the amount of third-party information. As both a proxy for visibility and for the attention a firm receives, we use the number of analysts covering and rating the respective company (*Analyst coverage*). Compared to less visible companies, high-attention firms are more newsworthy and are hence deemed to be more greatly exposed to public scrutiny (Aouadi and Marsat, 2018; Meznar and Nigh, 1995; Reverte, 2009; Servaes and Tamayo, 2013; Watts and Zimmerman, 1986). As an increasing number of analysts monitor the behavior of high-attention firms more closely, patterns of unethical behavior can be uncovered more easily.

Dependency on capital markets. Companies with financial resource shortages or firms with close ties to capital markets exhibit a high dependency on capital markets, which affects the propensity for unethical corporate behavior as well as its disclosure in many ways.

We measure this dependency with the following three variables. We use the variable *Cash* (ratio of cash and short-term investments to total assets) as well as the variable *Capital expenditures (Capex)* as indicators for slack financial resources and hence for a low level of capital market dependency. Moreover, we add the variable *Leverage* (long-term debt divided by total assets), which comprises debt obligations and thus a high dependency on the capital market.

A high level of dependency on capital markets constrains unethical behavior, because corporate scandals can limit or impede the much-needed access to finance. Consistent with institutional theory, if capital markets incorporate standards for ethical business behavior into their capital allocation process, these markets can hamper financing for socially irresponsible firms and eventually pressure them into adopting ethical standards. In this context, legitimacy theory suggests that a decrease in organizational legitimacy manifests itself in the form of impaired access to financial resources and a higher cost of capital, which is especially threatening for capital-constrained firms[9]. In contrast, firms with abundant slack financial resources (i.e. high levels of *Cash*) are less dependent on capital markets, hampering the ability of capital markets to exert pressure on these companies.

Schreck and Raithel (2018) argue that, without scrutiny from investors or capital lenders, self-interested managers who wish to protect their interests and career outlook try to impede the disclosure of unethical corporate behavior by concealing negative information concerning the company. Firms with high *Leverage* are monitored more closely by capital lenders (see e.g., Harris and Raviv, 1990). This fosters the perception and publication of unethical corporate behavior.

Risk and return. Prior literature (see e.g., Gillan and Starks, 2000; Strickland et al., 1996; Karpoff et al., 1996; Ertimur et al., 2011) argues that poor financial performance directly affects the propensity for and the success rate of shareholder activism (i.e., shareholder proposals at the annual general meeting). Hence, we directly address a firm's risk and return dimension, because companies need to adapt their behavior to this kind of shareholder pressure (Oliver, 1991). Otherwise, they risk losing their legitimacy and threatening their economic survival. We use *Return on assets (ROA)* as a measure for firm performance, and the variables *Earnings variability* and *Price volatility* to assess a company's risk.

Consequently, in the aftermath of a poor prior financial performance, myopic profit-seeking shareholders may pressure firms to abandon costly ethical standards and force them to engage in profit-enhancing, less ethical practices, such as cutting payments to

[9]Some authors ascribe this increase in cost of capital to a decreasing investor base for social irresponsible firms (see e.g. El Ghoul et al., 2011; Goss and Roberts, 2011; Heinkel et al., 2001; Hong and Kacperczyk, 2009; Merton, 1987), whereas others apply a risk perspective as corporate scandals increase the information asymmetry between investors or lenders and managers (see e.g. Bowen et al., 2008; Dhaliwal et al., 2011; El Ghoul et al., 2011; Robinson et al., 2011; Goss and Roberts, 2011; Sharfman and Fernando, 2008; Ye and Zhang, 2011).

workers or reducing workplace safety standards (Campbell, 2007). In contrast, value-oriented shareholders who advocate the long-term value creation of sustainability will use environmental or social shareholder proposals to pressure firms to adhere to ethical norms and values (Shackleton et al., 2021).

Furthermore, corporate scandals pose a major threat to organizational legitimacy, especially for riskier companies with already high *Earnings variability* or *Price volatility*. Companies accused of unethical behavior are often sued and face uncertain future legal claims (Hong and Kacperczyk, 2009; Waddock and Graves, 1997), which in turn further increases their risk. So on the one hand, these companies should act more ethically, whereas on the other, riskier companies are scrutinized more closely by shareholders, which facilitates the perception and publication of unethical behavior.

3.3.4 Sample and summary statistics

In Table 3.1, we present the variables employed in our empirical investigation. Here, we also summarize the expected relations of unethical behavior and its disclosure based on the theoretical considerations from the previous section and provide an explicit overall expectation for each variable.

All company-related variables that are dependent on currency are converted into U.S. dollars. For computational reasons, some variables need to be rescaled. In accordance with the corresponding literature, we winsorize the variables *Size, Cash, Leverage, Capex, Earnings variability, Price volatility*, and *ROA* on a 1% level. Delisted or insolvent companies are considered until the last available rating or financial information. Thus, our results are not influenced by a potential survivorship bias. To ensure comparability, nation-level determinants each refer to the country in which the firm is headquartered.

Our global data set covers a total of more than 40,000 annual observations for 5,700 different companies located in 44 countries based on the time period between 2002 and 2017. The largest group of the observed firms (roughly one third) are located in the USA, but a large number of companies also come from the UK, Australia, Japan, Canada, China, Hong Kong, and additional European countries[10]. Table 3.2 reports the distribution of observations per year. As Refinitiv expands its data universe, the number of firms in our sample increases over time. On average, our sample covers 2,500 companies per year.

Table 3.3 shows the descriptive statistics for all variables in our data universe. Concerning the controversies rating, the average value of the rating universe corresponds to about 50 with a standard deviation of approximately 20. The absolute *Number of scandals* exhibits a mean value of 0.45 with a standard deviation of 1.76. Table 3.4 reports the respective

[10]For a detailed list of number of companies per country see Table A2 in the appendix.

Table 3.1: Definitions, measurements, data sources of country, and company-level determinants

Category	Variable	Measurement	Source	UB	SD	OE
		Country-level determinants				
Political & legal system	Legislative and corruption	Evaluates regulatory quality, government effectiveness, and absence of corruption	World Bank	−	+	±
	Political participation	Measurement of voice and accountability	World Bank	−	+	±
	Political stability	Likelihood of destabilization or overthrowal of a government	World Bank	−	+	±
	World Press Freedom index (WPI)	Measurement for the degree of freedom of the press	RSF Reporters without borders	⋆	+	+
Cultural system	Power distance index (PDI)	Extent to which unequally distributed power is accepted and expected	Hofstede (2001); Hofstede et al. (2010)	−	−	−
	Individualism vs. collectivism (IDV)	Integration of individuals into social groups	Hofstede (2001); Hofstede et al. (2010)	+	+	+
	Uncertainty avoidance index (UAI)	Social tolerance for ambiguous situations	Hofstede (2001); Hofstede et al. (2010)	−	⋆	−
	Masculinity vs. femininity (MAS)	Measure for masculinity with regard to gender-specific role patterns within a cultural community	Hofstede (2001); Hofstede et al. (2010)	+	⋆	+
Labor & education system	Skilled labor	Availability of skilled labor in the country concerned	IMD World Competitiveness Report	+	⋆	+
Financial & economic system	Herfindahl-Hirschman index (HHI)	Measurement of nation-level market competitiveness	World Bank	±	⋆	±
	Number of listed companies (LC)	A yearly number of firms listed on the stock exchange in the respective country	The Global Economy	±	⋆	±
	Human Development index (HDI)	Criterion for evaluating the level of development and prosperity of a country	Human Development Report	−	+	±
	Gross domestic product growth rate (GDP growth)	Annual growth rate of the gross domestic product	Datastream	+	−	±
	KOF Globalisation index (KOFGI)	Indicates a country's degree of globalization with regard to economic, social, and political dimensions	KOF Swiss Economic Institute	−	⋆	−
		Company-level determinants				
CSR reputation	ESG score	Environmental, social, governance performance	Datastream	+	+	+
Firm size & visibility	Size	Logarithm of total assets	Datastream	+	+	+
	Analyst coverage	Total number of analysts providing forecasts regarding earnings per share	I/B/E/S	⋆	+	+
Dependency on capital markets	Cash	The sum of cash and short-term investments divided by total assets	Datastream	+	⋆	+
	Leverage	Long-term debt to total assets ratio	Datastream	−	+	±
	Capex	Capital expenditure divided by total assets times 100	Datastream	+	⋆	+
Risk & return	Return on assets (ROA)	Earnings before interest, taxes, and depreciation over total assets	Datastream	±	⋆	±
	Earnings variability	Standard deviation of net income before extra items/preferred dividends of the previous five years over total assets	Datastream	−	+	±
	Price volatility	Average annual stock price movement to a high and low from a mean price for each year	Datastream	−	+	±

This table reports definitions, measurements, data sources of country, and company-level determinants. Furthermore, it displays a summary of our a priori expectations for the relation between the employed variables and unethical behavior (UB), societal disclosure (SD), as well as the resulting overall expectation (OE). While for the occurrence of a concrete scandal both prerequisites (the unethical behavior and the disclosure) need to be fulfilled, the tendency towards scandals can also be increased by a specific factor that only affects one of the two legs as (c.p.) there are always other influences that boost the other leg. Sometimes the effect on one leg may be different from the other, so that no clear overall expectations can be concluded.

Table 3.2: Number of firm observations per year

Year	2002	2003	2004	2005	2006	2007	2008	2009
N	688	720	1,337	1,704	1,735	1,851	2,198	2,561
Year	2010	2011	2012	2013	2014	2015	2016	2017
N	3,004	3,120	3,231	3,209	3,283	3,430	3,934	4,739

This table reports the number of observations per year in our dataset.

correlations coefficients[11]. In Table 3.5 we present the *Controversies scores* grouped by our independent variables.

Table 3.3: Descriptive statistics

Category	Variable	Mean	St. Dev.	Min	Median	Max
Dependent variable	Controversies score	50.36	20.09	12.50	42.08	99.87
	Number of scandals	0.45	1.76	0.00	0.00	109.00
Political & legal system	Legislative and corruption	0.66	0.75	−2.82	0.84	2.44
	Political participation	−0.10	0.62	−3.43	−0.03	1.49
	Political stability	0.35	0.58	−2.82	0.46	1.12
	World press freedom index	0.75	0.20	0.02	0.79	1.00
Cultural system	Power distance index	46.92	14.64	11.00	40.00	104.00
	Individualism vs. collectivism	70.10	24.61	13.00	80.00	91.00
	Uncertainty avoidance index	55.33	20.77	8.00	46.00	112.00
	Masculinity and femininity	61.47	17.02	5.00	62.00	95.00
Labor & education system	Skilled labor	6.14	0.92	1.88	6.31	8.38
Financial & economic system	HHI	10.46	12.18	3.30	6.08	70.82
	LC	2.79	1.70	0.01	3.28	5.84
	HDI	88.49	6.36	55.80	90.60	95.30
	GDP growth	2.13	2.31	−9.13	2.22	25.16
	KOFGI	79.91	6.84	54.51	81.17	91.31
CSR reputation	ESG Score	50.83	17.28	5.06	50.08	97.66
Firm size & visibility	Size	15.36	1.49	10.97	15.34	19.34
	Analyst coverage	12.10	8.21	0.00	11.00	57.00
Dependency on capital markets	Cash	0.14	0.14	0.00	0.09	0.82
	Leverage	0.21	0.17	0.00	0.19	0.89
	Capex	5.81	6.08	0.00	4.06	40.69
Risk & return	Return on assets	0.11	0.11	−0.60	0.11	0.49
	Earnings variability	0.46	0.69	0.01	0.23	6.09
	Price volatility	28.87	9.87	10.67	27.24	64.08

This table presents the mean, standard deviation, median, minimum, and maximum values of all variables of the full dataset ($N = 40,744$). All variables are as described in Table 3.1.

[11]To test for multicollinearity in our dataset, we estimate the variance inflation factor (VIF) values based on an OLS model, which indicates no linear relations for any of our variables.

Table 3.4: Further descriptive statistics.

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Controversies score	1.00																							
2	Legislative and corruption	0.04	1.00																						
3	Political participation	−0.08	−0.18	1.00																					
4	Political stability	0.06	−0.05	−0.12	1.00																				
5	World press freedom index	0.05	0.40	0.16	0.72	1.00																			
6	Power distance index	−0.08	−0.49	0.06	−0.58	−0.75	1.00																		
7	Individualism vs. collectivism	0.13	0.43	−0.30	0.58	0.60	−0.78	1.00																	
8	Uncertainty avoidance index	−0.06	−0.47	0.32	0.20	0.04	0.27	−0.39	1.00																
9	Masculinity and femininity	−0.04	−0.09	0.21	−0.06	−0.05	0.03	−0.06	0.37	1.00															
10	Skilled labor	0.06	0.42	−0.05	0.06	0.25	−0.21	0.26	−0.15	−0.04	1.00														
11	Herfindahl-Hirschman index	−0.07	0.03	0.21	0.10	0.15	−0.10	0.04	−0.01	−0.11	0.05	1.00													
12	LC	0.08	0.23	−0.29	0.09	0.05	−0.24	0.47	−0.19	0.30	0.33	0.06	1.00												
13	HDI	0.06	0.76	0.19	0.21	0.63	−0.62	0.48	−0.09	0.05	0.41	0.05	0.19	1.00											
14	GDP growth	−0.02	−0.06	−0.15	−0.37	−0.44	0.29	−0.23	−0.26	−0.15	−0.05	0.02	−0.03	−0.32	1.00										
15	KOF Globalisation index	0.08	0.59	−0.03	0.41	0.63	−0.64	0.61	−0.18	−0.23	0.22	0.07	−0.05	0.68	−0.26	1.00									
16	ESG score	0.30	−0.03	−0.04	0.13	0.07	−0.04	0.05	0.07	−0.06	−0.03	−0.08	−0.07	0.01	−0.07	0.12	1.00								
17	Size	0.34	−0.07	0.00	−0.10	−0.12	0.18	−0.16	0.16	0.04	0.07	−0.15	0.05	−0.05	−0.01	−0.09	0.46	1.00							
18	Analyst coverage	0.26	0.01	−0.13	0.01	−0.06	0.07	−0.01	−0.04	−0.10	0.12	−0.20	0.05	−0.03	0.04	0.04	0.40	0.46	1.00						
19	Cash	−0.03	0.02	0.00	−0.09	−0.07	0.05	−0.05	0.00	0.07	0.02	−0.08	0.03	0.02	0.03	−0.07	−0.11	−0.25	0.05	1.00					
20	Leverage	0.05	0.03	−0.10	0.07	0.03	−0.07	0.15	−0.08	−0.08	0.04	0.01	0.11	0.04	−0.04	0.07	0.05	0.20	−0.04	−0.33	1.00				
21	Capex	−0.04	−0.02	0.01	0.03	0.02	−0.03	0.03	−0.04	−0.07	−0.03	0.17	0.02	−0.05	0.06	−0.02	−0.05	−0.08	0.00	−0.12	0.06	1.00			
22	Return on assets	−0.01	−0.04	−0.08	0.02	−0.04	0.01	0.01	−0.04	−0.04	0.00	−0.06	0.01	−0.09	0.07	−0.02	0.07	0.00	0.18	−0.01	−0.09	0.14	1.00		
23	Earnings variability	−0.02	0.08	−0.01	0.08	0.11	−0.14	0.15	−0.11	−0.08	0.02	0.09	0.00	0.09	−0.01	0.08	−0.12	−0.35	−0.13	0.24	−0.04	0.08	−0.29	1.00	
24	Price volatility	−0.07	−0.02	0.00	−0.03	−0.01	0.00	−0.02	−0.08	−0.05	0.02	0.06	0.01	−0.04	0.02	−0.11	−0.24	−0.34	−0.13	0.26	−0.09	0.12	−0.25	0.47	1.00

This table shows the absolute values of correlations.

Table 3.5: Controversies score grouped by independent variables

Variable	≤ Median	> Median	Difference
Legislative and corruption	50.2714	50.4375	−0.1661
Political participation	52.4530	48.1473	4.3057***
Political stability	49.8578	50.8421	−0.9843***
World press freedom index	50.0941	50.6216	−0.5275*
Power distance index	52.1283	47.2569	4.8714***
Individualism vs. collectivism	48.0987	52.8669	−4.7682***
Uncertainty avoidance index	52.4657	48.0575	4.4082***
Masculinity and femininity	51.0604	48.7931	2.2673***
Skilled labor	49.0652	51.6039	−2.5387***
Herfindahl-Hirschman index	52.8106	47.8364	4.9742***
LC	48.8499	51.9495	−3.0996***
HDI	48.6159	52.0788	−3.4630***
GDP growth	50.2159	50.5145	−0.2986
KOF Globalisation index	50.0550	50.6518	−0.5968*
ESG score	45.5664	55.1472	−9.5808***
Size	45.1352	55.5991	−10.4639***
Analyst coverage	46.5748	54.5788	−8.0039***
Cash	50.5626	50.1539	0.4088
Leverage	49.4434	51.2808	−1.8373***
Capex	50.3453	50.3659	−0.0206
Return on assets	50.4611	50.2509	0.2102
Earnings variability	50.3020	50.4076	−0.1056
Price volatility	51.5107	49.2005	2.3102***

This table reports the mean of Controversies score grouped by each variable. All variables are as described in Table 3.1. The difference of the two groups is calculated by using an OLS regression approach with clustered standard errors on firm level. ***, **, and * indicate a significance level of 1%, 5%, and 10%, respectively.

3.4 Methodology

By construction, our data is subject to different structures related to the country and company characteristics (see i.e. political factors, cultural dimensions, and company-related data) and regarding the data frequency. More precisely, the company- and country-related data, as well as political variables, are calculated on an annual basis, whereas Hofstede's cultural dimensions are time-invariant variables.

Furthermore, to investigate the occurrence of corporate scandals as accurately as possible, we focus on considering variation over time and between the firms. In order to capture within and between effects in one model, we use a so-called hybrid regression model (see Allison, 2009; Schunck, 2013). This hybrid model, which is also called within-between

regression model, is basically defined by

$$y_{it} = \beta_0 + \beta_1(x_{it} - \bar{x}_i) + \beta_2 c_i + \beta_3 \bar{x}_i + \mu_i + \epsilon_{it} \tag{3.1}$$

where y_{it} denotes the dependent variable for an individual i at time t, x_{it} represents a variable that varies over time and individuals, whereas c_i is a variable that varies only over individuals. Let $\bar{x}_i$ denote the mean of the x_{it} for a fixed i over t. Moreover, μ_i is an error term and random intercept, while ϵ_{it} is considered as a noise variable. Furthermore, using (3.1) we are able to estimate the within effect (β_1) as well as the between effect (β_3) in single models, while keeping time-invariant effects (β_2). Thus, this model allows us to separately measure and interpret variation over time (within) as well as between individuals and is therefore particularly suitable to measure influences on the *Controversies score*.

As further analysis we also use the *Number of scandals* as dependent variable. Since most of the observed companies are facing none or only a few scandals, our data set clearly exhibits characteristics of left-censored data. In fact, this variable is non-negative and reveals the value zero with non-trivial frequency. Consequently, we use a Tobit regression model, which is generally recommended for such settings. This model estimates the time-dependent relationships between variables, but does not differ regarding within and between effects. To account for the panel structure we adopt clustered standard errors on an industry level (Tobin, 1958).

3.5 Results

3.5.1 Regression results for the contemporary regression

In this section, we analyze the contemporary *Controversies score* as a dependent variable[12]. Since the hybrid regression model considers both within and between effects, the results comprise two parts. Here, the within results examine the effect of changes over time, whereas the between results compare the cross-section of firms. Table 3.6 exhibits the results of the hybrid regression. The most striking results are the negative linkages of *Legislative and corruption*, *Political stability*, *PDI*, and *UAI* with the occurrence of scandals, while we observe positive relations for *Size*, *Analyst coverage*, *ESG score*, *Earnings variability*, and *Price volatility*.

Political and legal systems. The variable *Legislative and corruption* reveals a negative and significant coefficient at the 1% level in both within and between results. Considering the within effect, this indicates that enforcement of the legislative and a low level of corruption

[12]Contemporary regression means that the independent variables are not lagged.

Table 3.6: Hybrid regression based on contemporary variables.

		Within effects		Between effects	
Category	Variable	Coefficient	S.E.	Coefficient	S.E.
Political & legal system	Legislative and corruption	-2.9728^{***}	1.0296	-1.5572^{***}	0.6358
	Political participation	-0.4606	0.6975	-0.9357^{**}	0.4873
	Political stability	-3.6974^{***}	1.1963	0.0617	0.6572
	World press freedom index	-0.8792	1.7209	0.9026	2.5041
Cultural system	Power distance index			-0.0431^{**}	0.0206
	Individualism vs. collectivism			0.1080^{***}	0.0148
	Uncertainty avoidance index			-0.0563^{***}	0.0136
	Masculinity and femininity			-0.0122	0.0119
Labor & education system	Skilled labor	0.1454	0.1773	-0.3024	0.2731
Financial & economic system	HHI	-0.2324^{***}	0.0701	0.0016	0.0130
	LC	-0.7866^{***}	0.3005	-0.0566	0.1390
	HDI	1.4303^{***}	0.1182	0.1588^{**}	0.0656
	GDP growth	0.0923^{*}	0.0485	0.3435^{**}	0.1613
	KOFGI	-0.0792	0.1185	-0.0680^{*}	0.0410
CSR reputation	ESG score	0.0984^{***}	0.0112	0.1576^{***}	0.0113
Firm size & visibility	Size	1.8242^{***}	0.2799	4.2918^{***}	0.1449
	Analyst coverage	0.0775^{***}	0.0239	0.1446^{***}	0.0256
Dependency on capital markets	Cash	0.1390	1.4100	5.2579^{***}	1.2691
	Leverage	-1.5730	1.1424	-4.1225^{***}	1.0029
	Capex	-0.0690^{***}	0.0242	-0.0323	0.0287
Risk & return	Return on assets	-7.5597^{***}	1.2900	2.7775	1.7435
	Earnings variability	0.6660^{***}	0.2329	1.6113^{***}	0.2933
	Price volatility	0.0550^{**}	0.0240	0.0878^{***}	0.0191
	Pseudo R^2 (total)	0.3100			

This table shows the results derived from the within-between regression based on the full sample. The regressions are calculated based on contemporary variables. Coefficients of within-regression (β_1) and between-regression (β_2 and β_3) results, standard errors, and pseudo R^2 are reported upon. All variables are as described in Table 3.1. ***, **, and * indicate a significance level of 1%, 5%, and 10%, respectively.

over time define clear societal expectations concerning ethical corporate behavior (Aguilera et al., 2007), which leads to fewer corporate scandals.

The results of the between effect indicate that companies in countries with strong *Legislative and corruption* factors tend to have significantly lower *Controversies scores* and therefore fewer scandals than competitors in less stable countries. One explanation for this could be that in a weakened political environment, unfair competition is more likely to be necessary for the maintenance of economic viability. This ultimately can force other companies to adopt these unethical standards to remain competitive (Ioannou and Serafeim, 2012), effectively creating a culture of acceptance (Argandoña, 2001), in which corporate misconduct is not characterized as unethically, and thus is not disclosed to the broader society.

The coefficients of the *Political participation* and the *Political stability* variables reveal an overall negative and significant value. A high level of political stability and political participation enables members of society to express their concerns and to mobilize others in the direction of activism, which is naturally associated with particular scandal topics (Cai et al., 2016). Hence, companies try to handle their reputation more responsibly and tend to be less likely to become involved in scandals. However, since neither the within-

nor the between-results of the *World press freedom index* variable indicates a significant coefficient, we find no indication for a relation with corporate scandals.

All in all, we find evidence that in countries with stronger political and legal systems, companies are less likely to be involved in corporate scandals.

Cultural system. Whilst considering the *PDI* as a measure for the unequal distribution of power within societal structures, we observe supporting evidence in favor of the a priori overall expectation. The coefficient illustrates that there is a negative relationship between a company's *Controversies score* and the level of power distance in the country in which the firm is headquartered. One possible explanation could be that, in general, power is used for ethically, far-sighted, and well-considered decisions. In addition, managers and executives may also fear the possible loss of power associated with uncovered scandals. In line with Hofstede et al. (2010) and Williams and Zinkin (2008), another explanation may be that in high power distance societies, scandals of superiors are more likely not to be revealed.

The coefficient of the *IDV* variable, which measures the level of individualism in society, is positive and significant at the 1% level. Again, confirming our a priori expectation, the coefficient shows that in societies with higher levels of individualism, companies are more likely to be involved in a scandal. People within these societies advocate on behalf of their own rights and interests (Ringov and Zollo, 2007), which may provide a potential for scandals of various shapes.

As another cultural dimension, we examine the tolerance toward ambiguity (*UAI*) and observe statistically significant evidence in favor of our negative a priori expectation, that companies in countries with a higher *UAI* tend to achieve a lower *Controversies score*. The reason behind this finding may be that the *UAI* variable also indicates how cultures deal with deviations from (entrenched) moral values regarding ethical behavior. Hence, this result underlines the expectation that reactions to deviations from this behavior are far more severe than in cultures with lower *UAI*, and companies therefore feel coerced into taking care of their social policies.

The coefficient of the *Masculinity vs. femininity* variable (*MAS*) indicates a negative but insignificant value which so far does not suggest an impact on corporate scandals.

Labor and education system. The coefficients of the *Skilled labor* variable are insignificant and therefore we find no supporting evidence regarding the positive a priori expectation. An explanation for this observation could be the following. Since certain types of scandals are more typical for particular industries and are therefore less strongly perceived, it would also be necessary to distinguish between various types of scandals in order to measure contemporary impacts. Furthermore, from an employee's point of view, the occurrence of media scandals is clearly only one aspect of choice of profession besides

other factors such as the availability of equivalent alternative positions, advancement opportunities, or financial aspects, which also play a role for potential applicants.

Financial and economic system. As a measurement of competitiveness, both the *Herfindahl-Hirschman index (HHI)* and the *Number of listed companies (LC)*, exhibit a negative within-coefficient and an insignificant coefficient regarding the between effect. One explanation for this observation may be that in a business environment with a low level of competitiveness, companies may have little incentives to act ethically.

Both, the *HDI* and the *GDP growth* variable, which measure the general state of societal and economical development in a country, show a positive and significant coefficient in both within and between results. Since a high *HDI* is associated with more developed societies with high moral standards, one reason for the result could be that scandals are more likely to be detected and systematically characterized as unethical practices, as they are less accepted in countries with higher levels of prosperity[13]. In contrast, high GDP growth rates typically can be observed in developing countries with rather low levels of social norms. As a result, there is also less pressure on companies to adhere to ethical standards, which may result in a higher number of corporate scandals.

Our measure of globalization (*KOFGI*) exhibits support in favor of a rather negative relationship on a company's *Controversies score*: the coefficient of the between effect is negative and significant, while the within-coefficient is negative but insignificant. Countries with high degrees of globalization may tend to adopt high ethical standards and therefore may exert more pressure on companies to comply with these norms, which results in a decrease of corporate scandals.

CSR reputation. When considering the *ESG score* as an indicator for a company's CSR reputation, we observe positive and significant coefficients in both parts of the hybrid model. Although companies with a good CSR reputation are generally expected to have a "clean coat" concerning scandals, our findings show that firms associated with a high *ESG score* are more likely to become involved in corporate scandals[14]. We call this observation the *Janus phenomenon*, based on the concept of the ancient Roman god Janus, who is commonly depicted as having two opposite faces. One possible explanation for this finding could be that these companies tend to rely on the insurance-like effect (Godfrey et al., 2009; Kang et al., 2016) of high CSR and therefore fear the possible consequences of scandals

[13]Note that since all country-specific data refer to the country in which the company headquarter is located, the state of economical and societal development merely applies to the people in the respective country. However, this variable also influences the perception of the business activities of a company in other countries, since potential scandals there —even if they are far more greatly accepted due to local societal demands— are assigned to the company. As an example, one could consider child labor in India while working for a Swedish fashion company, or, to cite a concrete example, the Nestlé child labor scandal in 2005.

[14]Dorfleitner et al. (2020), who examine the relationship between corporate social performance and corporate financial performance, ascertain a similar relationship.

less. As a result, the incentive to behave ethically may decrease[15]. Altogether, our results are in line with the positive a priori expectations.

Firm size and visibility. The *Size* variable has a strongly significant positive sign in both within and between results, which illustrates that a larger firm size leads to a significant increase in corporate scandals and thus a decrease in the *Controversies score*. As a measurement for attention and visibility, we investigate the *Analyst coverage* variable. For this, we observe positive and significant coefficients in within and between results at the 1% level. The more analysts examine a company, the easier it is to reveal inconsistencies and to make this information accessible to investors. In summary, our results support our positive overall a priori expectation.

Dependency on capital markets. Regarding the *Cash* variable, which is an indicator for low dependency on capital markets, we observe a positive and significant between effect. In line with our a priori expectation, the free cash flow hypothesis (Jensen, 1986) and empire building theory argue, that high levels of slack financial resources may cause agency problems (Servaes and Tamayo, 2014) and entice managers to pursue private benefits that can conflict with sustainable and ethical corporate behavior. These firms tend to feel less pressure and be less concerned about their reputation. Thus, they may also care less about potential consequences of corporate scandals.

Furthermore, the *Leverage* variable (as a measure for high dependency on capital markets) also shows only a significant, thus negative, coefficient in the between part of our model. An increase in leverage appears to be linked with a decrease in corporate scandals, which is consistent with our expectation[16].

The coefficients of the *Capex* variable are negative and significant regarding the within effect and negative but insignificant regarding the between effect. Apparently, higher capital expenditures and the therefore higher capital requirements over time tend to be connected with fewer corporate scandals. Contrarily to our a priori expectation, companies with high *Capex* values are not only characterized by low dependency on capital markets (Ferrell et al., 2016), but may also be future-oriented and consequently place value on their public perception, stakeholder relations, and ethical reputation.

Risk and return. Summarizing, there is a negative and significant relationship between *ROA* and the *Controversies score*. This illustrates that better-performing firms tend to achieve better *Controversies scores*. The coefficients of the two risk variables (*Price volatility* and *Earnings variability*) indicate a positive and significant association. Hence,

[15]Another explanation may be the so-called penance mechanism (Kotchen and Moon, 2012; Kang et al., 2016), i.e., increased CSR after past scandals, as well as an attempt at greenwashing.

[16]Since significant results regarding the *Cash* and *Leverage* variables are only detected from the between results, this illustrates that changes over time do not show any significant implications. One possible explanation is that the capital structure of a company, which influences the level of dependency on the capital market, changes rather slowly and these changes are generally rather small.

riskier firms also tend to reveal more scandals. Of course, there may also be unobserved variables that trigger risk and unethical behavior at the same time. Thus, special care should be applied in interpreting the risk and return findings.

3.5.2 Regression results for future Controversies score

While the findings above are very indicative, from an investor's point of view it is much more interesting to ascertain whether and to what extent there is a possibility to predict future corporate scandals. These insights can guide investors in their stock selection process, as, for example, Dorfleitner et al. (2020) show that firms with high *Controversies scores* tend to "fly under the radar" of investors and that stock portfolios consisting of these firms can achieve a financial outperformance.

Table 3.7 exhibits the results of the hybrid regression, which analyzes the influence of our explanatory variables in t on the *Controversies scores* in the following year $t + 1$[17].

Interestingly, the results of the between part of the regression are materially the same as those of the contemporary results. Concerning the within-part of our investigation, the level of significance partly decreases, but the results largely remain unchanged.

3.5.3 Regression results for the Number of scandals

The calculations of the Tobit regressions based on the contemporary *Number of scandals* as dependent variable are presented in the appendix in Table A3. As the reference industry, we choose manufacturing, which is the most frequently represented industry in our dataset[18].

In comparison with our reference category, only retail trade and agriculture, forestry, and fishing exhibit significantly positive coefficients, whereas the coefficients of the remaining industry dummies indicate a significant negative sign. This points to the fact that in the manufacturing, agriculture, forestry and fishing, and retail trade industry scandals tend to occur most frequently while simultaneously accounting for other influential variables.

Moreover, the data suggest that almost all previous observations can also be confirmed in this approach. With regard to the nation-level determinants *Legislative and corruption*, *Political participation*, *PDI*, *IDV*, and *UAI*, the results reveal consistency with our former findings and therefore support these expectations. Even if we observe a positive and significant coefficient of the *Skilled labor* variable, we cannot draw a clear conclusion based

[17]We test for autocorrelation of the *Controversies score* and observe a statistically significant slight positive autocorrelation over time, which is expected due to the scoring methodology and addressed by our panel regression models.

[18]The industrial affiliation is based on the SIC manual of the United States Department of Labor respectively.

Table 3.7: Hybrid regression - future Controversies score

		Within effects		Between effects	
Category	Variable	Coefficient	S.E.	Coefficient	S.E.
Political & legal system	Legislative and corruption	0.2683	1.0851	-1.8220^{***}	0.6738
	Political participation	0.5807	0.7357	-1.1073^{**}	0.5155
	Political stability	-3.3026^{***}	1.2576	−0.1537	0.6929
	World press freedom index	1.8726	1.8022	0.4469	2.6463
Cultural system	Power distance index			-0.0499^{**}	0.0218
	Individualism vs. collectivism			0.1202^{***}	0.0157
	Uncertainty avoidance index			-0.0584^{***}	0.0143
	Masculinity and femininity			−0.0193	0.0125
Labor & education system	Skilled labor	-0.3329^{*}	0.1859	−0.3944	0.2875
Financial & economic system	HHI	-0.2419^{***}	0.0737	0.0039	0.0138
	LC	-1.0399^{***}	0.3154	−0.0315	0.1480
	HDI	1.3929^{***}	0.1241	0.1464^{**}	0.0695
	GDP growth	-0.1540^{***}	0.0508	0.2454	0.1697
	KOFGI	−0.1446	0.1241	-0.0812^{*}	0.0434
CSR reputation	ESG score	0.0798^{***}	0.0117	0.1607^{***}	0.0121
Firm size & visibility	Size	2.3817^{***}	0.2952	4.3654^{***}	0.1541
	Analyst coverage	0.0196	0.0252	0.1749^{***}	0.0272
Dependency on capital markets	Cash	−0.8630	1.4915	4.9474^{***}	1.3525
	Leverage	−0.6834	1.2121	-4.7052^{***}	1.0756
	Capex	−0.0143	0.0256	−0.0493	0.0306
Risk & return	Return on assets	-3.5561^{***}	1.3823	2.4665	1.8813
	Earnings variability	0.5451^{**}	0.2492	1.6379^{***}	0.3187
	Price volatility	0.0214	0.0254	0.1082^{***}	0.0203
	Pseudo R^2 (total)	0.3100			

This table shows the results derived from the within-between regression based on the full sample. Coefficients of within-regression (β_1) and between-regression (β_2 and β_3) results, standard errors, and pseudo R^2 are reported upon. All variables are as described in Table 3.1. ***, **, and * indicate a significance level of 1%, 5%, and 10%, respectively.

on the previous results and therefore still reject to commit to a positive or negative overall relation.

For company-related characteristics, we also find, apart from isolated deviations, a strong link to the previous results. The variables *ESG score*, *Size*, *Analyst coverage*, *Cash*, *Leverage*, *Earnings variability*, and *Price volatility* show highly significant values in the expected direction and therefore, once again, confirm our results.

To verify the differences between the remaining industry sectors, we again calculate the Tobit regression and vary the reference industry, with all other coefficients remaining unchanged. On the one hand, one can observe that the financial sector as well as the construction sector are generally inclined towards fewer scandals. On the other hand, both the agriculture, forestry, and fishing, and retail trade industries appear to have a strong level of involvement in scandals. This even has a practical impact and can be very useful for an investor who wishes to invest in industries with few scandals or who wishes to avoid potential risks from upcoming ones.

3.6 Robustness Checks

To examine the robustness of our results, we conduct various further computations. Since several companies operate their businesses in multiple countries, they are also far more greatly affected by various nation-level influences. To take this into account, we add a multinationality index in order to measure to which extent a company operates multinationally. We define companies with more than 10% of international assets, i.e. foreign assets divided by total assets, as being "multinational". In line with Ioannou and Serafeim (2012), we split our sample to distinguish between domestic (this includes approximately 19,400 observations) and multinational firms. For both samples, we run the hybrid and Tobit regressions again. The results of the domestic and multinational regressions are displayed in Table 3.8 for the hybrid regression.

Table 3.8: Hybrid regression - domestic & multinational companies (contemporary variables)

	Domestic companies				Multinational companies			
	Within effects		Between effects		Within effects		Between effects	
Variable	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Legislative and corruption	-5.7799***	1.5054	-1.6834*	0.8916	0.9251	1.4775	-1.1168	1.0170
Political participation	-2.3209**	1.0092	-1.1003	0.7250	2.1539**	1.0122	-0.0800	0.7476
Political stability	-6.1533***	1.7558	-0.7310	0.8084	-0.7623	1.6920	2.1913	1.3524
World press freedom index	-2.4471	2.3607	0.5985	3.6025	2.8962	2.6235	-2.5084	3.9823
Power distance index			-0.0710**	0.0335			-0.0310	0.0291
Individualism vs. collectivism			0.0986***	0.0212			0.1218***	0.0227
Uncertainty avoidance index			-0.0455**	0.0199			-0.0716***	0.0206
Masculinity and femininity			-0.0307	0.0200			-0.0010	0.0162
Skilled labor	0.2254	0.2672	0.2838	0.3936	-0.0095	0.2461	-0.4416	0.4251
HHI	-0.3378***	0.1125	-0.0178	0.0197	-0.2307**	0.0925	0.0180	0.0190
LC	-1.1257***	0.4168	0.1376	0.1910	-0.3695	0.4520	-0.2627	0.2195
HDI	1.7573***	0.1758	0.0598	0.0951	1.0410***	0.1675	0.2474**	0.1031
GDP growth	0.1215*	0.0742	0.1547	0.2189	0.1132*	0.0666	0.5087**	0.2593
KOFGI	-0.3121*	0.1776	-0.0207	0.0595	0.1375	0.1673	-0.1627***	0.0630
ESG score	0.0731***	0.0158	0.1218***	0.0149	0.1183***	0.0162	0.1896***	0.0182
Size	1.8544***	0.4000	3.5248***	0.1964	2.0485***	0.4043	5.0255***	0.2252
Analyst coverage	-0.0089	0.0352	0.1334***	0.0336	0.1542***	0.0339	0.1416***	0.0409
Cash	-0.7723	1.8924	3.1521**	1.5069	1.1972	2.1513	8.6263***	2.4215
Leverage	-0.2250	1.5924	-3.8965***	1.2062	-2.0871	1.6810	-4.2751**	1.8002
Capex	-0.0564*	0.0326	-0.0497	0.0353	-0.0943**	0.0371	-0.0371	0.0492
Return on assets	-6.6360***	1.7633	0.6231	2.0724	-7.5717***	1.9452	5.2454	3.2569
Earnings variability	0.6590**	0.3097	0.9575 ***	0.3721	0.9063**	0.3637	2.0846***	0.4851
Price volatility	0.0632*	0.0335	0.0976***	0.0250	0.0312	0.0359	0.0831***	0.0311
Pseudo R^2 (total)	0.28				0.28			

This table shows the results derived from the within-between regression based on the subsample of domestic or multinational companies. Coefficients of within-regression (β_1) and between-regression (β_2 and β_3) results, standard errors, and pseudo R^2 are reported upon. All variables are as described in Table 3.1. ***, **, and * indicate a significance level of 1%, 5%, and 10%, respectively.

When considering the contemporary results, we observe that most major results are confirmed in both samples. This affects all company-level determinants regarding *CSR reputation*, *Size*, *Cash*, *Leverage*, *Capex*, *ROA*, *Earnings variability*, and *Price volatility*.

However, as expected, the main differences now lie in the influences of country-level

variables. For multinational companies, the significance of political factors decreases or changes, which we attribute to the influence of the partially differing political structures between the various countries. Nevertheless, the results of financial and economic system determinants remain by and large in line with previous findings.

Furthermore, with an application of an even more restrictive variant of setting the threshold of foreign assets to distinguish between "domestic" and "multinational" to 0%, the results remain materially the same, thus eliminating the need for us to publish them in this paper.

As another robustness test, we calculate both, the Tobit regression for the dependent variable *Logarithmic number of scandals plus one* as well as for the *Number of scandals one year later* by lagging the independent variables, thereby performing a forecasting analysis. The results remain, apart from some isolated deviations from the main model, qualitatively the same and therefore again confirm prior findings. Hence, we do not report them in this work. Next, to address potential biases in our model selection, we run several alternative models to validate our previous results. First, we run a negative binomial regression, which is a proper approach for analyzing count data, using the *Number of scandals* as the dependent variable. Table A4 in the appendix reports the results, but they remain materially unchanged. Besides that, we also run an OLS regression with clustered standard errors on firm-level as well as fixed effects regressions, which can partly eliminate time-invariant aspects of firm-level endogeneity. Again, the results remain by and large in line with previous findings.

Last but not least, we calculate the domestic and multinational regressions on the future *Controversies score* and the future *Number of scandals* for both hybrid and Tobit regressions. Except for a few deviations, the results remain in line with previous findings and are therefore not reported here either.

3.7 Conclusion

In this paper, which is the first to empirically investigate the linkage of a broad spectrum of different country- and company-specific variables with corporate scandals, we examine an extensive international dataset including over 5,700 companies in 44 countries and the associated measurements for corporate scandals, as measured by the *Controversies score* and the absolute *Number of scandals* in the investigation period from 2002 to 2017. Based on extensive research of prior literature, we argue that country-level variables, regarding aspects of the political and legal system, culture, labor and education, and financial and economic system, as well as company-level determinants which capture CSR reputation, firm size and visibility, dependency on capital markets, and risk and return are linked with the occurrence of corporate scandals.

To examine empirical evidence of our a priori expectations, the calculations are based on the within-between hybrid regression model as well as a Tobit regression model, both of which reveal various factors that are associated with companies with fewer scandals.

In general, the occurrence of corporate scandals comprises a two-stage process: first, the unethical corporate behavior of a firm, and second, the process of societal disclosure, including the perception, disapproval, and publication of this unethical behavior. We argue that companies will adopt ethical standards and therefore are less likely to become involved in scandals, if they operate in an environment in which they feel high levels of institutional pressure (institutional theory) or in which corporate scandals pose a high threat to organizational legitimacy (legitimacy theory). Moreover, we hypothesize that societies with high moral standards that closely monitor corporate behavior tend to perceive, disapprove and publish unethical corporate behavior more frequently.

Regarding country-level determinants, our results show that in countries with efficient enactment and enforcement of laws as well as low levels of corruption, high degrees of political participation and political stability, or in societies with higher power distance or uncertainty avoidance, companies are less likely to be involved in a corporate scandal. In contrast, in countries with an individualistic culture, a high level of development and prosperity, as well as a high GDP growth, companies are more likely to become involved in a corporate scandal.

Considering company-specific factors, larger and high-attention firms, as well as riskier firms are more likely to become susceptible to corporate scandals, whereas companies with a high level of dependency on capital markets are less likely to become involved in corporate scandals. Moreover, a very peculiar result lies in our finding that firms associated with a good CSR reputation are positively linked with the occurrence of a scandal, which we describe as the Janus phenomenon.

Furthermore, our study has practical implications. First of all, many influential factors related to the *Controversies score* are intuitively appealing and can easily be adopted by strategists. Our findings, in particular, may provide benefits and guidelines for investors, who seek to incorporate corporate scandals into their investment decision metrics. In addition, our results are of benefit to ethically motivated managers, who may find implications for their evaluation and decision-making processes.

One potential limitation of our investigation lies in the fact that both the *Controversies score* and the absolute *Number of scandals* are only calculated once per annum. Future research could focus on a higher evaluation frequency, which allows a closer investigation of short- and long-term effects, as well as different stock market reactions based on various subtopics such as environmental or social scandals. Although our two-component definition of a corporate scandal within our theoretical model is in line with literature on media

scandals, future research could benefit from the disentanglement of unethical corporate behavior from its disclosure to provide further insights on the linkage of various factors with corporate scandals.

What is more, the influence of industry sectors on the occurrence of corporate scandals beyond our approach may also merit a closer examination. Lastly, it must be noted that our research design provides correlational evidence for our theoretical model, which is surely a proper first step. However, in order to provide more causal evidence for the results, deeper insights into the motivations of the involved actors appear to be necessary, which could be achieved by conducting experimental or interview-based research. For some firm-level variables, such as the risk measures *Earnings variability* and *Price volatility*, even a reverse causal relationship would be conceivable. In this paper, however, we do not intend to discuss the causal relationship for each dimension and, therefore, we leave this task to future research.

All in all, our findings underline the key roles that firm- and industry-level factors, as well as country-specific aspects, play in the quest to examine corporate scandals. Moreover, the number and frequency of corporate scandals as a new dimension of ESG, still appear to harbor promising potential for further research.

Appendix

Political factors To reflect country-specific political settings and effects as accurately as possible, we add several political dimensions to our dataset through the inclusion of various political factors from World Bank.

To estimate the ability of a government to formulate and establish sound policies and regulations regarding the promotion and permission of private sector development (Kaufmann et al., 2010), we use the *Regulatory quality* variable. Furthermore, *Control of corruption* indicates how far public power is exercised for all forms of corruption and assertion of interests by the elite.

Political stability and absence of violence/terrorism measures the likelihood of destabilization or toppling of a government, also including terrorist activities or politically-motivated violence (Kaufmann et al., 2010). Moreover, the variable *Voice and accountability* captures the extent to which citizens are able to participate in the selection of their government and the degree of freedom with regard to expression, association, and the media. To evaluate the degree to which agents comply with and rely on the rules of society, and in particular the quality of contract enforcement, the police, property rights, and the courts, as well as the likelihood of crime and violence (Kaufmann et al., 2010), we add the *Rule of law* variable. Last but not least the variable *Government effectiveness* depicts the quality of civil service as well as policy formulation and the degree of its independence from politically motivated pressures, the quality of policy implementation and formulation, and the level of credibility of the government's commitment to these policies (Kaufmann et al., 2010).

Table A1: Weights of the PCA.

Variables	Legislative and corruption	Political participation	Political stability
Voice and accountability	−0.57	1.39	−0.11
Political stability	−0.71	−0.12	1.58
Government effectiveness	0.53	−0.18	−0.27
Regulatory quality	0.51	−0.10	−0.33
Rule of law	0.35	−0.09	−0.07
Control of corruption	0.49	−0.21	−0.17

This table shows the respective weights of the PCA to calculate the three political dimensions Legislative and corruption, Political participation, and Political stability.

Table A2: Number of companies per country

Country	N	Country	N
United States	13323	Finland	225
Japan	4854	Indonesia	224
United Kingdom	3305	Mexico	224
Canada	2762	Chile	198
Australia	2657	Greece	189
Hong Kong	1437	New Zealand	187
France	1159	Thailand	186
Germany	974	Denmark	183
South Korea	803	Austria	160
South Africa	763	Philippines	158
China	757	Turkey	156
Switzerland	717	Poland	146
India	623	Ireland	144
Brazil	612	Portugal	111
Singapore	531	Israel	102
Sweden	481	Colombia	68
Spain	438	Peru	66
Netherlands	410	Argentina	48
Italy	368	United Arab Emirates	33
Belgium	310	Hungary	27
Malaysia	299	Czech Republic	24
Norway	287	Saudi Arabia	15

This table shows the number of companies per country in the data sample.

Table A3: Tobit regression - contemporary variables

Category	Variable	Coefficient	S.E.
Industry	Agriculture, Forestry, and Fishing	1.9800***	0.1950
	Construction	−1.6600***	0.1680
	Finance, Insurance, and Real Estate	−2.7900***	0.2140
	Mining	−0.6960***	0.1530
	Retail Trade	0.6260***	0.0794
	Services	−0.2300**	0.0981
	Transport, Communications, Electric, Gas, and Sanitary service	−0.3350***	0.0868
	Wholesale Trade	−0.9670***	0.0783
Political & legal system	Legislative and corruption	−0.8600***	0.2400
	Political participation	−0.2890***	0.0832
	Political stability	0.0792	0.2540
	World press freedom index	−0.1630	0.8040
Cultural system	Power distance index	−0.0322***	0.0057
	Individualism vs. collectivism	0.0308***	0.0102
	Uncertainty avoidance index	−0.0248***	0.0042
	Masculinity and femininity	0.0025	0.0029
Labor & education system	Skilled labor	0.2490**	0.1010
Financial & economic system	HHI	0.0003	0.0058
	LC	−0.0073	0.0833
	HDI	0.0084	0.0219
	GDP	0.0024	0.0271
	KOFGI	0.0151	0.0173
CSR reputation	ESG score	0.0399***	0.0027
Firm size & visibility	Size	2.0900***	0.1770
	Analyst coverage	0.0418***	0.0108
Dependency on capital markets	Cash	2.9300***	0.4570
	Leverage	−1.5900***	0.2870
	Capex	−0.0174	0.0164
Risk & return	Return on assets	1.9400***	0.5880
	Earnings variability	0.4640***	0.0882
	Price volatility	0.0419***	0.0084
	Pseudo R^2	0.1451	

This table shows the results derived from the Tobit regression based on the full sample. The dependent variable is the Number of scandals, and hence, left-censored at 0. All variables are as described in Table 3.1. The McFadden pseudo R^2 is reported upon. ***, ** and * indicate a significance level of 1%, 5%, and 10%, respectively.

Table A4: Negative binomial regression - contemporary variables

Category	Variable	Coefficient	S.E.
Industry	Agriculture, Forestry, and Fishing	0.9004***	0.2053
	Construction	−0.6983***	0.0854
	Finance, Insurance, and Real Estate	−1.2078***	0.0614
	Mining	−0.2382***	0.0565
	Retail Trade	0.3240***	0.0488
	Services	−0.0545	0.0448
	Transport, Communications, Electric, Gas, and Sanitary service	−0.0648*	0.0390
	Wholesale Trade	−0.5086***	0.0979
Political & legal system	Legislative and corruption	−0.2876***	0.0519
	Political participation	−0.1200***	0.0387
	Political stability	0.1210**	0.0564
	World press freedom index	−0.2539	0.1822
Cultural system	Power distance index	−0.0156***	0.0020
	Individualism vs. collectivism	0.0104***	0.0015
	Uncertainty avoidance index	−0.0079***	0.0013
	Masculinity and femininity	−0.0011	0.0010
Labor & education system	Skilled labor	0.1006***	0.0180
Financial & economic system	HHI	−0.0017	0.0014
	LC	0.0084	0.0130
	HDI	0.0014	0.0056
	GDP	0.0111	0.0069
	KOFGI	0.0021	0.0043
CSR reputation	ESG score	0.0150***	0.0009
Firm size & visibility	Size	0.8302***	0.0130
	Analyst coverage	0.0132***	0.0018
Dependency on capital markets	Cash	1.1600***	0.1172
	Leverage	−0.4700***	0.0943
	Capex	−0.0083***	0.0029
Risk & return	Return on assets	0.4699***	0.1567
	Earnings variability	0.1636***	0.0265
	Price volatility	0.0183***	0.0017

This table shows the results derived from the negative binomial regression based on the full sample. The dependent variable is the Number of scandals, and hence, left-censored at 0. All variables are as described in Table 3.1. ***, ** and * indicate a significance level of 1%, 5%, and 10%, respectively.

Chapter 4

The Good Left Undone: About future scandals, past returns and ineffectual ESG

This research project is joint work with Ralf Laschinger (University of Regensburg).

Abstract A worldwide sample of 10,500 public companies from 2002 to 2020 exemplifies that excess returns can predict future unethical behavior and corporate scandals. In line with market efficiency, statistical evidence shows that excess returns are a statistical precursor of corporate scandals, while the disclosure of unethical behavior does not affect long-term outperformance. This study sheds light on the potential for scandals to be a more tangible measure than the ESG score, which can be biased by greenwashing and even has a positive relationship with the number of scandals in our sample. Our results highlight that stakeholders should position themselves carefully within the counterintuitive relationship of excess returns, scandals, and sustainability ratings.

Keywords Corporate Scandals, Sustainability, ESG, Asset Pricing

JEL G10, M14

4.1 Introduction and related literature

In a world of efficient capital markets, investors are aware of the necessity to price new information and seek to value the future by demanding returns and risk premia. At the same time, the awareness of capital markets, institutional investors, and society as a whole towards a sustainable economy and a green future is omnipresent.[1] While the greenness of investments or a company, in general, can be concealed or distorted by greenwashing (Laufer, 2003; Delmas and Burbano, 2011), corporate scandals cannot be hidden forever from the public because of their severity. Besides the reputational consequences for the company, corporate scandals can also inflict severe damage on the environment or society.[2]

This paper shifts the academic focus towards corporate scandals and unravels the dynamic relationship between returns and scandals by stringently following the chain of thought of pricing information and efficient capital markets.[3] Our statistical results strongly support the view that past excess returns are a precursor for future risk in terms of scandals and unethical behavior.

Rising public awareness regarding sustainability sparked an ongoing academic debate about the relationship between corporate social responsibility (CSR) and corporate financial performance (CFP) (Friede et al., 2015). Hereby, the discussion is mainly centered around a forward impact, i.e. that past or present CSR affects future financial performance. Despite the magnitude of research dedicated to this topic, the results remain inconsistent to date, with three distinct viewpoints emerging.

The first one, often referred to as the *doing good while doing well* hypothesis, indicates a positive relation between high CSR and financial performance (see e.g. Kempf and Osthoff, 2007; Statman and Glushkov, 2009; Waddock and Graves, 1997; Bénabou and Tirole, 2010; Edmans, 2011). Myopic managers favor decisions that improve current earnings rather than long-term value. Short-term-oriented investors are unwilling to price any potential long-term benefits of CSR (Derwall et al., 2005; Edmans, 2011; Bénabou and Tirole, 2010) and undervalue companies that engage in sustainability. The second one, the *doing good but not well* hypothesis, reports a negative relationship (see e.g. Barnea and Rubin, 2010; Renneboog et al., 2008; Hong and Kacperczyk, 2009; Bolton and Kacperczyk,

[1]The total US-domiciled assets under management that incorporate corporate social responsibility increased from 12.0$ trillion in 2018 to 17.1$ trillion in 2020. This represents nearly 1 in 3 dollars of total US assets under professional management spent according to sustainable criteria. See Report on Sustainable and Responsible Investing Trends by the Forum for Sustainable and Responsible Investment, 2020.

[2]A prominent example demonstrating the encompassing consequences of scandals is the company BP. The company has been sued multiple times after the Deepwater Horizon oil spill in 2010, and besides the immense damage to the environment and wildlife, this corporate scandal left thousands of workers temporarily unemployed.

[3]In line with literature on media scandals (see e.g., Thompson, 2005), we define corporate scandals as unethical corporate behavior that got disclosed to the broader society through, for example, different media channels or NGO reports.

2021). Consistent with the trade-off theory (Aupperle et al., 1985), some researchers argue that high expenditures on CSR are seen as a waste of precious financial resources that could otherwise be spent more efficiently (see e.g. Barnea and Rubin, 2010; Aouadi and Marsat, 2018; Krüger, 2015). Others emphasize the risk-mitigation view and a reduction in information asymmetry for high CSR firms, which decreases companies' cost of equity (Sharfman and Fernando, 2008; El Ghoul et al., 2011; Dhaliwal et al., 2011) or debt (Goss and Roberts, 2011). Finally, the last view suggests no clear positive or negative relationship (see e.g. Hamilton et al., 1993; Auer and Schuhmacher, 2016), because the benefits of CSR might be offset by their costs.

Other researchers reverse this relationship but do not find a consistent conclusion either. Waddock and Graves (1997) and Ioannou and Serafeim (2012) note that high CSR ratings are associated with good prior financial performance (i.e. slack resource theory). In contrast, Shackleton et al. (2021) show that firms try to offset weak prior financial performance with an improvement in future CSR and thus provide statistical evidence in favor of a negative and reverse causal relationship. However, these studies and, consequently, their results are not easily comparable with each other. First, they target different geographical areas, such as the U.S. market (Van der Laan et al., 2008), the EU market (Qiu et al., 2016), or an international sample (Auer, 2016). Second, they focus either on accounting-based (Mervelskemper and Streit, 2017) or on stock market-based measures of financial performance (Kempf and Osthoff, 2007; Aouadi and Marsat, 2018). Finally, recent literature emphasizes the lack of a standardized definition of CSR or a homogeneous measure of CSR (Chatterji et al., 2016; Dorfleitner et al., 2015), while others criticize the black-box nature of environmental, social, and corporate governance (ESG) ratings (Berg et al., 2020) and their inability to address greenwashing adequately. In consequence, the conflicting academic results are mainly data-driven (Capelle-Blancard and Monjon, 2012; Revelli and Viviani, 2015).

In this study, we alleviate the concerns mentioned above regarding ESG ratings in an asset pricing context, as we do not focus on aggregated ESG ratings but instead shift our attention toward the dynamic relation of returns and publicly disclosed CSR-related corporate scandals in a worldwide sample. Different sources, such as international NGOs, the media, or other stakeholders, publicly disclose, and validate information about corporate misconduct. Because the company cannot alter the societal perception of disclosed scandals so easily, corporate scandals are more tangible, less susceptible to interpretation and measurement biases than CSR, and evade the black-box nature of ESG ratings.

Prior literature addresses corporate scandals in the context of a corrupt business environment (Rodriguez et al., 2005; Oliver, 1991), analyzes their interaction with CSR (Godfrey, 2005), or discusses the relation between CSR and corporate scandals through the moderating role of a country's legal origin (Liang and Renneboog, 2017). Others focus on the

relation between corporate scandals and firm value (Aouadi and Marsat, 2018), discuss how the visibility of corporate scandals affects financial risk (Kölbel et al., 2017), or provide a more general overview of different country- and firm-level drivers of corporate scandals (Dorfleitner et al., 2022).

This paper contributes to the literature in various ways. First, we question the traditional temporal direction regarding current ethical and sustainable behavior and future financial performance. We analyze corporate scandals and realized returns of a worldwide sample of roughly 10,500 public companies and find statistical evidence that excess returns, measured in alphas in terms of the classic Fama and French (2015) five-factor model, indicate future corporate scandals. Our multitude of statistical models strongly suggest a reverse impact (prior returns predicting future scandals) rather than a forward impact (prior scandals predicting future returns). To further motivate the topic, Figure 4.1 illustrates the relationship between excess returns and corporate scandals developed in this study for selected well-known examples of corporate misconduct. In all cases, the media reports and allegations of misconduct occurred before the public admission of corporate wrongdoing. If the market efficiency hypothesis also applies to scandals, it should be possible to establish a link between returns and corporate scandals. Namely, that excess returns in the form of alpha may indicate future corporate misconduct.

Most importantly, all of our findings are strictly controlled for the sustainability of the corresponding company in terms of ESG scores. In addition, we show that the environmental (E) and governance (G) components of the ESG score moderate the reverse relation between returns and scandals in a counterintuitive relation because the reverse impact only persists within well-governed firms or firms deemed environmentally friendly.

The implications of this paper are as follows: Excess returns, sustainability measured in ESG ratings, and corporate scandals interact in a counterintuitive relationship with each other. When investors, regulators, and academics alike rely solely on ESG ratings, they overlook the corporate misconduct component. Because outperformance in the past and high ESG ratings are more likely to attract investors' attention than deter it, unaware investors are more likely to engage in corporate misconduct inadvertently. This is even more problematic as corporate scandals in our sample do not have a statistically significant impact on the ability to outperform in the long run. The results also imply that while not every outperformance is related to a scandal, the connection can be used as another screening criterion for asset management in terms of corporate behavior and sustainability.

The remainder of the paper is organized as follows: In Section 4.2, we develop our theoretical reasoning. Section 4.3 describes our data and reports descriptive statistics. Section 4.4 presents our methodology. In Section 4.5, we discuss our baseline results, address potential limitations through several robustness checks, and show the economic significance of our results. Finally, in Section 4.6, we conclude the study.

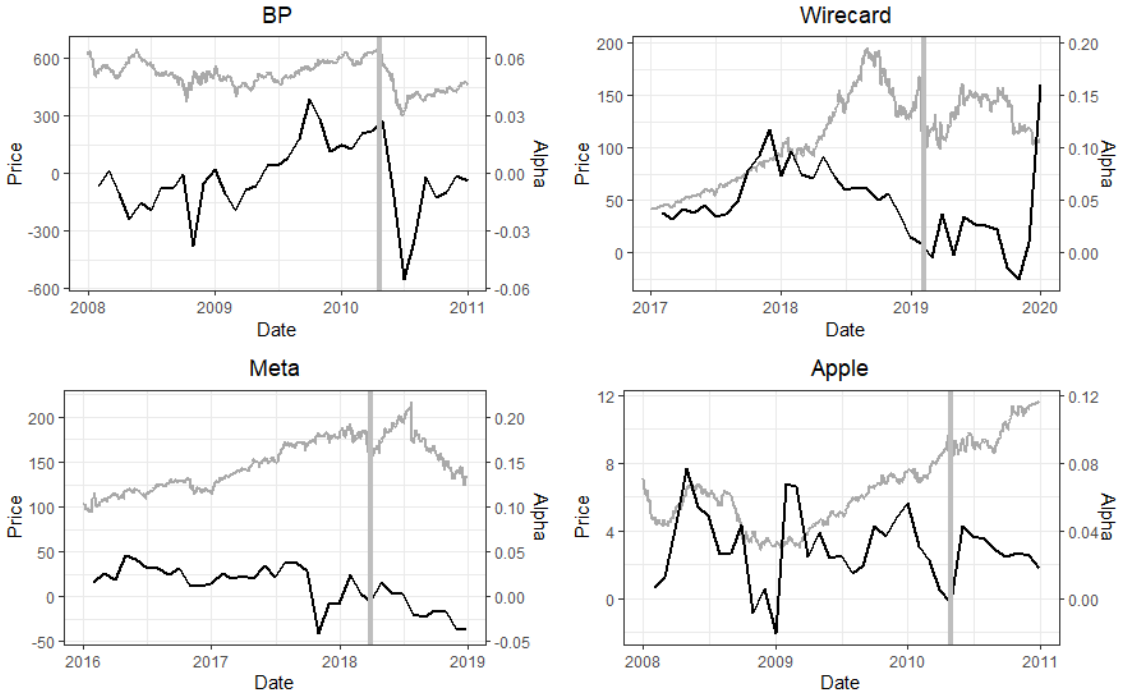

Figure 4.1: Stock prices, excess returns, and corporate scandals: anecdotal evidence.

This figure illustrates anecdotal evidence of the interaction between stock prices and monthly excess returns in the context of some well-known corporate scandals. The left y-axis is associated with stock prices, represented by the color gray, while the right axis depicts monthly excess returns, represented by the alpha of the five-factor model, in black. The chart shows major events such as the BP Deepwater Horizon disaster on April 22, 2010, the Wirecard police investigation in Singapore on February 18, 2018, the Facebook (now Meta) Cambridge Analytica scandal on March 25, 2018, and the disclosure of suicides at Apple's Foxconn factory starting in May 2010, delineated by vertical gray lines.

4.2 Theoretical Development

Unethical corporate behavior, such as cutting costs at the expense of environmental, product, or workplace safety, exploiting one's workforce through forced overtime, and even tax or accounting frauds, can lead to competitive advantages and increased returns in the short-term. Simultaneously, the disclosure of these unethical practices may have severe reputational consequences for the company and can affect short-term stock returns (Krüger, 2015).

In the sense of efficient capital markets (Fama, 1965; Fama, 1970) as well as in the sense of a Grossman and Stiglitz (1976) world, investors actively seek to obtain any relevant information and price them accordingly in their risk premia. Contrary to these efforts, companies actively try to impede the distribution of negative news and the disclosure of their own unethical behavior, which challenges the assumption of information-efficient markets (Carberry et al., 2018; Schreck and Raithel, 2018). Thus the classical cause-effect relationship of first having a public scandal and consequently dropping prices and returns

is highly questionable. This entails the question of whether the demanded risk premia or expected returns are one result (forward impact) or rather one potential predictor (reverse impact) of unethical behavior and corporate scandals. However, studies regarding the reverse mechanisms and the potential causality between past financial performance and future corporate scandals are to our best knowledge lacking in the literature.

In this paper, we explore the dynamic relation between excess returns (which come from shareholders' attempt to efficiently price risks and premia in anticipation of future behavior) and corporate scandals. By withholding negative news, companies create information asymmetries between themselves and their stakeholders, which distorts the optimal risk premium of a company. Because investors are aware of these concealment measures to some degree, they obviously seek compensation for their risks taken and demand higher risk premia. Since the standard factor models in asset pricing are not constructed to represent this possible connection, the likelihood of the occurrence of a corporate scandal should be found in the unexplained component of excess returns, if there is any relationship at all. Following the chain of thought of pricing risks within efficient capital markets, we hypothesize that excess returns are a statistical precursor of future scandals.

Hypothesis I): *The past realization of excess returns is a statistical precursor for future corporate scandals.*

4.3 Data & Summary Statistics

4.3.1 Measurement of CSR-related scandals

In line with the literature (see e.g., Dorfleitner et al., 2022; Thompson, 2005), this study defines corporate scandals as unethical corporate behavior in terms of environmental, social, or corporate governance issues that were exposed to the public.[4] Importantly, for our definition of a corporate scandal, we require both the actual unethical behavior of the company and its disclosure to the broader society because stakeholders can only react to publicly known issues (Aouadi and Marsat, 2018; Weick et al., 2005).

Since we are well aware of the current and justified criticism of the black-box nature and rewriting of past ESG ratings mentioned by Berg et al. (2020), we restrain from employing aggregated CSI scores but instead use the total numeric count of corporate scandals (*Number of Scandals*) a company is involved in a given year. Within this variable, we consider the number of publicly disclosed CSR-related scandals for 23 distinct topics, such as excessive environmental pollution, employee- or customer-related issues, or shareholder rights infringements. Using a raw count of scandals also allows us to account for the severity and magnitude of a scandal. Larger scandals usually involve different scandal topics and

[4]Note that corporate misconduct is not always an illegal action (Godfrey, 2005).

news sources, which is reflected in a higher count per year. Furthermore, most major scandals are accompanied by lengthy legal proceedings, so these scandals will continue to be considered in subsequent years, as long as they remain present in the media. Media attention and reports change investors' perception of a company and can alter the behavior of both, investors and companies, as pointed out by Gantchev et al. (2022).

Since 2002, Refinitiv captures negative CSR-related news from global media sources (such as Bloomberg, Reuters News, Financial Times, or LexisNexis), NGO websites (e.g., Amnesty International or Greenpeace), or directly from company reports, which results in one of today's largest and most transparent international CSR-related data sets (see Cheng et al., 2014a; Durand and Jacqueminet, 2015).

4.3.2 Measurement of excess returns

In order to evaluate a firm's financial performance and to determine the annualized excess return (*Alpha*), we use the five-factor model with the following equation (Fama and French, 2015):

$$R_{it} - R_{Ft} = \ a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + e_{it}$$

for a non-overlapping twelve-month return window. The intercept a_i denotes the monthly risk-adjusted outperformance of firm i, R_{it} is the individual firm return, and R_{Ft} represents the risk-free return. $R_{Mt} - R_{Ft}$ is the excess return of the market portfolio, SMB_t is the return of small stocks minus big stocks in terms of market capitalization, and HML_t is the high-minus-low factor regarding the book-to-market value. RMW_t describes the difference in returns between stocks with robust and weak profitability, while CMA_t denotes the differences in returns between high-investment companies (i.e. aggressive) and low-investment companies (i.e. conservative). The estimated regression coefficients are b_i, s_i, h_i, r_i, and c_i, whereas e_{it} denotes the zero-mean residual. If all variation in expected returns is captured by the factors, the intercept and, consequently, the risk-adjusted outperformance of the company is zero. We derive *Alpha* by annualizing the intercept a_i.

4.3.3 Further independent firm-level variables

We need to control for various firm-level variables, which may distort the relationship between financial performance and corporate scandals.

To account for the well-discussed link between CSR and financial performance (see section 4.1), we add the *ESG Score* by Refinitiv, which measures a company's environmental, social, and corporate governance performance relative to its respective peer industry group on a scale of 0 to 100. Firms with high values are considered more sustainable than those

within the same peer group with a lower score.

As larger and more visible firms tend to be exposed to greater public scrutiny (Drempetic et al., 2019; Schreck and Raithel, 2018; Fiss and Zajac, 2006), corporate scandals can be detected more easily. We account for this and include *Size*, which is the natural logarithm of total assets at the end of year t, as well as the number of analysts who provide an earnings forecast for the company (*Analyst Coverage*).

Jensen (1986) describes another important disciplining effect on corporate behavior caused by debt obligations. Companies with high leverage are monitored more closely by capital lenders (see e.g. Harris and Raviv, 1990), which, in turn, restricts the ability of companies to behave unethically. On the other hand, companies with sufficient financial resources can withstand external pressure more easily. We capture these effects with the variables *Leverage*, which depicts the ratio of total debt to total assets, and *Cash*, which is the ratio of cash and short-term investments to total assets.

Finally, we add the natural logarithm of the book-to-market value of a company i in the year t (*Book-to-Market*), as well as a standardized measure for unanticipated earnings surprises (*EPS Surprises*).

A detailed description of all variables can be found in Table A1 in the appendix. We obtain all data from Thomson Reuters Datastream. All variables (except for the *Number of Scandals* and the *ESG Score*) are winsorized at the 5% and 95% level for each industry sector and year.[5]

4.3.4 Summary Statistics

The variable of interest (i.e., the *Number of Scandals*) is available from 2002 to 2020 and includes 10,522 public companies from 67 countries. The resulting unbalanced panel data set comprises a maximum of 137,791 annual observations, although not all observations are taken into account due to missing data. Summary statistics for the full sample are displayed in Table 4.1. The mean *Number of Scandals* is 0.21, with a standard deviation of 1.42. In conjunction with a median of 0 and a skewness of -2.82, the *Number of Scandals* variable shows that most of the companies are not involved in a scandal.[6] Furthermore, in the case of *Alpha*, it should be noted that it is a global and, therefore, very large sample, containing not only traditional stocks but also many small companies for which the five-factor model does not always provide a good fit. Thus, the average is biased upward by outliers in the summary statistics, while the median shows a correct pattern. To ensure that the results are not affected by these outliers, we use several approaches to limit the high maxima in

[5] Using a 1% cut-off value is not sufficient to remove statistical outliers from small sample sizes per industry-year combination.

[6] This type of distribution, which is unfavorable for linear regression designs, is addressed in section 4.4.

excess returns. First, we utilize $Alpha^{Win}$ winsorized at stricter levels of 10% and 90%. For $Alpha^{IR}$, we remove observations of *Alpha* that exceed two times the interquartile range. Additionally, we vary the method used to derive *Alpha* and calculate $Alpha^{MM}$ as the annualized intercept in the following market model based on a non-overlapping twelve-month return window:

$$R_{it} - R_{Ft} = \ a_i + b_i(R_{Mt} - R_{Ft}) + e_{it}$$

Panel A of Table 4.2 presents the distribution of observations across industry sectors, and Panel B across continents. For the industry classification, we use the Refinitiv Business Classification. Due to the small sample size, we exclude the sector *Academic & Educational Services*.

Table 4.3 reports the correlation matrix. In line with the literature, we find a positive correlation (0.43) between *Size* and *ESG Score* (see e.g., Drempetic et al., 2019). Furthermore, the positive correlation (0.20) between the *Number of Scandals* and the *ESG Score* already hints at a possible counterintuitive relation between acting sustainable and ethical.

Table 4.1: Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
Dependent Variables								
Number of Scandals	137,791	0.21	1.42	0	0	0	0	109
Alpha	137,791	0.34	1.64	−0.98	−0.25	0.05	0.47	62.41
Alpha^{Win}	137,791	0.19	0.65	−0.75	−0.25	0.05	0.47	3.42
Alpha^{IR}	127,258	0.07	0.49	−0.98	−0.28	0.01	0.34	1.50
Alpha^{MM}	137,791	0.18	0.67	−0.91	−0.15	0.06	0.33	18.56
Further Variables								
ESG Score	73,985	41.29	20.36	0.14	24.99	39.09	56.45	95.19
Analyst Coverage	137,791	7.76	7.58	0	2	6	12	56
Size	137,791	14.46	1.92	8.16	13.15	14.46	15.76	20.12
Cash	122,963	0.16	0.17	0.00	0.04	0.10	0.22	0.97
Leverage	137,701	0.23	0.18	0.00	0.07	0.21	0.36	0.74
Book-to-Market	137,791	−0.60	0.77	−2.89	−1.10	−0.55	−0.07	3.51
EPS Surprises	94,152	0.38	2.10	−10.75	−0.74	0.23	1.31	18.31

This table reports the descriptive statistics for the full sample. The sample includes 10,522 distinct firms from 2002 to 2020. All variables (except for the *Number of Scandals* and the *ESG Score*) are winsorized at the 5% and 95% level for each industry sector and year. For robustness purposes, we apply several adjustments to *Alpha*. First, $Alpha^{Win}$ is winsorized at the 10% and 90% level. For $Alpha^{IR}$, we remove all observations that exceed twice the interquartile range, and $Alpha^{MM}$ is the annualized intercept of the market model based on a non-overlapping twelve-month return window.

4.4 Methodology

To provide a clearer picture of how the relationship between returns and scandals may look like, we employ a panel vector autoregression (PVAR) in the sense of Holtz-Eakin

Table 4.2: Sample characteristics

Panel A. Sample distribution by industry sectors.

Refinitiv Business Classification	N	Freq.
Academic & Educational Services	46	0.45%
Basic Materials	968	9.19%
Consumer Cyclicals	1,393	13.24%
Consumer Non-Cyclicals	723	6.87%
Energy	647	6.15%
Financials	1,598	15.19%
Healthcare	1,141	10.84%
Industrials	1,500	14.25%
Real Estate	749	7.12%
Technology	1,392	13.23%
Utilities	365	3.47%
Total	10,522	100%

Panel B. Sample distribution by continents.

Continent	N	Freq.
Africa	177	1.68%
Asia	2,667	25.35%
Europe	2,305	21.90%
North America	4,447	42.26%
Oceania	628	5.97%
South America	298	2.83%
Total	10,522	100%

This table reports further sample characteristics. The sample includes 10,522 distinct firms from 2002 to 2020. Panel A shows the number of companies (N) and their fraction of the total sample (Freq.) for each industry sector and Panel B for each continent.

et al. (1988) and Love and Zicchino (2006), which we consider an appropriate econometric technique to derive insights about the dynamic relation between our variables of interest and to disentangle the forward and reverse impact of excess returns and corporate scandals. Simultaneously, we acknowledge that we rely on real-world data for an exhaustive panel data set for which an experimental research design seems inappropriate, especially when we focus on the relation of complex phenomena such as corporate scandals and risk premia.[7]

[7]Nevertheless, following Kang et al. (2016), we take several steps to validate our econometric setup. First, we run an Augmented Dickey-Fuller (ADF) test (Dickey and Fuller, 1979) and a unit root test to ensure stationarity in our data set. Next, we account for the panel nature of our data and add firm- and time-fixed effects. Finally, to increase the precision of our estimates, we follow the suggestions of Blundell and Bond (1998) and use lagged values and changes in the lagged values for endogenous variables as instruments to derive insights about the forward or reverse relationship. Hence, the endogenous variables become pre-determined and are uncorrelated with the error terms (Arellano and Bond, 1991; Arellano and Bover, 1995).

Table 4.3: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Number of Scandals	1								
(2) Alpha	-0.01	1							
(3) ESG Score	0.20	-0.05	1						
(4) Analyst Coverage	0.23	-0.07	0.35	1					
(5) Size	0.22	-0.12	0.43	0.45	1				
(6) Cash	0.00	0.14	-0.13	0.01	-0.32	1			
(7) Leverage	0.00	-0.04	0.08	-0.05	0.27	-0.36	1		
(8) Book-to-Market	-0.02	0.02	0.00	-0.16	0.22	-0.24	0.12	1	
(9) EPS Surprises	0.01	-0.01	-0.01	0.01	-0.01	0.02	-0.04	-0.1	1

This table reports the correlation matrix for the full sample. The sample includes 10,522 distinct firms from 2002 to 2020.

Our PVAR model is estimated with a two-step system Generalized Method of Moments (GMM) process. In the first step, instruments are used to determine the dependent variables and derive preliminary results, which are then used in the second step to derive consistent and efficient estimators for the dynamic relationship.

Concretely, the PVAR model allows a $m \times 1$ vector of endogenous dependent variables (y_{it}) to be a function of its lagged set of values ($\sum_{l=1}^{p} \beta_l y_{i(t-l)}$), with m as the number of endogenous variables and p as the length of year lags. Thus, this method allows for a dynamic setup to explore forward and reverse impact simultaneously, which finds common application in the literature (see e.g., Shackleton et al., 2021; Kang et al., 2016; Huang et al., 2008; Grinstein and Michaely, 2005). We define the dynamic relation between the *Number of Scandals (NoS)* and *Alpha* (A) by the following PVAR specification:

$$\begin{bmatrix} NoS_{it} \\ A_{it} \end{bmatrix} = \sum_{l=1}^{p} \begin{bmatrix} \beta_{11}^{p} & \beta_{12}^{p} \\ \beta_{21}^{p} & \beta_{22}^{p} \end{bmatrix} \begin{bmatrix} NoS_{i(t-p)} \\ A_{i(t-p)} \end{bmatrix} + \begin{bmatrix} \delta^{NoS} C_{i(t-1)} + F_i^{NoS} + Y_t^{NoS} \\ \delta^{A} C_{i(t-1)} + F_i^{A} + Y_t^{A} \end{bmatrix} + \begin{bmatrix} \epsilon_{it}^{NoS} \\ \epsilon_{it}^{A} \end{bmatrix} \quad (4.1)$$

The vector of endogenous variables $y_{it} = [NoS_{it}, A_{it}]$ contains the *Number of Scandals* and the *Alpha* from the Fama and French (2015) five-factor model for firm i in time t, respectively. p represents the lag-length for the endogenous variables (in our case, we employ a lag-length of one year with $p = 1$).[8] $C_{i(t-1)}$ denotes the $(K \times 1)$ vector of one-year lagged control variables, where K is the number of control variables and $\delta = [\delta^{NoS}, \delta^{A}]$ is the $(1 \times K)$ vector of coefficients corresponding to the control variables.[9] F_i and Y_t

[8]We optimize the lag-length according to the model and moment selection criteria (MMSC) proposed by Andrews and Lu (2001). Specifically, they recommend the MMSC-BIC and MMSC-HQIC, which, in our case, supports a one-year lag.

[9]To ensure that the control variables are uncorrelated with the error term, we lag all controls by one year. Thus, we employ the set of one-year lagged control variables, which we described in section 4.3.3, i.e. ESG Score$_{t-1}$, Analyst Coverage$_{t-1}$, Size$_{t-1}$, Cash$_{t-1}$, Leverage$_{t-1}$, Book-to-Market$_{t-1}$ and EPS Surprise$_{t-1}$.

represent unobserved firm- and time-fixed effects, and ϵ_{it} depicts the error term. Note that within the coefficient matrix from equation (4.1)

$$\begin{bmatrix} \beta^p_{11} & \beta^p_{12} \\ \beta^p_{21} & \beta^p_{22} \end{bmatrix}$$

we derive insights about the forward and reverse impact between excess returns and scandals. Statistical significant values of β^p_{21} would indicate a forward impact (past scandals affect excess returns), whereas a significant β^p_{12} would argue in favor of a reverse impact (past excess returns affect scandals). If the effect would be only correlative, both parameters β^p_{21} and β^p_{12} would be statistically significant.

To account for firm-fixed effects in equation (4.1) and thus to get rid of unobserved heterogeneity, we apply the forward orthogonal deviation (Arellano and Bover, 1995; Roodman, 2009), which basically subtracts the average of available future values.[10] When compared to a first-difference approach, it minimizes data loss due to potential gaps in our unbalanced panel and is thereby less restrictive in terms of data availability.

Finally, the PVAR model is estimated with a two-step system GMM estimator. In the first step, we use lagged levels and the first-differences of regressors as instruments for our endogenous variables and to estimate the preliminary consistent estimators. In the second step, we use the variance-covariance matrix of residuals from the first step to derive the two-step consistent and efficient GMM estimators.[11]

For estimating the coefficients, we assume the following initial and standard moment conditions:

$$E(y_{i1}\epsilon_{it}) = 0 \text{ (for } i = 1, 2, .., N \text{ and } t = 2, 3, .., T)$$
$$E(y_{i(t-s)}\epsilon^*_{it}) = 0 \text{ (for } i = 1, 2, .., N;\ s \geq 1 \text{ and } t = 2, 3, .., T-1)$$

where ϵ^*_{it} is the error term after the transformation with the forward orthogonal deviation. This assumes that the lagged endogenous variables are uncorrelated with the error terms (orthogonality property). Furthermore, we follow the suggestions of Blundell and Bond (1998) and add first-differences of the endogenous variables as additional instruments (i.e. performing a *system GMM* estimation). This implies the following additional $T-2$ moment

[10] Let $z^{\perp}_{it+1}$ be the value of a variable w_{it} that was transformed with the forward orthogonal deviation, then $z^{\perp}_{it+1} \equiv c_{it}(w_{it} - \frac{1}{T_{it}} \sum_{s>t}^{T_{it}} w_{is})$, with $c_{it} = \sqrt{\frac{T_{it}}{(T_{it}+1)}}$ as a scale factor and T_{it} as the number of future observations (Arellano and Bover, 1995; Roodman, 2009; Sigmund and Ferstl, 2021). When applied to our PVAR model, the firm-fixed effects (F_i) are time-invariant and thus are accounted for within this transformation.

[11] With regards to the complex distribution of the *Number of Scandals* variable, the GMM estimator is considered an appropriate technique, as it does not require detailed a priori assumptions about the distribution of our data. We can further relax the distributional assumptions through the transformation with the forward orthogonal deviation.

conditions:

$$E[\Delta y_{i(t-1)}(\epsilon_{it} + F_i)] = 0 \text{ (for } i = 1, 2, .., N \text{ and } t = 3, 4, .., T)$$

where Δ expresses the first-difference transformation.

This leaves us with a minimum of $T \geq m + 1 = 3$ observations to estimate the PVAR model.[12] The instrument matrix $Q_i^* = \begin{bmatrix} Q_i & 0 \\ 0 & P_i \end{bmatrix}$ summarizes our employed instruments,[13]

$$\text{with } Q_i = \begin{bmatrix} q'_{i(p+1)} & 0 & 0 & ... & 0 \\ 0 & q'_{i(p+2)} & 0 & ... & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & ... & q'_{i(T-1)} \end{bmatrix}; P_i = \begin{bmatrix} 0 & \Delta y_{i2} & 0 & ... & 0 \\ 0 & 0 & \Delta y_{i3} & ... & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & ... & \Delta y_{i(T-1)} \end{bmatrix}$$

and $q'_{it} = [y_{i(t-p-1)}, y_{i(t-p-2)}, ..., y_{i1}, \Delta C'_{i(t-1)}]$.

4.5 Results

This section exhibits the central statistical results of the PVAR model and derives the generalized impulse response functions to further verify our results. Next, we employ propensity score matching to address a potential selection bias in our sample and an analysis of economic channels that moderate the dynamic relation between *Alpha* and *Number of Scandals*. A discussion on the economic significance closes the results section.

4.5.1 Baseline Results

Table 4.4 displays the results derived from the second step of our PVAR model with firm- and time-fixed effects. Consistent with our prior arguments, we find a statistical significant positive effect of the one-year lagged $Alpha_{it-1}$ on the current *Number of Scandals* NoS_{it} ($\beta_{12} = 0.0118^{***}$), which suggests that firms with higher excess returns will undergo more scandals in the future.

In contrast, the coefficient of lagged *Number of Scandals* NoS_{it-1} on the current $Alpha_{it}$ ($\beta_{21} = -0.0010$) is insignificant, which suggests that past scandals that were exposed to the public have no significant positive or negative impact on future excess returns. As mentioned in Section 4.4, correlation would be indicated by statistical significance in both directions across time. Overall, these findings support our claim of reverse impact (past

[12] For a more in-depth explanation of the system GMM estimation process and the moment conditions, see e.g., Sigmund and Ferstl (2021) and Roodman (2009).

[13] For computational reasons, we limit the number of employed lagged instruments to 10. This seems reasonable, as we do not assume any influence of instruments with a longer year lag. However, our baseline results remain the unchanged if we employ the full set of available instruments.

Table 4.4: PVAR estimation of the dynamic relation between *Alpha* and *Number of Scandals*

Alpha and *Number of Scandals*		
	NoS_{it}	$Alpha_{it}$
	(1)	(2)
$Alpha_{it-1}$	**0.0118*****	−0.0047
	(0.0030)	(0.0080)
NoS_{it-1}	0.4196***	**−0.0010**
	(0.0912)	(0.0030)
$ESG\ Score_{it-1}$	**0.0045*****	−0.0000
	(0.0010)	(0.0003)
Controls_{t-1}	Yes	Yes
Firm-fixed effects	Yes	Yes
Year-fixed effects	Yes	Yes
Observations	39,811	39,811

This table presents the results of the second step of the panel vector autoregression. The PVAR is estimated with a two-step system GMM approach. The dependent variables are the *Number of Scandals* (NoS_{it}) and the firm's excess return ($Alpha_{it}$). We use the one-year lagged control variables discussed in section 4.3.3 (ESG_{it-1}, $Size_{it-1}$, AC_{it-1}, $Cash_{it-1}$, Lev_{it-1}, $Book\text{-}to\text{-}Market_{it-1}$ and $EPS\ Surprises_{it-1}$). To account for firm-fixed effects, we use the forward orthogonal deviation (Arellano and Bover, 1995). z-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

excess returns affect scandals) instead of a forward relationship. Furthermore, we find a statistical significant positive effect of the *Number of Scandals* NoS_{it-1} on their future values NoS_{it} ($\beta_{11} = 0.4196^{***}$), indicating that a company's general tendency towards (un-)ethical behavior remains consistent over time. Finally, for the *ESG Score*, we observe only a statistical significant effect with scandals in the future. As proposed by literature, we find evidence in favor of the insurance mechanism, i.e. the negative relation between CSR and corporate scandals (see e.g., Godfrey, 2005). Furthermore, this is in favor of the *No effect by doing good* hypothesis (see e.g., Shackleton et al., 2021), although we do not claim causal relations here.

To ensure that our results are not affected by extreme values of *Alpha*, as already mentioned in Section 4.3.4, we run the PVAR again with several adjustments to the variable. The results are displayed in Table 4.5. First, in Panel A, we utilize $Alpha^{Win}$ winsorized at stricter levels of 10% and 90%. For $Alpha^{IR}$ in Panel B, we remove observations of *Alpha* that exceed two times the interquartile range. Additionally, in panel C, we vary the method used to derive *Alpha* and calculate $Alpha^{MM}$ as the annualized intercept of the market model based on a non-overlapping twelve-month return window.

Compared with our baseline results, the effect of past excess returns on future scandals (β_{12}) is more present in terms of magnitude in all three panels. The coefficients of β_{12} remain statistical significant, despite the loss of around 5,000 observations in panel B.

Table 4.5: Additional PVAR estimations of the dynamic relation between *Alpha* and *Number of Scandals*

Panel A. $Alpha^{Win}$ and *Number of Scandals*		
	NoS_{it}	$Alpha_{it}^{Win}$
	(1)	(2)
$Alpha_{it-1}^{Win}$	**0.0427*****	−0.0258***
	(0.0107)	(0.0062)
NoS_{it-1}	0.4256***	**−0.0004**
	(0.0850)	(0.0021)
$ESG\ Score_{it-1}$	**0.0042*****	−0.0002
	(0.0009)	(0.0002)
Controls_{t-1}	Yes	Yes
Firm-fixed effects	Yes	Yes
Year-fixed effects	Yes	Yes
Observations	39,811	39,811

Panel B. $Alpha^{IR}$ and *Number of Scandals*		
	NoS_{it}	$Alpha_{it}^{IR}$
	(1)	(2)
$Alpha_{it-1}^{IR}$	**0.0332****	−0.0091
	(0.0137)	(0.0064)
NoS_{it-1}	0.4003***	**−0.0007**
	(0.0702)	(0.0015)
$ESG\ Score_{it-1}$	**0.0047*****	0.0001
	(0.0008)	(0.0001)
Controls_{t-1}	Yes	Yes
Firm-fixed effects	Yes	Yes
Year-fixed effects	Yes	Yes
Observations	34,324	34,324

Panel C. $Alpha^{MM}$ and *Number of Scandals*		
	NoS_{it}	$Alpha_{it}^{MM}$
	(1)	(2)
$Alpha_{it-1}^{MM}$	**0.0281*****	−0.0043
	(0.0079)	(0.0085)
NoS_{it-1}	0.3850***	**−0.0002**
	(0.0850)	(0.0014)
$ESG\ Score_{it-1}$	**0.0049*****	−0.0001
	(0.0009)	(0.0001)
Controls_{t-1}	Yes	Yes
Firm-fixed effects	Yes	Yes
Year-fixed effects	Yes	Yes
Observations	39,811	39,811

This table presents the results of the second step of the panel vector autoregression. The PVAR is estimated with a two-step system GMM approach. In Panel A, the firm's excess return $Alpha_{it}^{Win}$ is winsorized at 10% and 90% levels. For $Alpha_{it}^{IR}$ in panel B, we exclude all *Alpha* that exceed the double interquartile range. Panel C derives $Alpha_{it}^{MM}$ as the annualized intercept based on the market model. We use the one-year lagged control variables discussed in section 4.3.3 (ESG_{it-1}, $Size_{it-1}$, AC_{it-1}, $Cash_{it-1}$, Lev_{it-1}, $Book\text{-}to\text{-}Market_{it-1}$ and $EPS\ Surprises_{it-1}$). To account for firm-fixed effects, we use the forward orthogonal deviation (Arellano and Bover, 1995). z-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

4.5.2 Generalized Impulse Response Function

Next, we determine the generalized impulse response functions (GIRF; Pesaran and Shin, 1998) with bootstrapped confidence intervals based on the results of the PVAR model in the previous section.[14] Generally, this approach describes how a one-unit shock (impulse) of one endogenous variable affects the other endogenous variable in the system over time (response). It thus allows us to derive further insights into the dynamic interplay of returns and scandals over time.

Figure 4.2 presents the GIRF for our two variables of interest (solid lines) with the bootstrapped 95% upper and lower confidence bands (dashed lines). Graph A displays the response of *Number of Scandals* to a shock in *Alpha* over a period of 5 years. In line with our claim of reverse impact, a 1% increase in *Alpha* is associated with a statistical significant increase in the *Number of Scandals* by $1,28\%$ in the first year. This effect increases to almost 2% for the second year and then slowly decreases over time. Graph B presents the response of *Alpha* to a shock in the *Number of Scandals* and we find a positive effect in the first year. However, the effect becomes insignificant within one year (i.e. the confidence brand includes the zero shortly after the first year) and eventually turns negative in the second year. Thus we do not find supporting evidence in favor of a forward impact based on the GIRF.

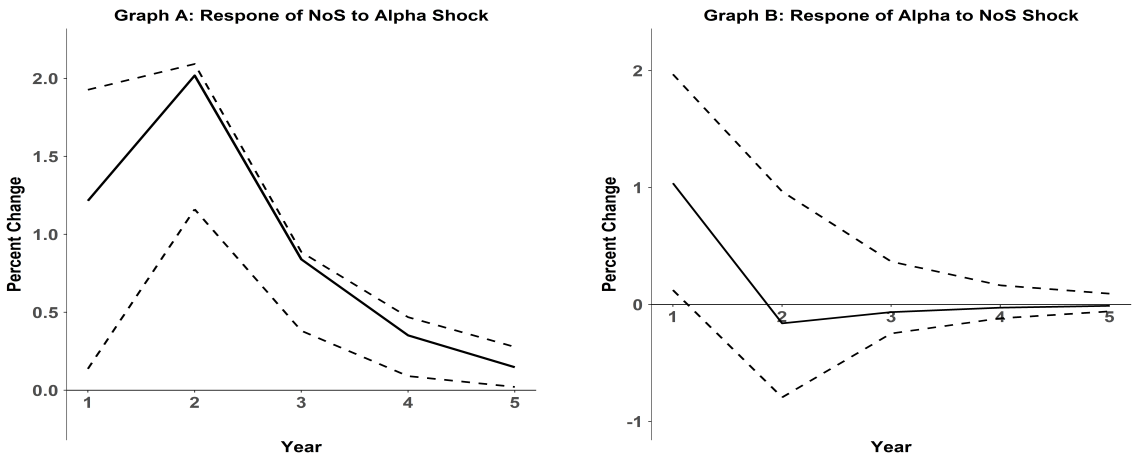

Figure 4.2: Generalized impulse response function.

This figure illustrates the generalized impulse response function (solid line) and the bootstrapped 95% upper and lower confidence bands (dotted lines) for our endogenous variables. The left graph shows the response of *Number of Scandals (NoS)* to a shock of *Alpha*, and vice-versa is displayed on the right.

[14] One important gain in using a GIRF over the orthogonal impulse response function is the fact that the GIRF is not affected by the ordering of the variables (Sigmund and Ferstl, 2021).

4.5.3 Disclosure of Scandals

Although our results support reverse instead of forward impact, we still need to address some concerns arising from our previous results that could distort our findings. One is a potential selection bias, because some unobserved factors may influence the (non-)disclosure of scandals and hence impact the dynamic interplay of our endogenous variables. Thus, we use propensity score matching (PSM) to create more balanced samples, which is a common technique to account for a potential selection bias.

For that, we define two dummy variables: (1) D_{Alpha}, which equals one if *Alpha* of a firm exceeds the mean in our sample for a given year and 0 otherwise, and (2) D_{NoS}, which equals one if a firm has at least one scandal in a given year and 0 otherwise. Then, we calculate the probability (i.e. the propensity score) for each observation to be in the treatment group (D_{Alpha} or D_{NoS} equal to 1) based on a set of covariates $X = (x_1, ..., x_k)$ for each of the two dummy variables separately. Since the potential effect is to be found in returns, it seems reasonable to use the beta coefficients derived from the Fama and French (2015) five-factor regression for the matching based on D_{Alpha} and to employ our firm controls together with the industry classification for the matching based on D_{NoS}.

For the matching approach, we follow recent literature (see e.g., Roberts and Whited, 2013; Dehejia and Wahba, 2002) and employ nearest neighbor matching (with replacement) and a logistic link to match treated and untreated observations within the same year. Finally, to determine the effect of *Alpha* on the *Number of Scandals* and vice versa, we run an OLS regression with fixed effects and firm-level clustered standard errors for both matched samples.[15]

Table 4.6 reports the results of the OLS regression for both matching approaches. Column (1) shows the regression estimations for the matched sample based on D_{Alpha}, and column (2) for the sample matched by D_{NoS}.[16] The coefficient of the dummy $D_{Alpha,t-1}$ is statistical significant and positive, whereas the coefficient on $D_{NoS,t-1}$ is insignificant. This shows that firms with an outperformance (i.e. treatment dummy $D_{Alpha} = 1$) will undergo more scandals in the future, but having a scandal (i.e treatment dummy $D_{NoS} = 1$) will not impact future excess returns. Ultimately, this again supports our claim that past excess returns affect future scandals.

[15]For industry classification, we use the Refinitiv Business Classification. Our results remain largely unchanged if we use Standard Industry Classification (SIC) codes for grouping. Furthermore, in unreported results, we include the beta coefficients (which we use to calculate the propensity score in the first place) in the OLS regression to increase the robustness of the results displayed in column (1). The results remain unchanged.

[16]The reduction in sample size in column (2) is due to the fact that the treatment variable $D_{NoS} = 1$ requires a firm to have a positive count of scandals, which is a relatively rare event (see section 4.3.4).

Table 4.6: OLS regression with fixed effects based on the matched sample

	NoS	Alpha
	(1)	(2)
Constant	-3.7412^{***}	2.6806^{***}
	(-6.4877)	(3.7210)
$D_{Alpha,t-1}$	$\mathbf{0.0627}^{***}$	
	(2.7567)	
$D_{NoS,t-1}$		**0.0035**
		(0.1511)
ESG Score$_{t-1}$	0.0051^{**}	-0.00003
	(2.3106)	(-0.0261)
Analyst Coverage$_{t-1}$	0.0017	-0.0017
	(0.2648)	(-0.7422)
Size$_{t-1}$	0.1400^{***}	-0.1313^{***}
	(3.1053)	(-2.8040)
Cash$_{t-1}$	-0.2300	0.0732
	(-0.9289)	(0.3790)
Leverage$_{t-1}$	-0.0173	0.0861
	(-0.0874)	(0.5104)
Book-to-Market$_{t-1}$	-0.0158	0.1142^{***}
	(-0.3987)	(3.2834)
EPS Surprise$_{t-1}$	-0.0033	-0.0012
	(-0.6353)	(-0.1777)
Year-fixed effects	Yes	Yes
Firm-fixed effects	Yes	Yes
Industry-fixed effects	Yes	Yes
Country-fixed effects	Yes	Yes
Observations	27,598	10,834
Adjusted R^2	0.3959	0.1537
VIF (min)	1.0180	1.0783
VIF (max)	3.4432	4.2962

This table reports the results from the OLS regression with year-, firm-, industry- and country-fixed effects based on the propensity score sampling approach with nearest neighbor matching. Column (1) shows the results for the sample when the matching is based on the D_{Alpha} variable, and column (2) for the sample matched by D_{NoS}. t-statistics are reported in parentheses and $*$, $**$, $***$ indicate a 10%, 5%, and 1% level of significance, respectively. Adjusted R^2 and the minimum and maximum variance inflation coefficients (VIF) are reported upon.

4.5.4 About the Moderating Effect of Size and CSR reputation

In this section, we expand the PVAR model presented in Section 4.4 to derive insights about potential moderating channels that affect the empirical link between *Alpha* and *Number of Scandals*.

First, drawing upon the definition of a scandal of Dorfleitner et al. (2022), we acknowledge that we require both components for a scandal to occur: unethical corporate behavior and its disclosure. Generally, the actual unethical behavior and, consequently, the dynamic relation between *Alpha* and *Number of Scandals* depends primarily on the company's orientation towards sustainable and ethical norms and values. On the one hand, companies may more likely engage in unethical behavior to enhance short-term profit and achieve the demanded returns if they are not concerned about their impact on the environment or if they do not emphasize implementing an ethical corporate governance policy. In contrast, some studies highlight the insurance-like mechanism of CSR (see e.g., Godfrey, 2005; Bhattacharya and Sen, 2004; Peloza, 2006; Gardberg and Fombrun, 2006), which protects the firm from severe consequences following a scandal. Without this disciplining mechanism, companies with high ESG ratings may be tempted to abandon ethical behavior in favor of competition-enhancing unethical practices.

Second, we acknowledge that large and small companies differ in various ways regarding their visibility, the availability of company-related information, and their ability to achieve demanded returns. Larger companies tend to be more newsworthy and are subject to intensified public scrutiny (Watts and Zimmerman, 1986; Reverte, 2009; Servaes and Tamayo, 2013) but can simultaneously use their tremendous financial resources to cover up their own unethical behavior and to hamper the disclosure of scandals. On the other hand, smaller firms are less present in the media spotlight and lack the financial resources to disguise potential unethical behavior.

We use three measures to split our sample and then estimate the PVAR model described in Section 4.4 for each subsample again, allowing us to address these potential moderating channels separately. For the *Size* channel, we split our sample in large and small firms according to the median of the *Size* variable each year.[17] Regarding the *Environmental* and *Governance* channel, we use the median of the *Environmental Score* and the *Corporate Governance Score* each year to split our sample. These scores measure a company's efforts to reduce environmental pollution, greenhouse gas emission, and resource waste, as well as the company's willingness to establish a stable CSR policy and protect shareholder rights.[18]

[17] In unreported results, we also used *Analyst Coverage* as a proxy for firm size and visibility. The results remain largely unchanged.

[18] A detailed description of these variables can be found in Table A1 in the appendix.

Table 4.7 reports the results of the second step of our PVAR model with firm- and time-fixed effects for each subsample. Columns (1) to (4) present the results for the *Size* channel. Regarding the beta coefficients for $Alpha_{t-1}$ in columns (1) and (3), we find supportive evidence for our claim that the dynamic relation between *Alpha* and *Number of Scandals* differs between large and small companies. While we find a statistical significant positive coefficient for large companies in column (1), the coefficient for small firms in column (3) is insignificant. Thus, firm size and visibility moderate the dynamic relation as large firms, in particular, show that high returns are associated with more scandals in the future.

Columns (5) to (8) and (9) to (12) of Table 4.7 present the results for the sample split according to a firm's environmental or corporate governance efforts, respectively. Consistent with the literature on the insurance-like mechanisms of CSR, we find positive and statistical significant coefficients of $Alpha_{t-1}$ for our subsamples with a high *Environmental Score* (column 5) and high *Governance Score* (column 9). In contrast, we find no statistical significant effect in the low subsamples (column 7 with a low *Environmental Score* and column 11 with a low *Governance Score*). Firms with high environmental or corporate governance scores rely on their current good reputation and may neglect ethical behavior to achieve the required financial performance.

Table 4.7: PVAR estimation of the relation between the *Number of Scandals* and *Alpha* for the economic channels

	Size				Environmental Score				Governance Score			
	High		Low		High		Low		High		Low	
	NoS_{it}	$Alpha_{it}$	NoS_{it}	$Alpha_{it}$	NoS_{it}	$Alpha_{it}$	NoS_{it}	$Alpha_{it}$	NoS_{it}	$Alpha_{it}$	NoS_{it}	$Alpha_{it}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$Alpha_{it-1}$	**0.0425****	-0.0243^{*}	**−0.0013**	−0.0071	**0.0450****	-0.0255^{*}	**0.0017**	−0.0002	**0.0303***	−0.0083	**0.0017**	−0.0386
	(0.0136)	(0.0096)	(0.0011)	(0.0096)	(0.0145)	(0.0117)	(0.0018)	(0.0101)	(0.0143)	(0.0159)	(0.0026)	(0.0281)
NoS_{it-1}	0.4294^{***}	**−0.0013**	0.1767^{***}	**−0.0436**	0.4484^{***}	**−0.0021**	0.2925^{***}	**0.0149**	0.3588^{***}	**−0.0063**	0.2382^{***}	**−0.0046**
	(0.0969)	(0.0029)	(0.0927)	(0.0782)	(0.1151)	(0.0037)	(0.0338)	(0.0184)	(0.0680)	(0.0052)	(0.0564)	(0.0170)
Controls_{t-1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	28,734	28,734	9,074	9,074	20,360	20,360	12,848	12,848	15,116	15,116	11,959	11,959

This table presents the results of the second step of the panel vector autoregression. For the dependent variables NoS_{it} and $Alpha_{it}$, we estimate the PVAR model with a two-step system GMM estimator. In Columns (1) to (4), we use the median of *Size* of each year to divide the sample into firms with high and low shareholder attention and visibility. Columns (5) to (8) display the results when the sample is divided into high and low according to the median of the *Environmental Score* each year and Columns (9) to (12) when the sample is divided according to the median of the *Governance Score*. We use the same set of one-year lagged control variables (ESG_{it-1}, $Size_{it-1}$, AC_{it-1}, $Cash_{it-1}$, Lev_{it-1}, $Book\text{-}to\text{-}Market_{it-1}$ and $EPS\,Surprises_{it-1}$) as in section 4.5.1. To account for firm-fixed effects, we use the forward orthogonal deviation (Arellano and Bover, 1995). The different sample sizes result from missing control variables and data losses due to the forward orthogonal deviation in the PVAR model. z-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

4.5.5 Economic Significance

To derive practical implications for managers, shareholders, and the broader society, we need to assess the magnitude of the relation between *Alpha* and *Number of Scandals*. Although we find supportive evidence for our theoretical reasoning through the PVAR model and the propensity score matching approach in the previous sections, we prefer to use statistical models that are more easy to interpret to assess the economic significance of our results. For that, we use the two most common methods, a simple Tobit Regression (Tobin, 1958) (because the NoS variable is left-censored at zero) as well as a Negative Binomial model (because the NoS is a count variable).

Column (1) of table 4.8 illustrates the results for the Tobit model with firm-level clustered standard errors. In terms of economic interpretation, a one-unit increase in *Alpha* equals 0.065 discovered scandals per year or a 30.95 percent increase above the mean of the full sample. Similarly, the positive statistically significant beta coefficient in the Negative Binomial Model in column (2) indicates for every unit increase in *Alpha* an increase of 0.037 in the expected log of *Number of Scandals*.

As public awareness and efforts to expose unethical behavior by rating agencies, NGOs, journalists, and investors have increased tremendously, there is an upward trend in discovering corporate scandals. Figure 4.3 highlights this trend and shows the *Number of Scandals* divided by the number of firms per industry sector over time. Assuming that companies now are not more ethical than in the past and, therefore, many scandals have been covered up in the past 18 years, the effect of outperformance and scandals is likely to be drastically underestimated. If a company's unethical behavior remains hidden, there is no measurable response to a scandal. Therefore, we recognize the potential problem of excess (false) zeros in our sample when scandals are not detected. We address this issue by using a Zero-Inflation Negative Binomial Model (ZINB) and a Hurdle Model.

The results are displayed in Table 4.8 columns (3) and (4). Consistent with our earlier results, we find a positive and statistical significant link between prior *Alpha* and future *Number of Scandals* in both models. The positive count component of the Hurdle model in column (4) indicates that, all else being equal, a one-unit increase in *Alpha* increases the *Number of Scandals* among those who have positive counts by about 0.14 per year.

4.6 Conclusion

This paper unravels the relationship between past excess returns and future scandals. It challenges the traditional notion that scandals are unpredictable and are incorporated in prices and returns only after they occur, as well as the usual temporal perspective of current ethical and sustainable behavior and future financial performance. Furthermore,

Table 4.8: Statistical analysis of the economic significance

	Number of Scandals			
	Tobit	*Negative Binomial*	*ZINB*	*Hurdle*
	(1)	(2)	(3)	(4)
Alpha_{t-1}	0.0650^{***}	0.0370^{***}	0.1115^{***}	0.1359^{***}
	(2.9790)	(5.4549)	(6.5929)	(4.9031)
ESG Score_{t-1}	0.0551^{***}	0.0179^{***}	0.0144^{***}	0.0138^{***}
	(9.7623)	(22.9874)	(16.3254)	(12.0230)
$\text{Analyst Coverage}_{t-1}$	0.0787^{***}	0.0202^{***}	0.0127^{***}	0.0116^{***}
	(4.1033)	(10.3664)	(6.6738)	(4.2832)
Size_{t-1}	2.3066^{***}	0.8307^{***}	0.7841^{***}	0.6631^{***}
	(10.2647)	(52.7100)	(44.9614)	(26.9298)
Cash_{t-1}	3.3965^{***}	1.2433^{***}	1.7742^{***}	1.7466^{***}
	(4.1334)	(11.2228)	(11.5738)	(8.5571)
Leverage_{t-1}	-0.7493	-0.1508^{*}	-0.4407^{***}	-0.1073
	(-1.6184)	(-1.7621)	(-4.0964)	(-0.7096)
$\text{Book-to-Market}_{t-1}$	0.0406	0.0125	-0.1028^{***}	-0.1006^{***}
	(0.4373)	(0.6437)	(-4.7831)	(-3.2521)
$\text{EPS Surprises}_{t-1}$	-0.0714^{***}	-0.0314^{***}	-0.0086	-0.0156
	(-2.6968)	(-4.5553)	(-0.9806)	(-1.2861)
Year-fixed effects	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes
Country-fixed Effects	Yes	Yes	No	No
Observations	46,653	46,653	46,653	46,653
Firm-clustered SE	Yes	/	/	/
Log Likelihood	−34,507.89	−29,647.89	−30,279.17	−30,037.07
AIC	69.175,78	59,453.78	59,375.27	58,857.52
BIC	69.875,82	60.153,82	60,241.57	59,723.82

This table reports the Tobit, the Negative Binomial, the Zero-Inflated Negative Binomial (ZINB), and Hurdle Model with year- and industry-fixed effects for the relation between the *Number of Scandals* and Fama and French (2015) five-factor *Alpha* for all companies. The *Number of Scandals* is the actual sum of all scandals a firm is involved in a fiscal year. Due to the possibility that a firm's unethical behavior may remain hidden, the actual sum of scandals may show excess (false) zeros. The ZINB and the Hurdle model account for this, with further diagnostic statistics omitted for presentation reasons. Column (3) presents the count coefficient for the ZINB model, and column (4) reports the coefficient of positive counts for the Hurdle model. The Log-Likelihood as well as the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) are reported upon. z-statistics are reported in parentheses and $*$, $**$, $***$ indicate a 10%, 5%, and 1% level of significance, respectively.

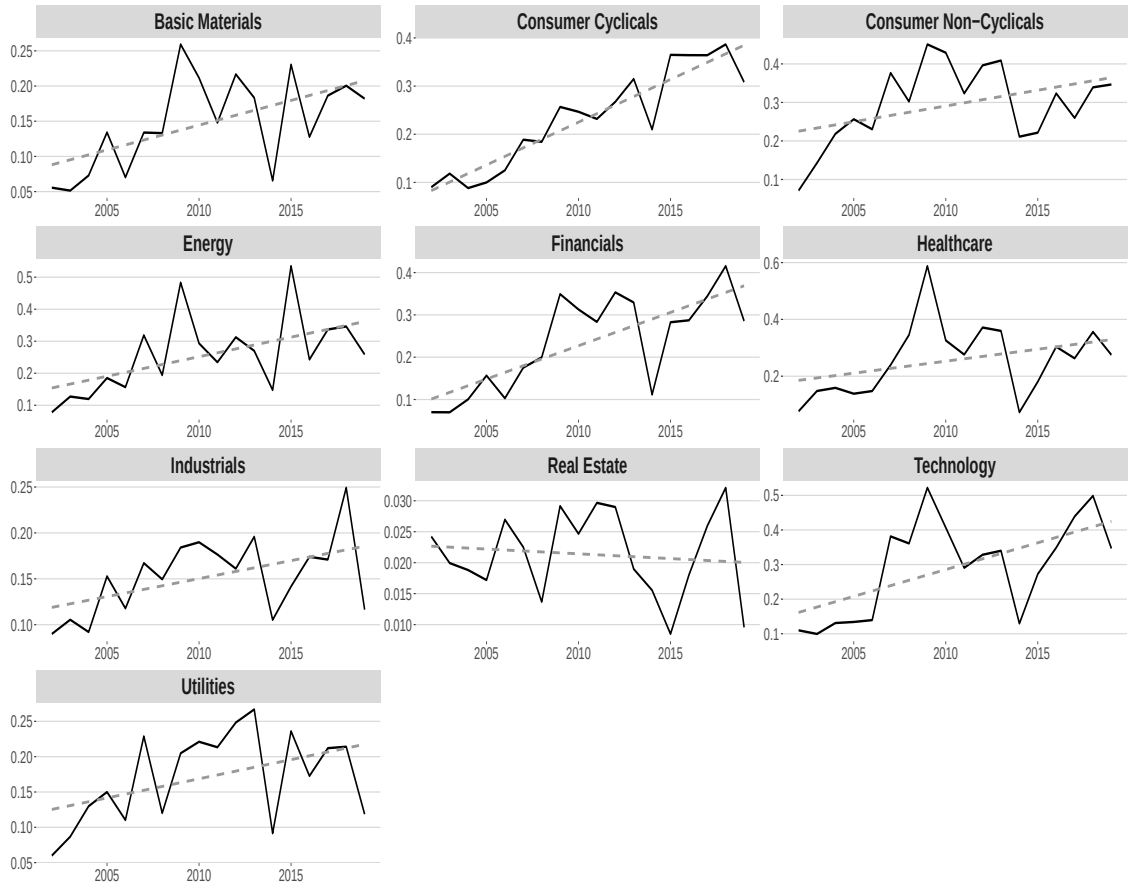

Figure 4.3: Corporate scandals across industry sectors.

This figure illustrates the *Number of Scandals* divided by the number of firms for each year and each industry sector (solid line) for 2002-2020 to account for the growing number of companies being monitored. The dashed line represents the trend line.

the results justify a separation between being good in terms of sustainability and being good or ethically correct in terms of not undergoing public scandals. Since firms cannot alter the societal perception of disclosed scandals so easily, the number of scandals used in this context is less susceptible to interpretation and measurement biases than CSR, and evades the black-box nature of ESG ratings.

This study shows from various angles and statistical methods that there is a counterintuitive relationship between excess returns, sustainability, and ethical behavior. Outperfomance within financial markets, measured in excess returns, can be used as a statistical predictor for future uncovered unethical behavior. Thereby all models show that a high sustainable reputation is an indicator of unethical behavior rather than vice versa. This goes in line with contradicting research in terms of returns and sustainability of companies.

The implications for investors, regulators, as well as academics are essential for their focus of attention: Excess returns and thereby financial outperformance serve as risk compensation

also in terms of potential corporate misconduct. Since past outperformance and high ESG ratings are important investment criteria, unaware investors are more likely to engage in corporate misconduct inadvertently. A good rating in terms of sustainability, such as the ESG rating used in this study, should by far not be the only key measure for being good in terms of correct ethical behavior, good governance, sustainability, or greenness. The results of this study also have practical implications for asset management and portfolio management. While we do not claim that every outperformance is related to a scandal, the findings can be used as a screening tool to focus investment analysis on high financial performance as well as on outstanding sustainability in terms of ratings. All participants within financial markets should face the conflicting goals of excess returns, which reflect risk compensation, and acting towards a responsible and sustainable corporate future. Today, the trade-off between profitability and correct behavior may be hidden by more or less favorable rating settings, but ethical behavior will not necessarily maximize shareholders' return in the short run.

Future research needs to focus on the identification of unethical behavior as well as a more precise and frequent measurement. Although this study is somehow flawed by the use of this kind of metric itself, it points to the apparent problems of today's financial markets, high financial performance versus ethically correct behavior, and sustainability. The wishful thinking that exaggerating returns in a broad scale can be achieved in an ethical and sustainable way is not in line with efficient capital markets and risk compensation. Therefore, investors need to prioritize what is important to them: Either excess returns, which may even be accompanied by a short-term greenness of their investments, or long-term responsible and ethical corporate behavior. Since the measurement of sustainability used in this study is inversely related to corporate scandals, something is going terribly wrong. This mismatch is probably even masked by the fact that we most likely cannot ensure that our sample covers all scandals that companies have been involved in.

Appendix

Table A1: Description of Variables

Number of Scandals	The sum of a company's actual number of scandals in a given year. This variable accounts for 23 concrete CSR-related scandal topics that occur during a company's fiscal year, such as employee diversity, product responsibility and safety, tax fraud, or environmental issues (see Refinitiv, 2022). Refinitiv collects these information from various international sources, including media sources (such as Bloomberg, Reuters News, FT, or LexisNexis), NGOs (such as Amnesty International, Human Rights Watch, or Greenpeace), and the company's own reports. To capture severity and magnitude of a scandal, a large scandal is counted multiple times if it affects different scandal topics and may also be accounted for in the following years if there are ongoing news about the scandal (for example lawsuits).
Alpha	The annualized intercept of the Fama and French (2015) five-factor model, based on a non-overlapping twelve-month return window. To ensure the robustness of our baseline results, we additionally use several versions of the variable. $Alpha^{Win}$ is winsorized at a stricter level of 10% and 90%. For $Alpha^{IR}$, we remove all observations that exceed twice the interquartile range. $Alpha^{MM}$ is the annualized intercept of the market model, based on a non-overlapping twelve-month return window.
ESG Score	The aggregated ranking of a company's environmental (E), social (S), and corporate governance (G) commitment (on a scale of 0 to 100) relative to its peer group.
Analyst Coverage	The number of analysts who provide earnings forecasts for the firm.
Size	The natural logarithm of total assets (converted to US dollar).
Cash	The ratio of cash and short-term investments to total assets.
Leverage	The ratio of (long- and short-term) debt to total assets.
Book-to-Market	The natural logarithm of the book-to-market ratio of common stock.
EPS Surprises	The difference between the actual (reported) earnings and the Refinitiv Surprise mean estimates, divided by the standard deviation of the Refinitiv Surprise mean estimates.
Environmental Score	A ranking of a company's environmental (E) commitment (on a scale of 0 to 100) relative to its peer group. It measures various ecological aspects, such as resource use, greenhouse gas emission, and ecological innovations.
Governance Score	A ranking of a company's corporate governance (G) commitment (on a scale of 0 to 100) relative to its peer group. It accounts for CSR policies and reporting, shareholder rights, management compensation and board structure.

This table presents a detailed explanation of our employed variables. All variables are obtained from Thomson Reuters Datastream.

Chapter 5

The Corporate Payout Puzzle: About the Payout Policy between CSR and CSI

This research project is joint work with Ralf Laschinger (University of Regensburg).

Abstract An international sample with 7,260 firms from 2003 to 2021 offers new insights relating corporate social responsibility (CSR) and irresponsibility (CSI) to corporate payout. We provide robust evidence that firms with high CSR performance pay higher dividends, while irresponsible firms (i.e., firms with CSR-related scandals) reduce their payout and prefer to cut stock repurchases rather than dividends. Moreover, a pair-matched sample shows that irresponsible firms take more time to announce the next repurchase. Overall, our results provide further challenging implications for the equity market timing hypothesis and suggest that corporate payout serves to control agency problems of CSR.

Keywords payout policy, dividends, share repurchases, corporate scandals, corporate social responsibility, ESG, agency theory, market timing

JEL G35, M14

5.1 Introduction

The payout policy of firms is one of the most important interactions between executives and shareholders. Despite there have been more than 50 years since the groundbreaking work of Lintner (1956) or Miller and Modigliani (1961), a firm's payout policy remains one of the major questions in corporate finance literature (see e.g., Guttman et al., 2010; Deshmukh et al., 2013; Cejnek et al., 2021; Faulkner and García-Feijóo, 2022). Simultaneously, an extensive set of literature dedicated to corporate social responsibility (CSR) and irresponsibility (CSI) emerged in response to the growing societal interest and the future challenges of a sustainable society. However, little attention has been paid to the interaction of these two trends, although CSR and CSI can have far-reaching implications on a firm's ability to distribute financial resources via payout. In light of this academic void and following the surge in popularity of CSR and CSI, this paper extends the understanding of corporate payout policies and examines the link between corporate social (ir-)responsibility and a firm's payout channels.

By drawing upon the prevailing theories within the literature on corporate payout, we provide new insights into how CSR and CSI might impact the firm's decision in determining the proper payout channel and the adequate amount of cash to distribute. Our results show robust statistical evidence for a negative relation between CSI and a firm's dividend payout and stock repurchases. To further test this relation, we use a hand-collected data set and propensity score matching to implement a time-to-event analysis. For a sample of pair-matched firms, we find robust evidence that being involved in a scandal is positively related to the number of days until the announcement of a stock repurchase. These results contrast with the equity market timing theory, as managers could miss the opportunity to buy back stocks at a relatively low price after a corporate scandal became public. Instead, in line with the precautionary cash holding theory, companies temporally reduce their payout activities in the aftermath of a scandal and may prefer to retain their cash flows to secure future investments. In addition, our results show that firms with high CSR ratings are more likely to pay dividends and distribute more financial resources via their payout channels.[1] Consistent with the agency problem of free cash flow, this supports the view that corporate payout policy helps to constrain managers' opportunistic incentives to extract non-financial rents through overinvestments in CSR.

Since Miller and Modigliani (1961), a vast majority of theoretical and empirical literature examines corporate payout policies. While a firm's payout policy often focuses on maximizing shareholder welfare, companies increasingly consider objectives beyond profit

[1]We acknowledge the justified criticism regarding the black-box nature and rewriting of CSR ratings (see e.g., Berg et al., 2020). However, these concerns arise primarily in the context of portfolio construction and stock selection based on cut-off values or percentiles of CSR ratings. Since none of these applications are used in this study, we are not affected by selection bias in this respect.

maximization, such as investments in environment-friendly production and supply chains, sound diversity policy, fair working conditions, and even charitable donations to local communities. These business activities, which are often summarized as corporate social responsibility (CSR), seek to enhance other stakeholders' welfare (Liang and Renneboog, 2017) and represent a firm's voluntary efforts beyond legal and regulatory requirements (see e.g., McWilliams and Siegel, 2001) to address the externalities it causes during its endeavor for profit maximization (Tirole, 2001). Some authors assert that CSR has to be accompanied by a tradeoff between shareholder value maximization and stakeholder welfare orientation (see e.g., Bénabou and Tirole, 2010; Masulis and Reza, 2015), while others postulate the coexistence or even compatibility of these two concepts (see e.g., Liang and Renneboog, 2017; Ferrell et al., 2016; Edmans, 2011).

Still, unethical business practices, such as excessive environmental pollution, poor working conditions, bribery, or accounting fraud, have not simply vanished and are still lacking academic and societal attention. Corporate social irresponsibility (CSI), which is defined as unethical corporate behavior (and its measurement as a publicly disclosed corporate scandal), contrasts a firm's stakeholder welfare orientation but is not mutually exclusive to CSR (Aouadi and Marsat, 2018). Companies may be publicly perceived as sustainable but can simultaneously be involved in scandals.[2] Therefore, researchers need to consider CSR and CSI as two separate concepts (Ioannou and Serafeim, 2015; Bear et al., 2010). Motivated by the insurance-like protection derived from a high CSR reputation (see e.g., Godfrey, 2005; Bénabou and Tirole, 2010), these firms may feel less pressure to behave ethically because they face fewer sanctions for unethical business practices (Dorfleitner et al., 2022). On the other hand, firms may use CSR in the aftermath of a scandal to regain public trust or to distract public attention and obscure other unethical practices.

Despite the rich literature on corporate payout, research on the relationship between CSR and CSI with the firm's payout policy is still rare. Sung et al. (2006) examine how changes in dividends following a corporate scandal impact abnormal returns. By applying an event study methodology to 22 corporate scandals, they find that investors reward firms that increase payout after they have been involved in a scandal. Benlemlih (2019) show that US firms with high CSR ratings pay more dividends, and their dividend payments are more stable over time. For a sample of US firms, Cheung et al. (2018) conclude that the propensity to pay dividends is not directly affected by the level of CSR but that CSR influences the amount of dividends paid. Samet and Jarboui (2017) examine how CSR is linked to dividends and stock repurchases within the European market. For companies listed in the EUROSTOXX 600, the authors find that firms with high CSR performance tend to prefer repurchases over dividend payments.

[2]Section 5.3.4 discusses the correlation between CSR and CSI and provides anecdotal evidence of well-known corporate scandals to support this reasoning.

We contribute to the existing literature in various ways. First, by examining the relation of CSR with a firm's payout policy, we advance the understanding of the compatibility between the maximization of shareholder value and a stakeholder welfare orientation and provide insights into how companies can use their payout channels to align shareholders' financial and non-financial interests. In addition, to the best of our knowledge, literature on the link between CSI with corporate payout is still completely missing. Corporate scandals can have far-reaching effects on the firm and substantially impact the company's payout decisions, because firms may take advantage of the market's overreaction to the scandal and buy back shares at a relatively low price. Simultaneously, scandals usually affect stakeholders' perception of the firm (Grappi et al., 2013). Customers may boycott the firm's products, and investors or capital lenders may refrain from supplying the firm with additional capital, limiting the company's financial resources available for payout. Our paper fills this academic gap as we examine how patterns of irresponsible corporate behavior are linked to the firm's payout decisions. Moreover, we complement prior literature and do not rely on a single payout channel or financial market. Instead, we examine both instruments (dividend payment and stock repurchases) in the context of CSR and CSI simultaneously within an international sample over an extensive period from 2003 to 2021. In addition to the financial resources spent on dividends or repurchases, we also explore the linkage of CSR and CSI with the propensity to pay dividends (i.e., payer/non-payer) and to repurchase stocks (repurchaser/non-repurchaser). Finally, we employ two empirical tests to ensure robustness of our results.

The paper proceeds as follows: In section 5.2, we provide a short overview of existing literature on corporate payout and develop our theoretical reasoning on how CSR and CSI might be linked with corporate payout decisions. Section 5.3 describes our data and reports descriptive statistics. Section 5.4 discusses our results, addresses potential limitations by using alternative measures for CSR and CSI, and implements two empirical tests to further verify our results. Finally, section 5.5 concludes the study.

5.2 Literature Overview & Theoretical Development

5.2.1 Literature Overview

The predominant stream within the literature on corporate payout seeks to identify different drivers of dividend payouts (see e.g., La Porta et al., 2000; Fama and French, 2001; Baker and Wurgler, 2004; DeAngelo et al., 2006; Denis and Osobov, 2008; Von Eije and Megginson, 2008), or focuses on the stickiness and smoothing of dividends over time (see e.g., Lintner, 1956; Guttman et al., 2010; Lambrecht and Myers, 2012; Leary and Michaely, 2011; Larkin et al., 2017; Brockman et al., 2022). Other studies discuss the recent shift in corporate payout policies from dividends to repurchases as the preferred form of payout (see e.g.,

Jagannathan et al., 2000; Fama and French, 2001; Grullon and Michaely, 2002; Skinner, 2008; Von Eije and Megginson, 2008), although dividends remain an essential proportion of the total payout (Renneboog and Trojanowski, 2011). Another strand of literature (see e.g., Dittmar and Field, 2015; Ben-Rephael et al., 2014; Ikenberry et al., 2000; Peyer and Vermaelen, 2009) investigates a firm's preference for stock repurchases in the context of equity market timing (i.e., a well-timed stock repurchase) or how equity market timing impacts shareholder value (Babenko et al., 2020). Brav et al. (2005) and Graham and Harvey (2001) use survey evidence to conduct insights into the managerial motives for stock repurchases. Von Eije and Megginson (2008) highlight the relation of various firm characteristics with stock repurchases. De Cesari and Ozkan (2015), Ferri and Li (2020), and Faulkner and García-Feijóo (2022) examine how executive payment incentives or a CEO's past corporate experience impacts the decision-making process in corporate payout policies. Farre-Mensa et al. (2021) provide empirical evidence that US firms often fund their payout with the issuance of new capital during the same year. Massa et al. (2007) show that companies are pressured to mimic the repurchase behavior of their competitors within the same industry. Finally, a strand of literature emerged that studies payout policy during extreme economic turmoils, such as the 2008/09 financial crisis (Bliss et al., 2015) or the COVID-19 pandemic (Cejnek et al., 2021; Ntantamis and Zhou, 2022).

5.2.2 Payout policy in the context of CSR

This section draws upon two major theoretical branches, agency theory and signaling theory, to discuss potential relations between CSR and a company's payout policy.

First, following the *agency theory* of Jensen (1986), firms with abundant financial resources may face severe agency problems (Servaes and Tamayo, 2014). These problems can manifest themselves in the form of managerial decisions driven by the incentive to divert free financial resources to their own advantage (Stulz, 1990; La Porta et al., 2000; Ferrell et al., 2016) rather than following the objective to maximize shareholder value. In anticipation of managerial opportunism, shareholders demand dividends, or the firm will use stock repurchase programs as a disciplinary mechanism (Easterbrook, 1984; De Cesari and Ozkan, 2015) to restrict agency conflicts (DeAngelo et al., 2006; Lambrecht and Myers, 2012; Farre-Mensa et al., 2014).[3]

In the context of CSR, Barnea and Rubin (2010) and Brown et al. (2006) argue that managers who invest in CSR establish a personal ethical reputation from which they can derive private benefits, such as building a network, receiving gifts, or entrenching

[3]DeAngelo et al. (2006) highlight the importance of distributing free cash flows to prevent agency problems. They show that if well-established firms had retained their free cash flows over a long period, they would have an enormous cash balance and be almost entirely independent from external financing. Consequently, the capital market would lose its ability to monitor managers' behavior, and paying dividends or repurchasing stocks is an important mechanism to limit managerial opportunism.

themselves within the firm. Managers may be tempted to invest in CSR beyond an optimal level, after which the investment does not generate any additional direct value for the firm (Godfrey, 2005; Ye and Zhang, 2011) but for the managers personally.[4] Thus, several researchers assert that overinvestments in CSR illustrate a manifestation of managerial agency problems and empire-building (Bénabou and Tirole, 2010; Krüger, 2015; Cheng et al., 2014b) and that these CSR activities represent a non-financial and more subtle form of managerial rent extraction at the expense of shareholder value (Masulis and Reza, 2015).

Again, in anticipation of managers' incentives to overinvest in CSR, companies with already good CSR reputation can use dividend payout or stock repurchases to reduce agency problems and to better align the interests of shareholders and stakeholders. Consequently, we would expect a positive relationship between CSR and the firm's payout.

The second view draws upon arguments of the *signaling theory* (Bhattacharya, 1979; Miller and Rock, 1985; John and Williams, 1985). In general, there are information asymmetries between managers and external stakeholders because managers have private information about the current and future cash flows of the firm. According to the signaling theory, firms can use dividend payouts or stock repurchases to reduce information asymmetries and directly signal private information and thereby the "true" value of the company to the market (see e.g., DeAngelo et al., 2006, Lambrecht and Myers, 2012, Guttman et al., 2010). Consequently, managers are more likely to increase dividend payout or to initiate stock repurchases when the opinions of the capital market and managers diverge on the true value of the company (Lie, 2005).

However, instead of increasing dividends or initiating repurchases, firms can use other instruments to credibly disclose (private) CSR-related information and reduce information asymmetries about how the company will deal with future CSR-related challenges. Companies with superior CSR performance often use extensive sustainability reports or CSR ratings to transparently disclose information about their alignment with sustainable goals (see e.g., Dhaliwal et al., 2011; Cheng et al., 2014a). It follows that firms with good CSR ratings would benefit less from the signaling mechanism of payout. In turn, if a firm uses its payout channels primarily to signal information, we would expect firms with low CSR ratings to pay more dividends or increase their stock repurchases.

5.2.3 On the link between CSI and corporate payout

Similar to the previous section, we employ two prevalent theories (market timing hypothesis and precautionary cash holding theory) to explore the link between CSI and corporate

[4] Bénabou and Tirole (2010) describes these agency problems as a zero-sum game in which if everybody engages in CSR, no one is rewarded for it. Because a manager's ability to achieve private benefits also depends on the level of CSR commitment from his surrounding, managers have further incentives to overinvest.

payout.

First, following the *market timing hypothesis*, firms are expected to choose the optimal timing for their stock repurchase. Brav et al. (2005) and Graham and Harvey (2001) emphasize the importance of undervaluation due to information asymmetries as a key consideration in the process of stock repurchases. Managers use this pricing uncertainty and buy back shares at a relatively low price (see e.g, Peyer and Vermaelen, 2009; Baker et al., 2002; Ikenberry et al., 2000; Brav et al., 2005; Ben-Rephael et al., 2014; Jagannathan et al., 2000). Simultaneously this signals the "true" value of the company to the market.[5]

While CSR ratings help reduce information asymmetries, corporate scandals, on the other hand, create uncertainties about the consequences of the scandal and the company's ethical orientation and future value (see e.g., Bowen et al., 2008; Dhaliwal et al., 2011; El Ghoul et al., 2011; Robinson et al., 2011; Goss and Roberts, 2011; Sharfman and Fernando, 2008; Ye and Zhang, 2011). When share prices have fallen due to a scandal and managers disagree with the market's pricing of information surrounding the scandal, they may take advantage of this pricing uncertainty and repurchase their shares. Thus, following the market timing hypothesis, managers are more likely to repurchase stocks after a scandal.

In contrast, the second view builds upon the assumption that the decision to pay dividends or to initiate stock repurchases also depends on the availability of sufficient free cash flows. Brav et al. (2005) highlight, that managers set investment policies before payout decisions. So after a company has financed all net present value positive investments, they can distribute their financial slack via dividends or stock repurchases (Dittmar and Dittmar, 2008; Skinner, 2008). Nevertheless, firms may face various types of market frictions that limit their access to capital markets and their ability to finance all profitable and desired investments (i.e., the firm is financially constraint).[6] It follows that financially constrained firms prefer to use internal funds to finance their investments and in this case, the company most likely lacks further financial resources for payout (Bliss et al., 2015).

Within this view, corporate scandals are associated with an increase in uncertainty that can impose these market frictions onto the firm and hamper the ability to gain external

[5]One might argue that managers can signal their material, nonpublic information with the *announcement* of a stock repurchase. However, there are two essential prerequisites for this mechanism: (1) the assurance of the credibility of the signal and (2) a mechanism to eliminate incentives for false signaling (for example, costs for false signaling). While the timing of share repurchase announcements can be chosen flexibly and thus are generally considered credible, the sole announcement does not obligate the firm to repurchase shares (Lie, 2005). In the absence of costs for false signaling, share repurchase announcements fail the second requirement, which is in line with the findings of Grullon and Michaely (2004). Investors are generally more concerned about a firm's commitment to the repurchase (Bonaimé et al., 2020) and thus, we mainly focus on the actual stock repurchase instead of the announcement thereof.

[6]These market frictions may include, for example, a high dependency on bank loans, the inability to issue new equity, or restrictive debt covenants that prevent the firm from borrowing new debt (see e.g., Lamont et al., 2001; Cheng et al., 2014a). For a more in-depth definition and discussion of financial constraints, see, for example, Farre-Mensa and Ljungqvist, 2016.

financing in the future. In line with our reasoning, Goss and Roberts (2011) show that social irresponsible firms pay between 7 to 18 basis points more for bank loans. Besides the impaired access to external financing, customers may respond to the scandal with a boycott of the firm's products, further reducing free cash flow.

Based on the precautionary cash holding theory, firms anticipating an increase in these frictions will hoard cash as a buffer to deal with adverse shocks when external financing is costly (see e.g., Bates et al., 2009; Han and Qiu, 2007; Almeida et al., 2004; Bolton et al., 2013; Leary and Michaely, 2011).[7] Following this argumentation, firms will be reluctant to distribute their financial slack through dividends or stock repurchases in the aftermath of a scandal, and we would expect a negative relationship between CSI and corporate payout.[8]

5.3 Data & Summary Statistics

We obtain our data from mainly two sources. Financial statement data come from Compustat, with missing values for non-US firms filled with corresponding data from Thomson Reuters Datastream. CSR- and CSI-related data are drawn from Refinitiv. Share prices for US firms are derived from CRSP and for non-US firms from Thomson Reuters Datastream. In the following, we provide a brief overview of our variables, but a more detailed description can be found in table A.1 in the appendix.

5.3.1 Dependent variables

While dividends have received considerable attention in early academic discussions, stock repurchases have recently seen a sharp increase in popularity (Jagannathan et al., 2000; Fama and French, 2001; Grullon and Michaely, 2002; Brav et al., 2005; Skinner, 2008). These two payout channels are not used interchangeably or as substitutes (De Cesari and Ozkan, 2015) but serve as complementary forms of payout (Jagannathan et al., 2000; Grullon and Michaely, 2002). Firms deliberately decide on the right payout channel for their current situation. Since Lintner (1956), dividends are expected to grow smoothly over time and are generally viewed as a permanent and binding commitment. Hence, managers are reluctant to cut or forgo dividends altogether (Brav et al., 2005). Stock repurchases, however, are used as a flexible mechanism to distribute surplus of cash without any obligation to repeat (see e.g., Jagannathan et al., 2000; Guay and Harford, 2000;

[7]This reasoning is consistent with Bliss et al. (2015). They show that firms reduce their payout in response to an increase in external financing costs and a sharp rise in overall uncertainty during the 2008/09 financial crisis. Within our setting, a corporate scandal causes uncertainty and can be seen as a negative shock to the availability of the firm's financing options, but instead of affecting the entire financial market (as in the case of the financial crisis), this effect is specific to the firm involved in the scandal.

[8]Note that cash hoarding after a scandal may be imposed on the company externally by governments, institutions, regulators, or courts and is not necessarily the company's own decision. Nevertheless, our argument remains unchanged because it is unaffected by the motivation for these cash savings.

Grullon and Michaely, 2002; Brav et al., 2005; Von Eije and Megginson, 2008). A reduction in stock repurchases conveys different information than a change in dividends (Guttman et al., 2010) and firms are often expected to time their repurchases (Brav et al., 2005; Graham and Harvey, 2001), whereas dividend payments are expected to occur on a regular basis.

As a measure for the dividend channel, we follow literature (see e.g., Fenn and Liang, 2001; Denis and Osobov, 2008; Brav et al., 2005; Deshmukh et al., 2013) and use cash dividends on common stocks. We define Div as the logarithm of 1 plus cash dividends on common stocks. Moreover, following Von Eije and Megginson (2008), Bhattacharya and Jacobsen (2016) and Denis and Osobov (2008), we use a dummy variable D_{Div} to capture a firm's propensity to pay dividends, which equals one if the firm pays out cash dividends on common stocks (i.e., the firm is considered a dividend payer) and zero otherwise (i.e., non-payer).[9]

Similarly, we employ a variable for the total amount of cash spent on stock repurchases (Rep), which is the logarithm of 1 plus the expenditures on the purchase of common and preferred stocks minus the change (first difference) in preferred stock reduction (Hong et al., 2012). In addition, following De Cesari and Ozkan (2015), we also include a dummy variable D_{Rep}, with a value set to one if the company has repurchased stocks in a given year (i.e., $Rep > 0$) and zero otherwise.

5.3.2 Measurement of CSR and CSI

We use Refinitiv's *ESG Score (ESG)* to quantify a firm's CSR performance. This score assesses the company's environmental, social and corporate governance performance relative to the firm's industry peer group and assigns the company a score between 0 and 100. High values of the *ESG Score* indicate a superior corporate social performance relative to the firm's peer group.

Following Dorfleitner et al. (2022), we measure CSI as publicly disclosed unethical corporate behavior (i.e., corporate scandals) regarding environmental, social, or corporate governance issues with the so-called Refinitiv *Controversies Score (CS)*.[10] Refinitiv captures publicly disclosed news about unethical business practices within 23 concrete CSR-related topics from various sources such as NGOs, global media, or company reports. These topics include, for example, child labor, excessive pollution, data privacy issues, bribery, and tax fraud. Refintiv assigns the company a value between 0 and 100, based on the total amount of scandals a company is involved in a fiscal year relative to its peer industry group. Larger

[9] Our results remain unchanged if we employ the total amount of dividends paid (common plus preferred dividends) for Div and D_{Div}.

[10] Note that a scandal is not always an illegal action (Godfrey, 2005) and that we require both the unethical behavior as well as its disclosure, as stakeholders can only act on publicly known information.

scandals often affect multiple topics, and if the company is, for example, involved in an ongoing lawsuit, the scandal is accounted for over multiple years. Thus, the score allows for differentiation of the severity and magnitude of scandals. Generally, if a company is involved in a scandal, the score decreases. However, to allow an intuitive interpretation so that high values indicate more corporate scandals, we rescale the score as follows: 100 minus *Controversies Score*. Throughout the rest of the paper, we refer to the rescaled version of the score. To ensure robust results, we employ an alternative measure of CSI in section 5.4.3.

As mentioned earlier, we are aware of the criticism regarding ESG ratings. We discuss these concerns and will alleviate some of these issues in section 5.4.3. Furthermore, Refinitiv's *ESG Score* and *Controversies Score* find numerous applications in scientific publications (see e.g., Ioannou and Serafeim, 2012; Liang and Renneboog, 2017; Aouadi and Marsat, 2018; Cao et al., 2019; Dyck et al., 2019; Flammer, 2021; Dai et al., 2021; Dorfleitner et al., 2022) and are considered to be one of the most extensive and transparent CSR- and CSI-related datasets (see Cheng et al., 2014a; Durand and Jacqueminet, 2015).

5.3.3 Further independent firm-level variables

In light of the rich literature on corporate payout, we need to control for various firm-level determinants linked to a firm's payout decision.

According to the life-cycle theory (see e.g., DeAngelo et al., 2006; Denis and Osobov, 2008; Fama and French, 2001; Mueller, 1972), a firm's payout policy changes over different life-cycle stages. Compared with mature companies, early-stage firms are more likely to face financial constraints and generally have more growth opportunities. This reduces the amount of available free cash flows and thus restricts the ability of young firms to pay dividends or repurchase stocks. As firms mature, they achieve more stable cash flows and can more easily access external financing at lower costs to finance their investments. It follows that the agency costs of cash retention increase (Denis and Osobov, 2008; DeAngelo et al., 2006), and consequently, these firms have more incentives as well as more spare resources for payout (Fenn and Liang, 2001; Benlemlih, 2019; De Cesari and Ozkan, 2015). In line with the literature, we account for this and add a *Size* variable (the logarithm of one plus total assets). As an additional proxy for a firm's life cycle, we include the variable *Retained Earnings (RE)*, defined as the ratio of payout-adjusted retained earnings to the book value of equity.[11] High *Retained Earnings* are associated with companies in the later stages of the life cycle because these firms are more likely able to self-finance most of their investments and thus are expected to have a higher payout (DeAngelo et al.,

[11]We find similar results if we define *RE* as the ratio of payout-adjusted retained earnings to total assets. Note that the coefficients of *RE* in the OLS regression on *Rep* become positive and statistically significant, further supporting the life-cycle theory.

2006; De Cesari and Ozkan, 2015; Denis and Osobov, 2008).

Firms may value the signaling mechanisms through dividend payment or stock repurchase more if external stakeholders have little information about the company (DeAngelo et al., 2006). We cover aspects of firm visibility within the variable *Analyst Coverage (AC)*, which is the logarithm of 1 plus the number of analysts providing earnings forecasts for the firm.[12] These analysts help to reduce information asymmetries about the firm's financial performance (El Ghoul et al., 2011) and consequently reduce the reliance on signaling mechanisms.

Next, we include the variables *Leverage* (Lev), which is the ratio of total long-term debt to total assets and *Cash*, defined as the ratio of cash and short-term investments to total assets. Following the agency problem of free cash flow, high levels of *Cash* are indicative of managerial opportunism and firms can use dividend payouts and stock repurchases to limit these agency conflicts (De Cesari and Ozkan, 2015; Benlemlih, 2019). In comparison, debt holders scrutinize and monitor highly levered firms and thus already restrict managerial opportunism, which reduces the need to use payout policy in controlling agency problems (Easterbrook, 1984; Renneboog and Trojanowski, 2011; Von Eije and Megginson, 2008; De Cesari and Ozkan, 2015). In addition, we account for the phenomenon of "financed payouts" (Farre-Mensa et al., 2021), i.e. that a substantial amount of firms finance their payout with an increase in debt.[13] However, firms with high leverage may also face certain financial constraints, such as restrictive debt covenants, which may limit the company's freedom to pay dividends or restrains the repurchase of shares (Renneboog and Trojanowski, 2011; Von Eije and Megginson, 2008; Fenn and Liang, 2001).

We account for growth opportunities within the variable *Market-to-Book (MTB)*, which is the logarithm of 1 plus the market value of a firm's equity divided by the book value of equity. Firms with fewer available investment opportunities are more likely to use free cash flows for dividends or stock repurchases (De Cesari and Ozkan, 2015; Kahle, 2002; Benlemlih, 2019).

Finally, as firms with high profitability earn higher free cash flows and can distribute them more freely (De Cesari and Ozkan, 2015; Benlemlih, 2019), one might argue that CSR and CSI affect corporate payout decisions through their (positive or negative) impact on a firm's profitability. Consequently, we need to decouple CSR and CSI from a firm's profitability, which enables a more unbiased examination of our underlying theories discussed earlier. For that, we control for the company's profitability within the variable *Return on Assets (ROA)*, defined as the ratio of operating income before depreciation to total assets.

[12] In line with Blankespoor et al. (2014) and Bhattacharya and Jacobsen (2016), we set missing values for *Analyst Coverage* to 0.

[13] Farre-Mensa et al. (2021) estimate that for US firms from 1989 to 2019, 41% of aggregate net debt proceeds are used to finance dividends and share repurchases within the same year the new debt was raised.

5.3.4 Summary Statistics

All currency-dependent variables are converted to US Dollars with the mean of monthly spot exchange rates within the corresponding year.[14] We winsorize all variables (except for our measures for CSR and CSI) on the 1 percent and 99 percent level. Furthermore, in accordance with the literature (see e.g. Whited and Wu, 2006; Farre-Mensa and Ljungqvist, 2016; Heider and Ljungqvist, 2015; Denis and Osobov, 2008; Fama and French, 2001), we exclude all utility firms (SIC code between 4900 and 4999) and financial firms (SIC code between 6000 and 6999) since there may be external regulatory rules that restrict their payout policies (De Cesari and Ozkan, 2015). We also remove all firm-year observations with missing values or with negative *Size*.

Our final sample consists of 47,867 firm-year observations with 7,260 distinct publicly listed firms across 77 countries from 2003 to 2021. The sample size increases over time because Refinitiv expands its rating universe. Table 5.1 displays the number of firms per year in our sample. The sample distribution across 2-digit SIC industry sectors and continents is presented in table 5.2. Table A.2 in the appendix presents the number of firms per country.

Table 5.1: Number of firm observations per year.

$Year$	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
N	564	566	1,054	1,298	1,309	1,453	1,676	1,994	2,409	2,507
$Year$	2013	2014	2015	2016	2017	2018	2019	2020	2021	
N	2,592	2,661	2,674	3,166	3,681	4,371	4,829	5,410	3,653	

This table reports the number of firms per year in our data set.

Table 5.3 reports the descriptive statistics for our sample. Median and mean of the *Controversies Score* show that most of our firms are not involved in a scandal. When comparing the median and mean of our two payout dummy variables (D_{Rep} and D_{Div}), the sample would indicate that, overall, firms prefer paying dividends over repurchasing shares. However, in closer examination over time, we can confirm the well-documented shift toward stock repurchases (see e.g., Jagannathan et al., 2000; Fama and French, 2001; Skinner, 2008). Figure 5.1 displays this trend and presents the percentage of US firms within our sample that pay dividends (i.e., D_{Div} equals one) on the left and the percentage of firms that repurchase their shares (D_{Rep} equal to one) on the right. Moreover, in line with the literature, we document a sharp decline in payout during the 2008/09 financial crisis (Bliss et al., 2015) and during the Covid-19 pandemic (Ntantamis and Zhou, 2022).

In figure 5.2, we expand this analysis and present the propensity of US companies to pay

[14] Data on historical exchange rates are obtained from Thomson Reuters Datastream.

Table 5.2: Sample characteristics

Panel A. Sample distribution by industry sectors.

Standard Industry Classification (SIC)	N	Freq.
Manufacturing	3,724	51.29%
Services	1,342	18.48%
Transport and Communication	607	8.36%
Mining	542	7.47%
Retail Trade	491	6.76%
Wholesales Trade	226	3.11%
Construction	205	2.82%
Others	85	1.17%
Agriculture, forestry and fishing	38	0.52%
Total	7,260	100%

Panel B. Sample distribution by continents.

Continent	N	Freq.
North America	2,855	39.33%
Asia	1987	27.37%
Europe	1708	23.53%
Oceania	438	6.03%
South America	156	2.15%
Africa	116	1.6%
Total	7,260	100%

This table shows additional sample characteristics. Our sample includes 7,260 distinct firms from 2003 to 2021. Panel A reports the number of firms (N) and their fraction of the total sample (Freq.) per industry based on the 2-digit SIC code, and Panel B for each continent. We excluded financial firms (SIC codes between 6000 and 6999) and utility firms (SIC codes between 4900 and 4999). The continent classification refers to the country in which the firm is headquartered.

dividends or to repurchase stocks depending on the firm's *ESG Score* or *Controversies Score* each year. Apparently, firms with above-median *ESG Scores*, displayed with solid lines, are more likely to pay dividends and to repurchase stocks than firms with below-median scores (dashed lines). Contrarily, companies with below-median *Controversies Scores* are more likely to repurchase stocks, while no clear trend regarding the propensity to pay dividends can be identified.

Table 5.4 presents the correlation matrix. The positive correlation between *Rep* and *Div* (0.19^{***}) supports the reasoning that these two payout channels are used in a complementary way rather than as substitutes (see e.g., De Cesari and Ozkan, 2015; Jagannathan et al., 2000; Grullon and Michaely, 2002), and justifies our use of both channels separately. Moreover, the positive correlation between *Size* and *Div* (0.52^{***}) as well as between *Size* and *ESG Score* (0.48^{***}) is in line with the life-cycle theory (see e.g., Fama and French, 2001; DeAngelo et al., 2006) or the size effect on CSR (see e.g., Drempetic et al., 2019).

Table 5.3: Descriptive statistics

Variable	N	Min	Median	Max	Mean	St. Dev.
Dependent variables						
Rep	47,867	0.00	0.00	7.60	1.26	2.24
D_{Rep}	47,867	0	0	1	0.31	0.46
Div	47,867	0.00	3.29	7.62	2.77	2.46
D_{Div}	47,867	0	1	1	0.61	0.49
Measurement of CSR and CSI						
CS	47,867	0	0	99	8.13	21.48
ESG	47,867	0.35	38.45	95.15	40.78	20.48
Firm-level control variables						
$Size$	47,867	2.65	8.10	11.97	8.04	1.63
RE	47,867	−17.57	0.00	3.48	−0.02	1.53
AC	47,867	0.00	2.30	3.40	2.13	0.88
$Cash$	47,867	0.00	0.11	0.97	0.16	0.18
Lev	47,867	0.00	0.15	0.72	0.18	0.15
MTB	47,867	0.01	1.14	4.84	1.30	0.78
ROA	47,867	−1.06	0.11	0.49	0.11	0.13
Alternative measures for CSR and CSI						
NoS	47,867	0	0	4.70	0.17	0.46
Env	47,867	0.00	27.1	99	32.03	28.47
Soc	47,867	0.05	37.81	98.63	40.88	23.60
Gov	47,867	0.16	47.72	99.33	47.78	22.49

This table reports the descriptive statistics (number of observations, minimum, median, maximum, mean, and standard deviation) of the final sample. The sample includes 7,260 distinct firms from 2003 to 2021. We winsorize all variables (except the measures for CSR and CSI) at the 1 and 99 percent level for each year. The alternative measures for CSR and CSI are discussed in section 5.4.3. A detailed description of our variables can be found in table A.1 in the appendix.

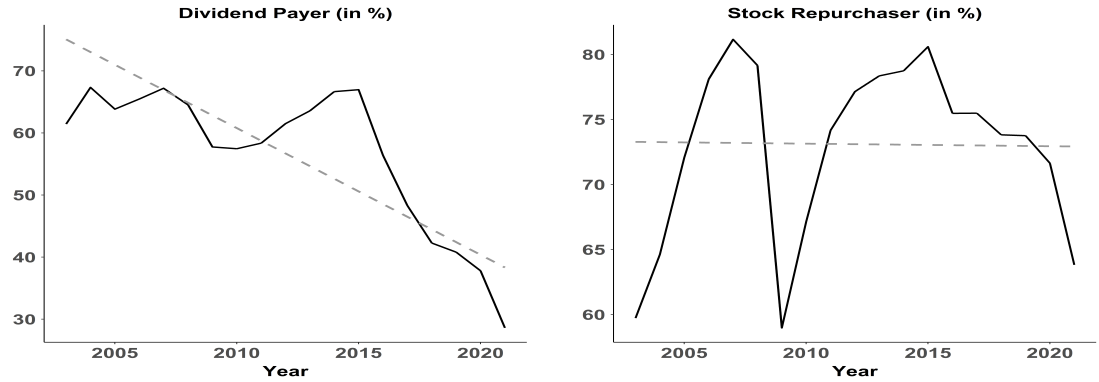

Figure 5.1: Dividends and stock repurchases in the US.

This figure shows the percentage of US firms within our sample that pay dividends (left) and that repurchase stocks (right) over time. The dashed lines represent the trend lines.

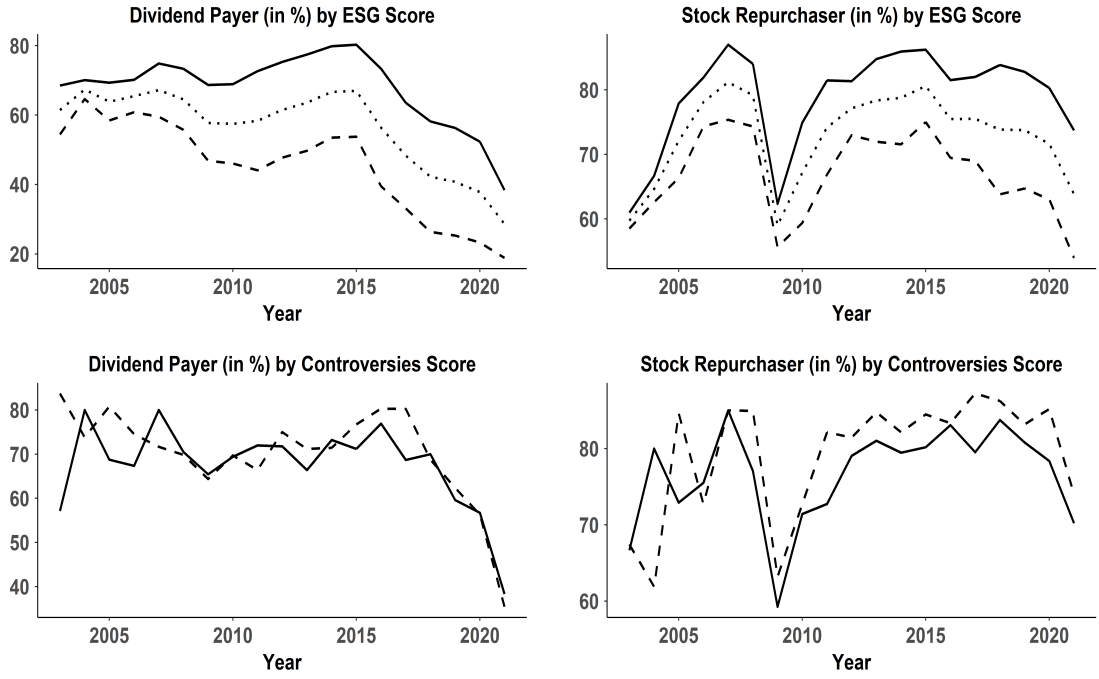

Figure 5.2: Corporate payout depending on CSR and CSI.

This figure shows the percentage of US firms within our sample that pay dividends (left) and that repurchase stocks (right) depending on the *ESG Score* and *Controversies Score*. For the *ESG Score*, we split the full sample (dotted line) into firms with above-median scores (solid line) and below-median scores (dashed line) each year. Regarding the *Controversies Score*, we split the sample of firms with a non-zero score into above-median (solid line) and below-median (dashed line).

Supported by the positive correlation between ESG and CS (0.25^{***}) in table 5.4, our sample indicates that CSR and CSI are not two mutually exclusive dimensions but rather two different concepts. Table 5.5 provides additional anecdotal evidence on this relation for well-known scandals. It depicts the *Controversies Score* and the *ESG Score*, illustrating that all of these companies achieved a high ESG rating in the same year that they were involved

in a major scandal. In addition, the table shows the environmental (*Env*), social (*Soc*), and corporate governance (*Gov*) pillars for these companies, with the pillar corresponding to the topic of the scandal in bold.

Table 5.4: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) *Rep*	1												
(2) D_{Rep}	0.85	1											
(3) *Div*	0.19	0.06	1										
(4) D_{Div}	0.08	0	0.9	1									
(5) *CS*	0.19	0.12	0.15	0.05	1								
(6) *ESG*	0.14	0.04	0.35	0.2	0.25	1							
(7) *Size*	0.28	0.12	0.52	0.33	0.31	0.48	1						
(8) *RE*	0.21	0.14	0.24	0.24	0.07	0.14	0.3	1					
(9) *AC*	0.18	0.06	0.22	0.15	0.11	0.23	0.37	0.11	1				
(10) *Cash*	-0.05	-0.02	-0.23	-0.24	-0.06	-0.19	-0.39	-0.32	-0.06	1			
(11) *Lev*	0.13	0.16	0.01	-0.03	0.07	0.1	0.24	-0.03	0.04	-0.31	1		
(12) *MTB*	0.12	0.09	-0.04	-0.09	-0.01	-0.02	-0.2	-0.14	0.09	0.23	0.08	1	
(13) *ROA*	0.19	0.12	0.3	0.29	0.05	0.15	0.26	0.51	0.22	-0.4	0.04	0.07	1

This table reports the correlation matrix for the employed variables. A detailed description of our variables can be found in table A.1 in the appendix.

Table 5.5: Anecdotal evidence on the relation between CSR and CSI

	Siemens (2008)	BP (2010)	VW (2015)	Wells Fargo (2016)	Apple (2017)	Kobe Steel (2018)	Meta (2018)
CS	95	99.91	98.08	98	86, 36	99.07	99.11
ESG	88.93	87.58	80.18	81.19	67.94	59.11	43.06
Env	85.72	**77.25**	**86.07**	91.48	55.47	61.07	40.61
Soc	86.67	93.12	**82.11**	77.20	**63.97**	**41.75**	**59.29**
Gov	**97.33**	92.87	68.64	**84.67**	85.41	84.77	29.81

This table provides anecdotal evidence on the relation between CSR and CSI for well-known corporate scandals, such as Siemens bribing the Argentine government in 2008, BP's Deepwater Horizon oil spill in 2010, VW's emission scandal in 2015, Wells Fargo creating fake deposit and credit card accounts in 2016, Apple's 'batterygate' in 2017, Kobe Steel's product safety concerns in 2018, and Meta's (former Facebook) Cambridge Analytica data leak in 2018. Additionally, the environmental (*Env*), social (*Soc*), and corporate governance (*Gov*) pillars of the *ESG Score* are displayed. The pillars corresponding to the scandal's topic are highlighted in bold.

5.4 Results

5.4.1 Baseline results

We employ an OLS regression with fixed effects and firm-level clustered standard errors to derive insights on the linkage of a firm's *ESG Score* and *Controversies Score* with

the amount of dividend payment (*Div*) and stock repurchases (*Rep*). Based on La Porta et al. (2000), we include country-fixed effects to account for national differences that might affect a firm's payout policies, such as disparities in shareholder rights protection, dividend taxation, and share repurchases laws. By using time-fixed effects, we capture the trend toward stock repurchases (see e.g., Jagannathan et al., 2000; Fama and French, 2001) and account for the impact of general economic conditions on the firm's payout (such as the effect of the 2008/09 financial crisis documented by Bliss et al., 2015). Finally, firm-fixed effects cover further unobserved heterogeneity, such as the preference for stock repurchases over paying dividends, when executive compensation is highly based on stock options (see e.g., Fenn and Liang, 2001; Kahle, 2002; Dittmar and Dittmar, 2008; Dittmar and Field, 2015), or a firm's preference to smooth dividends (Lintner, 1956; Von Eije and Megginson, 2008). We lag all independent variables by one year to reduce a possible endogeneity bias.

Table 5.6 presents our baseline results. Columns (1) to (3) report the regression coefficients for *Rep* as the dependent variable, and columns (4) to (6), if we employ *Div*. The coefficient of the *Controversies Score* is statistically significant and negative across all settings. Companies involved in scandals spend less financial resources on dividends and stock repurchases. In line with Dittmar and Field (2015) and Dittmar and Dittmar (2008), our results do not show conclusive evidence for market timing but instead support the theory of precautionary cash holding (see e.g., Bates et al., 2009; Almeida et al., 2004). Managers miss the opportunity of pricing uncertainty to buy back shares after a scandal because they may fear tightening financial constraints following the scandal. This could lead managers to hoard cash to secure future investments rather than to distribute spare financial resources via dividends or repurchases.

Regarding the *ESG Score*, we find positive and statistically significant coefficients for the relation with *Div*. Firms with high *ESG Scores* tend to pay more dividends because they can use these dividends to restrict the agency problem of free cash flow arising from managers' incentives to overinvest in CSR. Interestingly, the coefficient becomes negative when we consider the relation between the *ESG Score* and *Rep*. However, the coefficients are insignificant, so we cannot support the signaling mechanism of payout in the context of CSR. Overall, these results support the view that corporate payout policy serves to control agency problems (Easterbrook, 1984), and that payout decisions can be better understood with agency theory than by signaling (Lambrecht and Myers, 2012; Hasan and Uddin, 2022; Allen and Michaely, 2003; DeAngelo et al., 2009; Leary and Michaely, 2011).

Moreover, most of our controls are in line with the expected relation documented in the literature. First, we observe a statistically significant and positive coefficient on the *Size* variable in all models. In accordance with the life-cycle theory (see e.g., DeAngelo et al., 2006; Fama and French, 2001; Denis and Osobov, 2008), larger firms pay more dividends and spend more financial resources on stock repurchases. Consistent with the implications

Table 5.6: OLS regression with fixed-effects

	Stock Repurchase (*Rep*)			*Dividends* (*Div*)		
	(1)	(2)	(3)	(4)	(5)	(6)
CS_{t-1}	-0.0020^{***}		-0.0020^{***}	-0.0012^{*}		-0.0013^{*}
	(-3.6464)		(-3.5897)	(-2.3549)		(-2.4843)
ESG_{t-1}		-0.0021	-0.0020		0.0036^{**}	0.0037^{**}
		(-1.8188)	(-1.6919)		(2.8135)	(2.8926)
$Size_{t-1}$	0.3543^{***}	0.3582^{***}	0.3607^{***}	0.5121^{***}	0.4986^{***}	0.5002^{***}
	(8.8615)	(8.8253)	(8.8947)	(11.3281)	(11.0426)	(11.0937)
RE_{t-1}	-0.0041	-0.0039	-0.0039	0.0056	0.0053	0.0053
	(-0.4024)	(-0.3803)	(-0.3859)	(0.4574)	(0.4375)	(0.4342)
AC_{t-1}	0.0493	0.0532	0.0520	0.1774^{***}	0.1731^{***}	0.1724^{***}
	(1.6486)	(1.7742)	(1.7357)	(5.3774)	(5.2538)	(5.2309)
$Cash_{t-1}$	0.4838^{***}	0.4850^{***}	0.4847^{***}	0.5579^{***}	0.5563^{***}	0.5561^{***}
	(3.5048)	(3.5153)	(3.5120)	(3.3766)	(3.3681)	(3.3682)
Lev_{t-1}	-1.1345^{***}	-1.1396^{***}	-1.1324^{***}	-0.9998^{***}	-1.0085^{***}	-1.0038^{***}
	(-7.7959)	(-7.8345)	(-7.7845)	(-6.3916)	(-6.4480)	(-6.4294)
MTB_{t-1}	0.0730^{**}	0.0755^{**}	0.0740^{**}	0.2220^{***}	0.2212^{***}	0.2202^{***}
	(2.7856)	(2.8757)	(2.8241)	(7.5905)	(7.5631)	(7.5406)
ROA_{t-1}	1.6561^{***}	1.6735^{***}	1.6575^{***}	2.1624^{***}	2.1704^{***}	2.1599^{***}
	(9.4467)	(9.5222)	(9.4582)	(11.1599)	(11.2079)	(11.1592)
Constant	-4.0400^{***}	-4.0468^{***}	-4.0787^{***}	-6.0023^{***}	-5.9098^{***}	-5.9306^{***}
	(-13.3889)	(-13.2942)	(-13.3921)	(-16.9062)	(-16.7251)	(-16.8075)
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,867	47,867	47,867	47,867	47,867	47,867
Adjusted R^2	0.6885	0.6883	0.6886	0.7559	0.7560	0.7561
VIF (max)	1.6581	1.8182	1.9123	1.6581	1.8182	1.9123

This table reports the results of the OLS regression with firm-, year-, and country-fixed effects. Standard errors are clustered on the firm level. Columns (1) to (3) present the results for stock repurchases (*Rep*), and columns (4) to (6) for dividends (*Div*). A detailed description of our variables can be found in table A.1 in the appendix. The adjusted R^2 and the maximum variance inflation factor (VIF) are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

of agency problems on the payout decision, we document a statistically significant negative effect of *Leverage* and a positive and statistically significant effect of *Cash* in all settings (see e.g., Easterbrook, 1984; Renneboog and Trojanowski, 2011; Von Eije and Megginson, 2008; Benlemlih, 2019; Fenn and Liang, 2001). Furthermore, we can also confirm the positive link between *ROA* and corporate payout across all settings, as documented by De Cesari and Ozkan (2015) and Benlemlih (2019). Finally, the *Analyst Coverage* variable exhibits a statistically significant and positive coefficient in all models. Consistent with Bhattacharya and Jacobsen (2016), our findings again do not support evidence in favor of signaling mechanisms of payout policies since a high *Analyst Coverage* proxies a low level of asymmetric information.

5.4.2 Implications of CSR and CSI on the propensity to pay dividends or to repurchase stocks

Considering the implications of figure 5.2, we expand our methodology and employ a fixed-effects logistic regression proposed by Stammann et al. (2016) to examine how a firm's *ESG Score* and *Controversies Score* might be linked with the propensity to pay dividends (D_{Div}) or to repurchase shares (D_{Rep}).[15] In accordance with the literature (see e.g., Von Eije and Megginson, 2008), we employ the same set of controls as in the previous section. Columns (1) to (3) of table 5.7 report the results for D_{Rep}, and columns (4) to (6) for D_{Div}.

The majority of our previous results remain unchanged. The positive and statistically significant coefficient of the *ESG Score* on D_{Div} in columns (5) and (6) show that firms with high *ESG Scores* are more likely to pay dividends, which is in line with the arguments regarding the agency problems of CSR. The most notable difference comes with the *Controversies Score*. The coefficients for the propensity to repurchase are still negative and statistically significant, while the effect on the likelihood of paying dividends is insignificant. Consistent with Brav et al. (2005) and Bliss et al. (2015), managers are reluctant to forgo dividends altogether, even when they fear tightening financial frictions following a scandal. Instead, managers prefer to cut stock repurchases prior to any change in dividend policy.

5.4.3 Robustness and economic significance

In this section, we implement several tests to ensure the robustness of our previous results. First, table 5.2 shows that roughly 40% of our firms are located in North America, and over 50% are in the manufacturing sector. We address this issue by excluding the US and manufacturing sector and repeating our previous analysis. Table A.3 in the appendix

[15] Note that we rely on annual data, and thus T is relatively small within our sample. To account for the incidental parameter bias problem for samples with small T, we apply the analytical bias correction derived by Fernández-Val (2009).

Table 5.7: Logistic regression with fixed effects

	Repurchase Dummy (D_{Rep})			*Dividend Dummy* (D_{Div})		
	(1)	(2)	(3)	(4)	(5)	(6)
CS_{t-1}	-0.0036^{***}		-0.0035^{***}	-0.0012		-0.0014
	(0.0011)		(0.0011)	(0.0011)		(0.0011)
ESG_{t-1}		-0.0051	-0.0047		0.0104^{***}	0.0105^{***}
		(0.0027)	(0.0027)		(0.0024)	(0.0024)
$Size_{t-1}$	0.5733^{***}	0.5782^{***}	0.5858^{***}	0.8297^{***}	0.7887^{***}	0.7903^{***}
	(0.0652)	(0.0655)	(0.0656)	(0.0629)	(0.0636)	(0.0636)
RE_{t-1}	-0.0592^{*}	-0.0584^{*}	-0.0585^{*}	0.4488^{***}	0.4444^{***}	0.4435^{***}
	(0.0280)	(0.0280)	(0.0280)	(0.0692)	(0.0690)	(0.0689)
AC_{t-1}	0.0182	0.0260	0.0255	0.3575^{***}	0.3410^{***}	0.3399^{***}
	(0.0636)	(0.0637)	(0.0637)	(0.0547)	(0.0548)	(0.0548)
$Cash_{t-1}$	0.9530^{**}	0.9671^{**}	0.9595^{**}	0.7679^{*}	0.7391^{*}	0.7379^{*}
	(0.3601)	(0.3600)	(0.3602)	(0.3300)	(0.3303)	(0.3303)
Lev_{t-1}	-1.9543^{***}	-1.9520^{***}	-1.9401^{***}	-1.2240^{***}	-1.2525^{***}	-1.2428^{***}
	(0.2948)	(0.2948)	(0.2951)	(0.2665)	(0.2667)	(0.2669)
MTB_{t-1}	0.0668	0.0725	0.0697	0.1736^{**}	0.1746^{**}	0.1730^{**}
	(0.0664)	(0.0665)	(0.0665)	(0.0565)	(0.0566)	(0.0566)
ROA_{t-1}	5.0853^{***}	5.1660^{***}	5.1098^{***}	8.1575^{***}	8.1079^{***}	8.0912^{***}
	(0.4561)	(0.4565)	(0.4567)	(0.4617)	(0.4617)	(0.4618)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,587	13,587	13,587	17,270	17,270	17,270
Mcfadden-Pseudo R^2	0.6355	0.6353	0.6356	0.7072	0.7076	0.7076
Log-Lik.	-6474.2279	-6478.6869	-6472.4178	-7933.5061	-7922.9776	-7922.0284

This table reports the logistic regression results with year- and firm-fixed effects. Standard errors are clustered on the firm level. Columns (1) to (3) present the results for the propensity to repurchase stocks (D_{Rep}), and columns (4) to (6) the propensity to pay dividends (D_{Div}). A detailed description of our variables can be found in table A.1 in the appendix. Note that the fixed-effects logistic regression requires variation in the binary dependent variable (D_{Rep} or D_{Div}), i.e. the firm has to change from a payer (repurchaser) to a non-payer (non-repurchaser) or vice versa at a given point in time, which reduces our sample size. Mcfadden-Pseudo R^2 and the log-likelihood are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

presents the results for the fixed-effects logistic regression for a US-only sample and a sample excluding the US. In table A.4, we exclude the manufacturing sector. Overall, our results are robust to these exclusion criteria, and we can confirm the previous findings.

Moreover, recent literature has expressed numerous concerns regarding the measurement of CSR. Dorfleitner et al. (2015) and Chatterji et al. (2016) discuss the lack of comparability between different ESG ratings. Berg et al. (2022) argue that a rating agency's general view of a company may distort ESG ratings, while Berg et al. (2020) criticize the potential black-box nature and rewriting of ESG ratings. In addition, Benlemlih (2019) and Samet and Jarboui (2017) highlight that using an aggregated ESG score might conceal the true effect of CSR on a company's payout policy.

We attempt to address some of these concerns and limit the potential bias of relying on a single score. First, instead of using the aggregated *Controversies Score* as our measure for CSI, we employ the actual count of scandals a company is involved in a given year. To account for the presumable non-linear effect of a count variable, we define the *Number of Scandals (NoS)* variable as the logarithm of one plus the count of scandals for the 23 CSR-related topics. This approach allows us to alleviate concerns about the methodology behind the score (such as weighting or industry effects) or the rating agency bias while still considering the scandal's severity and magnitude. Finally, relying on the actual count of scandals facilitates economic interpretation.

Next, we dissect the overall *ESG Score* into its three pillars (environment, social and corporate governance). This approach provides further insight into different aspects of CSR, as poor performance in a particular pillar can be offset by good performance in the other two. The *Environmental Score (Env)* measures a company's efforts to reduce resource use or environmental pollution, while the *Social Score (Soc)* accounts for product and employee safety, diversity, and data privacy. Finally, the *Governance Score (Gov)* captures aspects of shareholder rights protection, the implementation and management of CSR strategies, and the transparency of CSR reporting. Table 5.3 displays descriptive statistics for these measures.[16]

Columns (1) and (2) of table 5.8 present the coefficients for the OLS regression on the payout levels (*Rep* and *Div*) and columns (3) and (4) for the logistic regression on the propensity to repurchase stocks (D_{Rep}) or to pay dividends (D_{Div}).

Most of our previous results can be confirmed. The coefficient of *NoS* is statistically significant and negative for the likelihood of and the financial resources spent on stock repurchases. In terms of economic significance, a one standard deviation increase in *NoS*, ceteris paribus, decreases the amount of financial resources distributed via stock

[16]Note that the majority of firms in our sample are not involved in a scandal. However, there are also high profile events with a large *NoS*, such as the Meta (former Facebook) Cambridge Analytica data leak scandal in 2018 with a total of 109 reports in one year.

Table 5.8: Number of scandals and ESG pillars

	OLS regression with fixed-effects		Logistic regression with fixed-effects	
	Rep	*Div*	D_{Rep}	D_{Div}
	(1)	(2)	(3)	(4)
NoS_{t-1}	-0.0819^{*}	-0.0307	-0.1660^{**}	-0.0388
	(-2.2951)	(-0.9748)	(0.0554)	(0.0612)
Env_{t-1}	0.0018	0.0035^{**}	0.0044^{*}	0.0092^{***}
	(1.7575)	(3.2658)	(0.0021)	(0.0019)
Soc_{t-1}	-0.0036^{***}	-0.0004	-0.0086^{***}	-0.0016
	(-3.5735)	(-0.3834)	(0.0024)	(0.0021)
Gov_{t-1}	-0.0002	0.0010	-0.0015	0.0036^{*}
	(-0.2539)	(1.3409)	(0.0017)	(0.0015)
$Size_{t-1}$	0.3602^{***}	0.4958^{***}	0.5911^{***}	0.7756^{***}
	(8.9142)	(11.0187)	(0.0658)	(0.0638)
RE_{t-1}	-0.0042	0.0050	-0.0580^{*}	0.4412^{***}
	(-0.4055)	(0.4099)	(0.0281)	(0.0689)
AC_{t-1}	0.0510	0.1721^{***}	0.0210	0.3402^{***}
	(1.7065)	(5.2136)	(0.0639)	(0.0548)
$Cash_{t-1}$	0.4847^{***}	0.5596^{***}	0.9442^{**}	0.7424^{*}
	(3.5101)	(3.3908)	(0.3604)	(0.3306)
Lev_{t-1}	-1.1485^{***}	-1.0146^{***}	-1.9600^{***}	-1.2703^{***}
	(-7.8842)	(-6.4939)	(0.2954)	(0.2672)
MTB_{t-1}	0.0759^{**}	0.2210^{***}	0.0764	0.1775^{**}
	(2.8992)	(7.5769)	(0.0665)	(0.0566)
ROA_{t-1}	1.6682^{***}	2.1692^{***}	5.1424^{***}	8.1456^{***}
	(9.4785)	(11.2022)	(0.4565)	(0.4623)
Constant	-4.0721^{***}	-5.8773^{***}		
	(-13.3233)	(-16.6915)		
Firm-fixed effects	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes
Country-fixed effects	Yes	Yes	No	No
Observations	47,867	47,867	13,587	17,270
Adjusted/Mcfadden R^2	0.6886	0.7561	0.6359	0.5545
VIF (max)/Log-Lik.	2.5097	2.5097	-6466.6967	-7913.3995

This table reports the results of the OLS regression with firm-, year-, and country-fixed effects (columns 1 and 2) and of the logistic regression with year- and firm-fixed effects (columns 3 and 4). Standard errors are clustered on the firm level. A detailed description of our variables can be found in table A.1 in the appendix. Note that the fixed-effects logistic regression requires variation in the binary dependent variable (D_{Rep} or D_{Div}), i.e. the firm has to change from a payer (repurchaser) to a non-payer (non-repurchaser) or vice versa at a given point in time, which reduces our sample size. Adjusted R^2 and Mcfadden-Pseudo R^2 are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

repurchases by 3.76 percent. At the same time, the relationship of *NoS* with *Div* and D_{Div} is negative but insignificant, which supports the view that managers try to avoid reductions in dividends (DeAngelo et al., 2009; Larkin et al., 2017) and prefer to cut investments (Brav et al., 2005; Bliss et al., 2015) or stock repurchases before lowering dividend payout.

Regarding a firm's environmental performance, our results show a positive and statistically significant coefficient of *Env* in almost all settings. Especially with the recent trend toward greening all kinds of business areas, managers might derive additional private benefits from environmentally friendly projects, which further encourages them to overinvest. Consequently, firms adjust their payout policy to limit these agency problems. A one standard deviation increase in *Env* equals a 26.19 percent increase in the resources spent on dividends (*Div*). With an average partial effect of 0.0006, a one standard deviation change in *Env* amounts to a 1.71 percent points increase in the likelihood to pay dividends (D_{Div}). Furthermore, we find a positive and statistically significant relationship between *Gov* with a firm's propensity to pay dividends. In line with the good governance view, well-governed firms pay special attention to the agency problem of CSR and use dividends to restrict managerial opportunism (Benlemlih, 2019; Masulis and Reza, 2015).

5.4.4 CSR and corporate payout: The agency-based view

Our previous results provide statistical evidence that high CSR ratings are associated with a higher dividend payout. Supported by the agency problem of free cash flow, managers can extract non-financial rents from CSR and are incentivized to overinvest. If corporate payout policy serves to control these agency problems of CSR, we would expect a greater emphasis on the disciplining mechanism and a higher propensity to pay dividends or to repurchase stocks within countries or organizational environments characterized by high susceptibility to agency issues.

This subsection further tests the implications of agency problems within CSR and the disciplining role of corporate payout. For that, we utilize the country-level anti-self-dealing index (*ASD*) of Djankov et al. (2008) to define a dummy variable (D_{ASD}) equal to one if a country has weak shareholder rights protection (i.e., below-median values of *ASD*) and zero otherwise.[17] In countries with weak shareholder protection, controlling shareholders can easily extract private benefits at the expense of minority shareholders, such as related party transactions or intercorporate loans (Jiang and Kim, 2020). The *ASD* captures the protection against this expropriation of minority shareholders (Djankov et al., 2008; Jiang et al., 2010; Brockman et al., 2022) and thus, low values are indicative of agency problems.

In table 5.9, we present our logistic regression results with fixed effects. The positive and

[17]The anti-self-dealing index has the appealing property of being determined by the country's legal tradition, which allows an endogeneity-robust predetermined proxy for agency issues (Brockman et al., 2022).

Table 5.9: Logistic regression with fixed effects

	Repurchase Dummy (D_{Rep})		*Dividend Dummy* (D_{Div})	
	(1)	(2)	(3)	(4)
CS_{t-1}	-0.0033^{**}	-0.0034^{**}	-0.0013	-0.0012
	(0.0011)	(0.0011)	(0.0011)	(0.0011)
ESG_{t-1}	-0.0531^{***}		-0.0065	
	(0.0061)		(0.0038)	
$ESG_{t-1} \times D_{ASD}$	0.0552^{***}		0.0233^{***}	
	(0.0061)		(0.0040)	
Env_{t-1}		-0.0273^{***}		-0.0033
		(0.0043)		(0.0028)
$Env_{t-1} \times D_{ASD}$		0.0322^{***}		0.0171^{***}
		(0.0043)		(0.0030)
Controls	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes
Observations	13,467	13,467	17,015	17,015
Mcfadden-Pseudo R^2	0.6423	0.6412	0.7136	0.7138
Log-Lik.	-6353.6479	-6373.6056	-7758.6251	-7753.6684

This table presents the impact of countries with low shareholder rights protection ($D_{ASD} = 1$) on the relation between CSR and the propensity to pay dividends or to repurchase stocks, using logistic regression with year- and firm-fixed effects. Standard errors are clustered on the firm level. Columns (1) to (2) present the results for the propensity to repurchase stocks (D_{Rep}), and columns (3) to (4) the propensity to pay dividends (D_{Div}). Weak shareholder rights countries are proxied by below-median values of the anti-self-dealing index (ASD) of Djankov et al. (2008). A detailed description of our variables can be found in table A.1 in the appendix. Mcfadden-Pseudo R^2 and the log-likelihood are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

statistical significant coefficient of the interaction term between ESG_{t-1} and D_{ASD} in columns (1) and (3) verifies our previous results and highlights the importance of controlling agency problems of CSR via corporate payout in countries with weak shareholder protection ($D_{ASD} = 1$).[18]

5.4.5 Is a scandal the right time to repurchase? Evidence from a time-to-event analysis

Our analysis thus far supports the view that companies respond to the disclosure of a scandal with a reduction in stock repurchases. However, especially with regard to conclusions about the market timing hypothesis, our analysis may be flawed by the use of annual data in combination with a one-year time lag between our dependent variables and our measures for corporate scandals. In this section, we address this concern and verify our results by implementing the following time-to-event analysis based on a hand-collected and international data set.

First, for firms within our sample, we collect the exact date a corporate scandal was publicly disclosed (e.g., the date of a news article discussing the issue) and the date of stock repurchase announcements from Refintiv. Since larger scandals usually result in several reports, we record each report individually, thus allowing us to account for the severity and magnitude of a scandal.

Second, we define a dummy variable $D_{Scandal}$ equal to one if the firm has a scandal in a given year and zero otherwise. We employ this dummy variable within a propensity score matching approach to pair companies from the treatment group ($D_{Scandal} = 1$) with companies from the control group ($D_{Scandal} = 0$). Following Roberts and Whited (2013) and Dehejia and Wahba (2002), we use our firm-level control variables discussed in section 5.3.3 in combination with nearest-neighbor matching and a logistic link to match treated and untreated observations within the same year and country.

Next, we determine the time-to-event variable ($Time$) for each observation in our matched sample, which is the number of days until the next repurchase announcement. Note that we need to specify a reasonable time interval to ensure that a corporate scandal can still impact the decision to announce a stock repurchase. For that, we restrict our matched sample to pairs of observations with a stock repurchase announcement within the next 3, 12, or 24 months.

Finally, we run an OLS regression with firm-level clustered standard errors and an accelerated failure time (AFT) model to determine the relation and size of the effect of $D_{Scandal}$ on $Time$.[19] In general, AFT models regress the logarithm of time-to-event data

[18] Considering the importance of the environmental pillar, demonstrated in the findings of section 5.4.3, our results remain robust if we examine the interaction between Env_{t-1} and D_{ASD} in columns (2) and (4).

[19] Our dummy variable $D_{Scandal}$ does not fulfill the proportional hazard assumption, and accordingly, we

($log(Time)$) on the covariates and thus are easy to interpret (see e.g., Wei, 1992). In addition, time-to-event data often have heavily skewed distributions and AFT models, in particular, are capable of dealing with this problem. To ensure the robustness of both models, we include the same firm-level controls used for the propensity score matching and capture further sources of unobserved heterogeneity within firm-, year-, and country-fixed effects. A positive and statistical significant coefficient for $D_{Scandal}$ would indicate an increase in the number of days until the company announces a share repurchase program.

Following the market timing hypothesis, we would expect firms to take advantage of the pricing uncertainties resulting from a scandal and quickly announce a stock repurchase in the near future (i.e., a negative coefficient for $D_{Scandal}$ and thus a shorter time-to-event). Contrarily, prolonging the time until the next repurchase announcement would support the view that managers respond to a publicly disclosed scandal with a temporal reduction of their payout activities.

Descriptive statistics for our three matched samples are displayed in table A.5 in the appendix. Columns (1) to (3) of table 5.10 present the results for the OLS regression with fixed effects, and columns (4) to (6) for the AFT model with fixed effects. Across all settings, firms currently involved in a scandal exhibit a longer time to the next repurchase announcement. For example, the OLS regression coefficient for the paired sample with an eligible time interval of 12 months in column 2 shows that, ceteris paribus, a one-unit change in $D_{Scandal}$ prolongs the time to the next repurchase announcement by 41.56 days. Equivalently, for the AFT model in column 4, being involved in a scandal ($D_{Scandal} = 1$) increases the time to the next repurchase announcement by $exp(0.3267) = 1.3863$ or by 38.63%. Note that our sample size drastically decreases for an eligible time interval of 3 months. Thus these results should be interpreted carefully.

In line with our results from previous sections, we do not find supportive evidence in favor of the market timing hypothesis. Companies may prefer to preserve their cash to cope with the scandal's consequences and delay the announcement of a stock repurchase until later. Note that this analysis relies on the announcement of a stock repurchase which, as discussed previously, does not obligate the firm to repurchase any specific amount of shares at a predetermined time. Nevertheless, this setup allows us to examine how the management plans to adapt the payout policy in response to the uncertainty caused by the scandal.

use the parametric approach of an AFT model, which finds common application in survival time analysis (see e.g., Wei, 1992). The AFT model requires a distributional assumption and, based on conventional selection criteria, such as log-likelihood and AIC, a Weibull distribution results in the best statistical fit.

Table 5.10: Time-to-event analysis

	OLS regression with fixed-effects			Accelerated Failure Time (AFT)		
	$Time_{3M}$	$Time_{12M}$	$Time_{24M}$	$log(Time_{3M})$	$log(Time_{12M})$	$log(Time_{24M})$
	(1)	(2)	(3)	(4)	(5)	(6)
$D_{Scandal}$	211.1343***	41.5574*	53.0626**	3.4426**	0.3267***	0.1844***
	(6.4998)	(1.8571)	(2.5478)	(2.0921)	(4.2757)	(4.7820)
Size_{t-1}	−351.0928***	−40.2833*	33.5636	−8.9042***	−0.2411***	0.0557
	(−4.3327)	(−1.6839)	(0.9666)	(−3.5034)	(−2.7870)	(1.5022)
RE_{t-1}	546.9790**	−0.0234	−0.4013*	18.6069***	−0.0036**	−0.0006
	(2.5675)	(−0.0627)	(−1.8658)	(3.1337)	(−2.0524)	(−0.9012)
AC_{t-1}	11.8690	51.8432	19.1838	−0.6433	0.3279***	0.0757*
	(0.6852)	(1.4285)	(0.8570)	(−0.5508)	(3.2331)	(1.7723)
Cash_{t-1}	56.8356	−183.5503	−24.5329	−0.7265	−0.8846*	0.3414
	(0.3510)	(−1.3904)	(−0.1483)	(−0.1890)	(−1.8694)	(1.4460)
Leverage_{t-1}	1,644.7660***	102.0663	265.1984*	32.8028***	0.6931	0.6690***
	(6.7882)	(0.8761)	(1.7270)	(3.3806)	(1.5343)	(3.2069)
MTB_{t-1}	−301.0467***	−30.1275	15.4030	−7.2843***	−0.1064	0.0644**
	(−4.6903)	(−1.3467)	(0.7225)	(−3.4824)	(−1.2761)	(2.0314)
ROA_{t-1}	921.4538***	162.7609	−253.1662	14.1759	0.8821*	−1.2990***
	(7.5622)	(1.0390)	(−1.3705)	(1.2332)	(1.6867)	(−4.0139)
Constant	2,956.3110***	441.4110*	130.6378	81.0468***	5.6694***	5.5367***
	(3.9730)	(1.6618)	(0.3611)	(3.5421)	(5.8124)	(11.7679)
Year-fixed effects	No	Yes	Yes	No	Yes	Yes
Country-fixed effects	No	Yes	Yes	No	Yes	Yes
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	168	1,772	4,910	168	1,772	4,910
Adjusted R^2/Log-Lik.	0.61365	0.2819	0.3651	−1,111.23	−9,937.94	−30,891.65

This table reports the results of our time-to-event analysis for each of the three paired samples. Columns (1) to (3) present the OLS regression results, and columns (4) to (6) the results of the AFT models. We use nearest-neighbor propensity score matching with a logistic link to pair treated ($D_{Scandal} = 1$) and untreated ($D_{Scandal} = 0$) companies within the same year and country based on the firm-level control variables discussed in section 5.3.3. We restrict the eligible time-to-event for our matched observations to 3, 12, and 24 months respectively. A detailed description of our variables can be found in table A.1 in the appendix. Adjusted R^2 and log-likelihood are reported upon. $*$, $**$, and $***$ indicate a 10%, 5%, and 1% level of significance, respectively.

5.5 Conclusion

This study examines the relationship between corporate social (ir-)responsibility and a firm's payout policy by utilizing a large international sample with 7,260 distinct publicy listed firms over the period 2003 to 2021. We aim to advance the understanding of how CSR and CSI might impact the firm's decision in determining the proper payout channel and the adequate amount of cash to distribute. We contribute to the existing literature by analyzing dividends and stock repurchases in the context of both CSR and CSI in an international sample, thereby, to the best of our knowledge, filling the academic void regarding research on how irresponsible corporate behavior (i.e., corporate scandals) is linked to a firm's payout policy.

Our panel models show robust evidence that high CSR ratings are associated with a statistically significant increase in the likelihood that a firm pays dividends and that companies with high CSR ratings spend more financial resources on dividends. In particular, firms with superior environmental performance and firms within countries susceptible to agency problems tend to attach more importance to their payout. In contrast, our models highlight that social irresponsible firms engage in fewer stock repurchases and spend less on dividends but are still reluctant to forego dividends altogether. Furthermore, we show that for a sample of pair-matched firms, being involved in a scandal is positively related to the number of days until the announcement of a stock repurchase. Our results are robust to alternative measures of CSR and CSI.

In sum, these findings provide challenging implications for the signaling mechanism of corporate payout in the context of CSR. As CSR ratings reduce information asymmetries (Cheng et al., 2014a), firms with good ratings would benefit less from the signaling mechanism of payout. Instead, our findings support the strand of literature regarding the agency problem of free cash flow (Easterbrook, 1984; Jensen, 1986). Given the omnipresent trend toward sustainability, it seems more important than ever for companies to implement an appropriate payout policy that limits managers' incentives to overinvest. Thereby, corporate payout may guide managers in aligning shareholders' financial and non-financial interests.

Moreover, our results contrast the market timing theory for stock repurchases and instead align with the literature on precautionary cash holding (Bates et al., 2009; Almeida et al., 2004; Han and Qiu, 2007; Bolton et al., 2013). While it may seem reasonable for the company to take advantage of pricing inefficiencies after a scandal to buy back shares at a relatively low price, investors should keep in mind that companies prefer to retain their cash to guarantee future investments rather than timing their repurchases. Overall the results show that unethical behavior reduces cash flows to investors through every payout channel.

Although the corporate payout puzzle is far from being solved, our results highlight the importance of CSR and CSI in a firm's payout decision. In light of the rising social and academic interest in corporate social (ir-)responsibility and the evolution in corporate payout policy, the interaction between these trends deserves further attention in the future.

Appendix

Table A.1: Description of variables

Dependent variables:	
Stock Repurchases (Rep)	The logarithm of 1 plus the expenditures on the purchase of common and preferred stocks (Item 115) minus the change (first difference) in preferred stock reduction (Item 10) (see Hong et al., 2012). Missing values for non-US firms are substituted with the corresponding values from Thomson Reuters Datastream.
Repurchase Dummy (D_{Rep})	A dummy variable equal to one if the firm has repurchased stocks (i.e., $Rep > 0$).
Dividends (Div)	The logarithm of 1 plus cash dividends on common stocks (Item 21).
Dividend Dummy (D_{Div})	A dummy variable equal to one if the firm pays out cash dividends on common stocks (i.e., $Div > 0$).
Measurement of CSR and CSI:	
Rescaled Controversies Score (CS)	The ranking of a company's (un-)ethical behavior (on a scale of 0 to 100) relative to its peer group, based on 23 CSR-related controversy topics. The score accounts for news about unethical business practices from global media sources (such as Bloomberg, Reuters News, or LexisNexis), NGOs (such as Greenpeace or Amnesty International), and company reports (Refinitiv, 2022). Due to the rescaling, firms without any scandal in a fiscal year will receive a score of 0. An increase in the number of scandals will increase the *Controversy Score*.
ESG Score (ESG)	The ranking of a company's environmental (E), social (S), and corporate governance (G) performance (on a scale of 0 to 100) relative to its peer group (Refinitiv, 2022).
Firm-level control variables:	
Size ($Size$)	The logarithm of 1 plus total assets (Item 6).
Retained Earnings (RE)	The ratio of payout-adjusted retained earnings (Item 36 + Item 21 + Item 19) to the book value of equity (Item 60 + 74) (see e.g., Denis and Osobov, 2008; De Cesari and Ozkan, 2015).
Analyst Coverage (AC)	Logarithm of 1 plus the number of analysts providing earnings forecasts for the firm as captured by I/B/E/S. Missing values are set to 0 (Blankespoor et al., 2014; Bhattacharya and Jacobsen, 2016).
Cash Ratio ($Cash$)	The ratio of cash and short-term investments (Item 1) to total assets (Item 6).
Leverage (Lev)	The ratio of total long-term debt (Item 9) to total assets (Item 6).
Market-to-Book (MTB)	The logarithm of 1 plus the market value of a firm's equity divided by the book value of equity. The market value of equity is calculated as the product of market prices at the calendar year-end times the number of shares outstanding (Item 25). Closing prices for US firms come from CRSP and for non-us firms from Datastream. The book value of equity is defined as the total common and ordinary equity (Item 60) plus deferred taxes balance sheet (Item 74) (see Baker et al., 2003).
Return on Assets (ROA)	The ratio of operating income before depreciation (Item 13) to total assets (Item 6) (see Farre-Mensa and Ljungqvist, 2016).
Additional measures of CSR and CSI:	
Number of Scandals (NoS)	The annual aggregated count of publicly disclosed news about unethical business practices within 23 CSR-related topics for a given year. These topics include, for example, excessive environmental pollution, child labor, diversity issues, tax or accounting frauds, and shareholder rights infringements. Refinitiv captures publicly disclosed news about unethical business practices from global media sources, NGOs, and company reports (Refinitiv, 2022).
Environmental Score (Env)	The ranking of a company's environmental performance (on a scale of 0 to 100) relative to its peer group and measures the company's efforts to reduce environmental pollution and resource waste or to support green innovations (Refinitiv, 2022).
Social Score (Soc)	The ranking of a company's social performance (on a scale of 0 to 100) relative to its peer group. This score measures aspects of employee diversity and fair working conditions, product safety, and actions to protect data privacy or to prevent child labor (Refinitiv, 2022).
Governance Score (Gov)	The ranking of a company's governance performance (on a scale of 0 to 100) relative to its peer group. This score covers the company's willingness to establish a stable CSR policy and transparent CSR reporting, as well as its efforts for fair management compensation and shareholder rights protection (Refinitiv, 2022).
Anti-self-dealing:	
Anti-self-dealing Dummy (D_{ASD})	A dummy variable equal to one if the anti-self-dealing index for a given country exceeds the sample median and zero otherwise. The anti-self-dealing index is a time-invariant variable and is obtained from Andrei Shleifer's website.
Time-to-event analysis:	
Time-to-event ($Time$)	The number of days until the firm announces a stock repurchase.
Scandal Dummy ($D_{Scandal}$)	A dummy variable equal to one if the firm has a scandal in a given year.

This table presents a detailed explanation of our employed variables. Data on financial statements are obtained from Compustat (with the corresponding data item mentioned in parentheses). Share prices for US firms are from CRSP and for non-US firms from Thomson Reuters Datastream. CSR- and CSI-related data, as well as the date of a stock repurchase announcement, are obtained from Refinitiv. The anti-self-dealing index is available on Andrei Shleifer's website.

Table A.2: Firm distribution by country.

Country	N	Freq.
USA	2,643	36.40%
China	690	9.50%
Great Britan	482	6.64%
Australia	397	5.47%
Japan	390	5.37%
Sweden	212	2.92%
Germany	182	2.51%
Canada	146	2.01%
Taiwan	144	1.98%
France	133	1.83%
Korea	130	1.79%
Switzerland	128	1.76%
India	116	1.60%
Hong Kong	109	1.50%
South Africa	108	1.49%
Brazil	77	1.06%
Italy	76	1.05%
Netherlands	63	0.87%
Finland	63	0.87%
Thailand	60	0.83%
Others	911	12.55%
Total	7,260	100%

This table presents the number of firms (N) and their fraction of the total sample (Freq.) per country. For country identification, we use the ISO Country Code from Compustat.

Table A.3: Logistic regression with fixed effects - Excluding US

	Repurchase Dummy (D_{Rep})		*Dividend Dummy* (D_{Div})	
	US-only	Excluded	US-only	Excluded
	(1)	(2)	(3)	(4)
CS_{t-1}	-0.0040^{**}	-0.0019	0.0009	-0.0029^{*}
	(0.0014)	(0.0016)	(0.0022)	(0.0013)
ESG_{t-1}	-0.0061	-0.0093^{*}	0.0337^{***}	0.0073^{**}
	(0.0037)	(0.0043)	(0.0057)	(0.0028)
$Size_{t-1}$	0.5566^{***}	0.4715^{***}	1.4450^{***}	0.6646^{***}
	(0.0931)	(0.0982)	(0.1557)	(0.0737)
RE_{t-1}	-0.0477	-0.1127	0.3310^{***}	0.7075^{***}
	(0.0317)	(0.0785)	(0.0576)	(0.1825)
AC_{t-1}	0.1461	-0.0443	0.2225	0.3892^{***}
	(0.0990)	(0.0857)	(0.1553)	(0.0607)
$Cash_{t-1}$	0.7614	1.1544	1.5262^{*}	0.4564
	(0.4602)	(0.6170)	(0.7421)	(0.3904)
Lev_{t-1}	-2.9635^{***}	-1.5244^{**}	-2.6046^{***}	-1.9580^{***}
	(0.3781)	(0.5198)	(0.5924)	(0.3201)
MTB_{t-1}	0.0758	-0.0011	0.2637	0.2052^{**}
	(0.0927)	(0.1022)	(0.1438)	(0.0646)
ROA_{t-1}	4.7847^{***}	4.5091^{***}	11.4574^{***}	7.0237^{***}
	(0.5664)	(0.8121)	(1.1443)	(0.5216)
Fixed effects	Yes	Yes	Yes	Yes
Observations	7,990	5,597	3,577	13,693
Macfadden-Pseudo R^2	0.6053	0.7296	0.8672	0.6887
Log Lik.	-3631.5624	-2649.2284	-1407.3143	-6172.3709

This table presents the logistic regression results with year- and firm-fixed effects separately for a US-only and a sample without US. Standard errors are clustered on the firm level. Columns (1) and (3) present the results for the propensity to repurchase stocks (D_{Rep}) and pay dividends (D_{Rep}) for companies located in the US, and columns (2) and (4) exclude the US. A detailed description of our variables can be found in table A.1 in the appendix. Note that the fixed-effects logistic regression requires variation in the binary dependent variable (D_{Rep} or D_{Div}), i.e. the firm has to change from a payer (repurchaser) to a non-payer (non-repurchaser) or vice versa at a given point in time, which reduces our sample size. Mcfadden-Pseudo R^2 and the log-likelihood are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

Table A.4: Logistic regression with fixed effects - Excluding Manufacturing

	Repurchase Dummy (D_{Rep})		*Dividend Dummy* (D_{Div})	
	Manufacturing-only	Excluded	Manufacturing-only	Excluded
	(1)	(2)	(3)	(4)
CS_{t-1}	-0.0032^{*}	-0.0036^{*}	-0.0023	-0.0005
	(0.0015)	(0.0015)	(0.0015)	(0.0015)
ESG_{t-1}	-0.0056	-0.0042	0.0117^{***}	0.0073^{*}
	(0.0038)	(0.0039)	(0.0035)	(0.0033)
$Size_{t-1}$	0.6425^{***}	0.5705^{***}	0.7835^{***}	0.8424^{***}
	(0.0976)	(0.0898)	(0.0983)	(0.0852)
RE_{t-1}	-0.1131^{**}	0.0126	0.2368^{**}	0.8127^{***}
	(0.0360)	(0.0463)	(0.0738)	(0.1249)
AC_{t-1}	-0.0457	0.1003	0.3456^{***}	0.2982^{***}
	(0.0975)	(0.0850)	(0.0826)	(0.0744)
$Cash_{t-1}$	0.8235	1.0332	1.9434^{***}	-0.3882
	(0.4898)	(0.5397)	(0.5128)	(0.4404)
Lev_{t-1}	-2.5535^{***}	-1.4140^{***}	0.0248	-2.0207^{***}
	(0.4363)	(0.4062)	(0.4316)	(0.3466)
MTB_{t-1}	0.0858	0.0430	-0.2279^{**}	0.4637^{***}
	(0.0910)	(0.0990)	(0.0847)	(0.0793)
ROA_{t-1}	5.9722^{***}	4.2212^{***}	10.6745^{***}	6.6218^{***}
	(0.6393)	(0.6685)	(0.8023)	(0.5631)
Fixed effects	Yes	Yes	Yes	Yes
Observations	6,813	6,774	7,910	9,360
Macfadden-Pseudo R^2	0.7833	0.7767	0.7602	0.7338
Log Like.	-3206.6055	-3237.5993	-3628.6486	-4208.5268

This table presents the logistic regression results with year- and firm-fixed effects separately for manufacturing-only and without manufacturing. Standard errors are clustered on the firm level. Columns (1) and (3) present the results for the propensity to repurchase stocks (D_{Rep}) and pay dividends (D_{Div}) for companies in the manufacturing sector, and columns (2) and (4) exclude the manufacturing industry. A detailed description of our variables can be found in table A.1 in the appendix. Note that the fixed-effects logistic regression requires variation in the binary dependent variable (D_{Rep} or D_{Div}), i.e. the firm has to change from a payer (repurchaser) to a non-payer (non-repurchaser) or vice versa at a given point in time, which reduces our sample size. Mcfadden-Pseudo R2 and the log-likelihood are reported upon. t-statistics are displayed in parentheses and $*$, $**$, and $***$ indicate a 5%, 1%, and 0.1% level of significance, respectively.

Table A.5: Paired Sample characteristics

Statistic	N	Min	Median	Max	Mean	St. Dev.
$Time_{3M}$	168	3	42	89	43.19	23.55
$Time_{12M}$	1,772	3	168	365	172.89	99.85
$Time_{24M}$	4,910	3	287	729	305.01	188.69

This table reports descriptive statistics (number of observations, minimum, median, maximum, mean, and standard deviation) about the time-to-event variable ($Time$) for our paired samples. We use nearest-neighbor propensity score matching with a logistic link to pair treated ($D_{Scandal} = 1$) and untreated ($D_{Scandal} = 0$) companies within the same year and country based on the firm-level control variables discussed in section 5.3.3. We restrict the eligible time-to-event for our matched observations to 3, 12, and 24 months respectively. A detailed description of our variables can be found in table A.1 in the appendix.

Chapter 6

Conclusion

Policy-makers, regulators, and academics devote substantial resources and efforts to ensure a successful transition to a more sustainable and ethical society. However, unethical business practices and corporate misconduct contrasting this development have not simply disappeared. In light of the detrimental consequences corporate scandals can have on the environment and society, further research is needed to understand the drivers and motives for unethical corporate behavior. It is important to raise awareness among society and financial market actors regarding the necessity of uncovering these unethical business practices and derive insights on how ethically-motivated investors can incorporate information about corporate scandals in their decision-making process.

The research articles in this doctoral thesis address these issues and contribute to the academic literature in several ways. First, we offer new theoretical and empirical insights on how country- and company-level determinants are linked to unethical corporate behavior and its disclosure. We identify a strong legal and political system, uncertainty-avoiding cultures, and a high dependency on capital markets to be negatively linked to corporate scandals. Contrarily, companies in individualistic and more developed societies or larger, more visible firms are associated with more scandals. Interestingly, we document a positive link between high ESG scores and corporate scandals. This counterintuitive relation, which we call the Janus phenomenon, emphasizes that CSR and CSI are two separate theoretical concepts (Ioannou and Serafeim, 2015; Bear et al., 2010) rather than mutually exclusive dimensions. Shareholders, politicians, and regulators can use these determinants as initial indicators to detect patterns of unethical corporate behavior more easily and formulate rules and proposals to counteract such conduct.

Additionally, we examine how CSR and CSI are linked to corporate financial performance within a portfolio context and show that small firms without scandals can achieve significant outperformance. Besides that, this thesis highlights the importance of CSR and CSI for a firm's payout policy. Our results show that high ESG scores are positively linked to

dividend payments whereas firms respond to the involvement in a scandal with a reduction in their payout. Finally, this thesis yields new empirical evidence on how efficient capital markets price corporate scandals. Our findings provide robust statistical evidence that high excess returns are a statistical precursor for future corporate scandals, challenging the traditional assumption that scandals are unpredictable. Overall, these findings can help executives determine an appropriate payout policy, sensitize ethically-motivated investors to reconsider their underlying assumptions about the relationship between CSR and CSI, and propose to include both dimensions to make informed investment decisions. It guides investors in identifying the right firms and thus helps funnel scarce resources accordingly.

However, in the absence of a uniform definition of CSR and standardized rules for reporting CSR-related information, ESG ratings, and, consequently, academic results are often inconsistent. Thus future research could alternatively incorporate or compare ESG scores from other rating agencies, such as MSCI and Sustainalytics, to provide a holistic picture of how CSR is linked to financial performance and corporate payout policy. Additionally, companies may deliberately overstate their environmental efforts, and further research needs to examine different drivers of greenwashing to sensitize scholars and practitioners to this issue and to guide rating agencies and regulators in establishing sound rating methodologies and regulatory rules to detect and prevent greenwashing. Initiatives, such as the EU Corporate Sustainability Reporting Directive (CSRD), could be a meaningful step to increase the transparency of CSR-related data and harmonize the underlying data of empirical research in the future.

Researchers can also build upon the foundation of the second research article in this thesis and expand upon our identified country- and company-level determinants of corporate scandals. They can, for example, examine industry disparities and how uncertainty during economic crises might affect the link of these variables with corporate scandals. Additionally, dissecting the two components of a scandal (unethical behavior and the disclosure thereof) might help to advance the understanding of corporate scandals. Further research could concentrate on the disclosure dimension and investigate if more corporate scandals are disclosed when climate change is more prominent in the societal discourse (which can be proxied by the climate change news index of Engle et al., 2020) or when another major scandal was recently uncovered as exemplified for the detection rate of security fraud by Dyck et al. (2023).

Another potential limitation is that most of our empirical models rely on annual data on corporate scandals. Further research could employ more frequent data, which would be particularly interesting in a stock-selection context. A potential promising idea could be the use of the exact date of a news article discussing a corporate scandal, similar to the approach in the last research article in this thesis. The usage of individual news articles would also enable other methodological approaches, such as text-based sentiment analysis,

to identify how the capital market prices this information and how investors react to different scandal topics and differences in the tone of these articles.

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