Essays on Corporate Finance: How Executive Traits and Incentives Shape Corporate and Career Outcomes

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Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Jing Ruan

To Knowledge

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Abstract

This thesis consists of three essays on empirical corporate finance. The first and last chapters provide the introduction and conclusion, respectively.

The first essay (Chapter 2) examines the impact of CEO inherited altruism on firm corporate social responsibility (CSR) performance and shareholder returns. The results show that firms led by CEOs with stronger altruistic preferences exhibit better CSR performance, particularly during normal 'good' economic times and when firms have more resources available. CEO inherited altruistic preferences do not have any negative impact on firms' stock returns in general, while they protect shareholder returns during times of financial crisis and recessions, particularly for firms with limited financial flexibility and fewer available resources.

The second essay (Chapter 3) explores the influence of CSR contracting on green innovation in U.S. firms. We find that CSR contracting significantly enhances both the volume and value of green patents. Additionally, CSR contracting fosters patents with broader technological roots, but it does not necessarily lead to a wider range of forward citations. Additionally, CSR contracting encourages both exploitative and exploratory innovations and is linked to improved environmental performance. However, we cannot conclusively assert that green innovation mediates the relationship between CSR contracting and environmental performance.

The third essay (Chapter 4) shows show that the probability of a forced CEO turnover in U.S. firms is higher when the CEO has ancestral origin in a country with higher political animosity with the US, even after controlling for several firm-, performance-, and CEO-related characteristics. The relationship is unlikely linked just to CEO performance or worse bilateral trade relations. Our findings point instead to a behavioral bias in CEO dismissals: the effect of political animosity is

stronger when the CEO's ancestral country is viewed less favorably by the U.S. public, in states with less ethnic diversity, and in firms under lower institutional investors' monitoring.

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Chapter 1 Introduction

1.1 General Background

The question of whether and to what extent top executives, particularly Chief Executive Officers (CEOs), contribute to firm performance remains a central issue in corporate finance (Fee et al., 2013; Schoar and Zuo, 2016; Pan et al., 2016). This debate has significant implications for how we understand executive compensation, the processes of selecting and retaining CEOs, and the broader impact these leaders have on corporate outcomes.

Empirical research consistently supports the notion that CEOs make economically significant contributions to the companies they lead. Prior studies (e.g., Bertrand and Schoar, 2003; Bennedsen et al., 2020) emphasize the critical role CEOs play in shaping firm policies and outcomes. However, this raises essential questions: What makes CEOs so valuable, and how should their contributions be recognized and rewarded?

A key perspective suggests that the unique traits and abilities of CEOs are critical determinants of their effectiveness as leaders. This view is reflected in theoretical models by Rosen (1981), Murphy and Zabojnik (2004), and Gabaix and Landier (2008), which assume that CEOs possess heterogeneous talents and abilities that directly impact firm performance. Empirical studies (e.g., Adams et al., 2005; Bennedsen et al., 2007; Schoar and Zuo, 2017) confirm that managerial heterogeneity, such as certain inherent qualities or early experiences, significantly affects corporate actions and outcomes. Understanding these traits can refine theories of CEO behavior and offer insights into the effective alignment of their qualities with firm objectives.

A related issue is the design of executive compensation, which has become highly controversial due to concerns about excessive pay and the increasing complexity of compensation structures. There

is some divergence in explanations for what drives CEO pay, including shareholder value maximization, rent extraction by executives, and institutional factors such as regulation and taxation (Edmans et al., 2017). While there is greater agreement that financial incentives effectively align CEOs' interests with those of shareholders, designing optimal compensation packages remains challenging. Compensation contracts must balance various objectives, including motivating and guiding effort, encouraging appropriate risk-taking, and attracting and retaining top executives (Albuquerque et al., 2024).

Finally, understanding the causes and consequences of CEO succession has been a cornerstone of executive and corporate governance research. Boards are tasked with the critical responsibility of assessing the CEO's ability to lead the company, disciplining poorly performing CEOs, deciding whether to retain or dismiss them (Weisbach, 1988). This decision-making process is particularly challenging because a CEO's abilities are not directly observable. Research consistently shows that poor firm performance increases the likelihood of CEO dismissal, as boards interpret it as a reflection of the CEO's lack of competence (e.g., Jenter and Kanaan, 2015; Jenter and Lewellen, 2021). Nevertheless, CEOs may also be dismissed due to factors beyond their control, such as bad luck, or when they are viewed less favorably, as is sometimes the case with female and minority CEOs (Ma, 2022; Ursel et al., 2023).

This thesis will explore the controversial role of CEOs' personal traits and values in corporate decision-making and retention, as well as the impact of specific CEO compensation incentives on firm outcomes. It aims to contribute to a deeper understanding of the role of top executives in corporate strategies and the implications for both firms and broader society.

1.2 Motivation and Overview of the Thesis

Academics and practitioners are increasingly recognizing that the personalities, abilities, and characteristics of CEOs and top executives play a crucial role in determining corporate performance (see, for example, Kaplan et al., 2012). More recently, there is a growing stream of literature in the economics and finance domain (e.g., Fernández, 2011; Dohmen et al., 2012; Nguyen et al., 2018; Pan et al., 2020) that investigates how individuals' traits are shaped by their cultural heritage, i.e., the beliefs and values that ethnic groups transmit remain virtually unchanged from generation to

generation. Hence, in the first essay, we investigate the impact of the altruistic tendencies embedded in the CEOs' ancestral country of origin on firms' corporate social responsibility (CSR) performance and shareholder returns.

The first essay is motivated by the debate on the drivers of corporate social engagement and the question behind the large variations in CSR performance across firms. A classical view for why companies invests in CSR is that it enhances profitability (Dowell et al., 2000; Deng et al., 2013). This strategic view of CSR is usually referred to as "doing well by doing good". However, such a strategic view doesn't explain the large variation in CSR engagement, even among firms within the same industry and country. To understand the roots of this variation, our study introduces an altruistic view, positing that some managers may genuinely feel a moral obligation to pursue CSR activities. A challenge faced by prior research is the difficulty in measuring a manager's altruistic preferences, since it is not directly observable. Using an epidemiological approach, we overcome this challenge by associating a CEO's altruistic tendencies with the cultural beliefs of their ancestral origins.

We find that firms led by CEOs with higher inherited altruistic tendencies engage more actively in CSR, reflecting a stronger commitment to other-regarding corporate policies. Contrary to concerns that altruistic CEOs may prioritize stakeholder interests at the expense of shareholders, our results indicate that these CEOs do not negatively impact firm stock returns during normal times. Moreover, during financial crises, firms led by altruistic CEOs experience relatively stronger stock performance, suggesting that the social capital and trust built through altruistic leadership can protect shareholder value in challenging times. The results survive several robustness and endogeneity checks, including propensity score matching and difference-in-difference regressions around exogenous CEO turnover events. Our findings shed light on the role of CEOs' personal traits associated to cultural heritage in explaining their corporate decision making.

Besides the influence of top executives' inherited traits, an extensive literature focuses on the effects of their external incentives, particularly the structure of their compensation, on corporate performance and strategies. A recent trend has been the integration of incentive awards with CSR metrics, commonly referred to as CSR contracting. This practice has seen a significant increase, rising from 3% in 2010 to over 30% in 2021 (Cohen et al., 2023).

The second essay in this thesis is motivated by the mixed findings on CSR contracting. On the one hand, some paper suggests that CSR contracting increases firm value and enhances firm social performance (Hong et al., 2016; Flammer et al., 2019). On the other hand, the current practices of CSR contracting may not be an effective tool to align executives' interest with CSR goals because it can disguise excessive managerial compensation, and might lead to managerial opportunism, where managers manipulate CSR metrics to meet the target without genuinely engaging in CSR (Bebchuk and Tallarita, 2022). We contribute to this debate by examining the influence of CSR contracting on green innovation in U.S. firms.

Utilizing comprehensive data from PatentsView, we assess the quantity, quality, and characteristics of green innovations. Our findings indicate that CSR contracting is positively associated with both the quantity and quality of green innovations, leading to a higher number of green patents and greater economic value and forward citations. However, the influence of CSR contracting on the originality and generality of these innovations is mixed. CSR contracting fosters green patents with broader technological roots (originality) but does not necessarily lead to their application in a wider range of subsequent technological developments (generality). Additionally, CSR contracting encourages both incremental (exploitative) and breakthrough (exploratory) innovations. The positive effects of CSR contracting on green innovation remain robust after controlling for firm and CEO characteristics via propensity score matching. Furthermore, we found that while CSR contracting is positively associated with improved environmental outcomes, green innovation does not appear to serve as a mediator for this effect.

In the final empirical chapter, we turn our attention to investigating how CEO traits might affect their own career outcomes, particularly their likelihood of being dismissed. While prior literature investigating inequalities in labor market outcomes primarily focused on gender and minority status (e.g., Goldin, 2006; Cook and Glass, 2014), we focus on a more subtle differentiation based on CEOs' specific country of origin and evaluate how the changing political relationship (measured by the degree of political animosity) between the U.S. and the CEOs' ancestral country of origin affects their likelihood of being forced out.

The third essay reveals that the likelihood of a CEO's forced dismissal from a U.S. firm is higher if the CEO has ancestral origins in a country with greater political hostility toward the U.S. We

measure political hostility by examining differences in countries' voting patterns in UN resolutions over time. Our results hold consistently after employing propensity score matching, entropy balancing, and instrumental variables approaches to address endogeneity issues. We further explore potential explanations for the higher dismissal likelihood. Our results show that the effect is not due to poor firm or CEO performance, nor is it concentrated in industries sensitive to bilateral trade. Instead, the pattern is consistent with explanations linked to behavioral bias as the impact is particularly pronounced when the CEO's country of origin is perceived unfavorably by the U.S. public.

1.3 Intended Contribution

This thesis aims to make original contributions to the existing literature in several ways.

Firstly, our research adds to the extensive literature on how variations in CEO characteristics influence firm outcomes, especially regarding CSR policies. Prior studies have emphasized the significance of CEOs' demographic, psychological, and experiential traits in shaping their leadership style. For example, Schoar and Zuo (2017) and Dittmar and Duchin (2016) demonstrate that a CEO's style is affected by factors like the macroeconomic environment during their early career and experiences with firm-specific distress. We extend this body of work by focusing on the role of CEOs' inherited social values, specifically their altruistic tendencies shaped by their cultural heritage. Unlike previous studies that infer values from observed behavior, we directly examine how these inherited traits influence decision-making. Following Kleinhempel et al. (2023), we argue that because culture is durable and portable, the intergenerational transmission of cultural dispositions becomes important for firm decision-making; hence, we show that U.S. CEOs of different ancestries make different choices despite being embedded in the same economic and institutional context.

Secondly, our thesis makes important contributions to the literature on the role of cultural origins and transmitted values in shaping individual traits, particularly focusing on how leaders' cultural heritage influences corporate decision-making. Guiso et al. (2006) and Tabellini (2008a) emphasize that cultural heritage is a persistent trait, with beliefs and values remaining consistent across generations. While prior research has explored the impact of inherited cultural traits on corporate

actions including executive compensation (Ellahie et al., 2017), corporate misconduct (Liu, 2016), banks' strategies (Nguyen et al., 2018), acquisitions (Pan et al., 2020), and innovation (Nguyen, 2019), our study is the first to examine how CEOs' inherited altruism specifically drives resource allocation and enhances CSR performance. More broadly, our work adds to the literature that emphasizes the role that culture plays in economic activity (Guiso et al., 2006; Guiso et al., 2008; Tabellini, 2008a), and, in particular, to the role that culture and ethics play in the theory of the firm (Kreps, 1990).

Thirdly, this thesis contributes to the literature on the effects of managerial compensation schemes on corporate policies and outcomes. Prior research has primarily examined the effects of long-term financial and equity-based executive incentives in mitigating managerial short-termism and promoting risk-taking (Cheng, 2004; Manso, 2011; Mao and Zhang, 2018). Studies on CSR contracting, however, remain limited and offer mixed findings on its influence on corporate outcomes (Hong et al., 2016; Maas, 2018; Flammer et al., 2019; Liu et al., 2024). Our research shows that CSR-linked compensation significantly fosters green innovation, contributing to a deeper understanding of how incentive structures can encourage sustainable corporate practices.

Lastly, our results contribute to the literature on CEO turnovers (e.g., Weisbach, 1995; Huson et al., 2004; Pan et al., 2016) by offering novel insights into the CEO labor market. Prior research has primarily examined CEO turnover determinants such as firm performance, misconduct, tenure, and external monitoring (Coughlan and Schmidt, 1985; Warner et al., 1988; Huson et al., 2004; Lee et al., 2012; Dikolli et al., 2014; Beneish et al., 2017; Gao et al., 2017). We contribute to this literature by introducing political animosity between the U.S. and a CEO's ancestral country as a novel factor influencing CEO replacement decisions. Our study is also related to the broader literature on managerial labor discrimination based on gender and racial identity (e.g., Nosek et al., 2009; Parsons et al., 2011; Ursel et al., 2023). However, we argue that such discrimination can extend beyond gender and race to include cultural and political factors.

1.4 Outline of the Thesis

In sum, this chapter provides an overview of the three essays presented in this thesis. The structure of the thesis is as follows: Chapter 2 introduces the first essay, titled "CEO Inherited Altruism, Firm

Corporate Social Responsibility, and Shareholder Returns". Chapter 3 presents the second essay, titled "The Impact of CSR Contracting on Green Innovation: Evidence from the U.S.", and Chapter 4 discusses the final essay, which explores "CEO Ancestral Origins and Forced Turnovers: The Role of Political Animosity". The concluding remarks are provided in Chapter 5.

For clarity and ease of reading, each chapter is designed to be self-contained. Key variables and abbreviations are reintroduced in each chapter, and consistent notations are maintained throughout the thesis whenever possible.

Chapter 2

CEO Inherited Altruism, Firm Corporate Social Responsibility, and Shareholder Returns

2.1 Introduction

Drawing on the upper echelons theory (Hambrick and Mason, 1984), considerable attention in the leadership literature has focused on the role of leaders' social values in influencing corporate decision making and organizational outcomes (e.g., Chin et al., 2013; Haynes et al., 2017). Boone et al. (2022) argue that social values are "the compass by which CEOs navigate in complex decision environments", suggesting that differences in leaders' social values are a crucial determinant of heterogeneity in firms' policies and observable outcomes. Especially when faced with ambiguous situations such as competing interests and demands from different stakeholder groups, leaders' social values may serve as a guiding force for allocating resources (Miles, 2015; Rindova and Martins, 2018). In this context, a long-standing debate has centred around whether leaders should be *other-regarding* (altruistic) or *self-regarding* and the resulting consequences of these leadership characteristics for organizational and societal outcomes (see, for instance, Avolio and Locke, 2002).

Much of the existing literature on altruistic leadership has discussed the conceptual link between CEOs' other-regarding values and firm outcomes (e.g., Haynes et al., 2015; Boone et al., 2022), while fewer studies have focused on the question as to whose interests leaders with altruistic tendencies serve: Do altruistic leaders prioritize wider stakeholder interests over shareholder

interests, or do their corporate actions aim towards balancing these potentially divergent interests?[1] These questions link to another debated discourse in the management literature as to the purpose of the firm and leaders' actions, namely whether leaders' primary focus should be towards advancing shareholder interests ('*shareholder primacy view'*, e.g. Friedman (1962)) or whether firms should respond actively to the demands from a broad range of stakeholders ('*stakeholder orientation*', see e.g. Freeman's (1984) stakeholder theoretical view). We aim to contribute to both debates by investigating empirically whether CEOs' altruistic tendencies translate into other-regarding corporate policies and whether – as a result – CEOs with altruistic tendencies prioritize wider stakeholder interests over shareholder wealth maximization. As a measure of firms' other-regarding corporate policies we use firms' engagement in corporate social responsibility (CSR) as it reflects the extent to which a firm responds actively to demands from a broad range of stakeholders, including employees, customers, communities and the physical environment (Wood, 1991; McWilliams and Siegel, 2001).

One challenge in the literature on altruistic leaders is the difficulty to measure leaders' values and to distinguish social values and underlying motives from observed behavior (Avolio and Locke, 2002; Boone et al., 2022). While there are various approaches for inferring CEOs' social values and altruistic tendencies, such as inferring CEOs' ideology from their political donations (Chin et al., 2013) and using extraordinary compensation and personal charitable donations as indicators of greed (Haynes et al., 2017) and generosity (Guo et al., 2018), these perspectives suffer from potential issues of conflating observable behavior with social values as the same action can stem from different motivations. For instance, CSR investments may be a reflection of self-regarding values (Avolio and Locke, 2002), depending on external incentives such as a CEO's personal reputation and compensation.[2] To address these concerns, we build on the socio-economic and management literature that focuses on an *epidemiological approach* to individual choices and stresses the importance of cultural heritage in shaping individuals' beliefs and values (e.g., Fernández and Fogli, 2009; Fernández, 2011; Dohmen et al., 2012; Nguyen et al., 2018; Pan et al., 2020). As such, we focus on CEOs' altruistic tendencies as an *inherited trait*, which we define as

[1] We acknowledge that shareholders are one stakeholder group and that some shareholders might have interests that align with those of firms' wider stakeholder base (e.g. Homroy, Mavruk, and Nguyen, 2023).

[2] Personal and corporate donations can also be driven by politics, lobbying, tax avoidance reasons and support for so-called CEO 'pet projects' (Chin et al., 2013; Yermack, 2009).

an attitude towards altruism embedded in CEOs' ancestral country of origin. Studies have suggested that cultural traits such as altruistic tendencies are relatively stable over time and transmit from one generation to another (Bisin and Verdier, 2000, 2001). We empirically show that firms led by CEOs from ancestral backgrounds with higher values of altruism show superior CSR performance.

We then investigate the implication of CEOs' altruistic tendencies for shareholder wealth. Based on the shareholder primacy view, CEOs' primary duty is towards their shareholders and serving their interests, which are often narrowly defined as increasing shareholder wealth (Friedman, 1962). A central question is therefore whether CEOs with altruistic tendencies prioritize the interests of other stakeholders over shareholder interests. These concerns are particularly pertinent during times of financial difficulties and when CEOs face limited resources but potentially competing demands from shareholders and different stakeholder groups (Chiu and Walls, 2019). It is an unanswered question in the literature whether CEOs with altruistic tendencies transfer resources to other stakeholder groups at the expense of shareholder wealth maximization and firm financial performance, or whether the other-regarding values of CEOs also protect shareholders' financial interests. Our results show that CEOs' inherited altruism does not negatively affect firm stock returns during normal times. Instead, firms led by CEOs with stronger altruistic tendencies seem to be protected from some of the stock price downturns during times of financial crises and recessions. We explain these findings via stronger social trust and social capital created by CEOs' other-regarding values and actions: As CEOs with more altruistic tendencies devote abundant resources to long-term social value creation and wider stakeholder interests during stable times, such as via CSR investments, stakeholders place greater trust in firms led by altruistic CEOs, resulting in relatively stronger stock returns (adjusted for systematic risk) during bad times.

Our study contributes to several important debates within the leadership literature. Firstly, we add to the literature on the role of leaders' social values, and in particular CEOs' altruistic tendencies, by employing an epidemiological approach to identify these tendencies and incorporating a cultural dimension. Unlike much of the existing literature that infers leaders' social values from their observed behavior (e.g., Chin et al., 2013; Guo et al., 2018), our approach relies on CEOs' ancestral backgrounds. This method allows us to disentangle CEOs' values and motives from their corporate

decision-making more confidently, as CEOs' ancestral background is not endogenously determined by their present actions.[3]

Secondly, we add to the literature on the heterogeneity and drivers of firms' CSR activities, emphasizing the role of CEOs' social values as a determinant of firms' engagement in CSR. While this issue has been previously investigated (e.g. Chin et al., 2013; Tang, Mack, and Chen, 2018; Ren, Sun, and Tan, 2023), our study offers a new perspective by empirically examining the impact of CEOs' inherited altruistic tendencies on firms' CSR policies and stakeholder engagement on one side, and on firms' financial performance and shareholder wealth on the other side.

Thirdly, we contribute to the literature on social trust and social capital during crises (Lins et al., 2017; Fiordelisi et al., 2022) by demonstrating that CEOs' altruistic tendencies can build social capital that protects against stock price downturns during financial crises. Previous studies have suggested that it is CSR that can build social trust among stakeholders which in turn benefits firms during times of crises (Lins et al., 2017). However, CSR can serve a variety of purposes and can be practiced for various reasons including self-serving purposes to boost one's reputation or career prospects (Boone et al., 2022). Hence, we argue that building social capital and social trust relies on genuine other-regarding motives. In line with this argument, our results suggest that it is the CEO's stronger inherited altruistic tendency that helps to generate the social capital among stakeholders linked to value protection during financial downturns, instead of more general CSR policies. These findings have practical implications, namely that leaders' social values play a much more important role for building social trust and social capital than the CSR activity itself.

Finally, our study adds to the literature on the debate between the shareholder primacy view and the stakeholder orientation view. According to Taylor (2023), a common tendency of corporate executives is to 'say' they adopt both: a stakeholder protection view, with long-term value creation for shareholders. In this study, we look at how personal values affect this debate. Rather than focusing on corporate governance-based incentives for leaders, the study adopts a social value-based approach, centered on leaders' inherited altruism as a social value, and the possible consequences this has for firms' CSR and value creation and preservation.

[3] We acknowledge that using individuals' ancestral backgrounds to infer their social values and motives may suffer from other limitations that we discuss in more detail in Section 2.6.

The rest of the study is structured as follows. Section 2.2 reviews the relevant theory and develops testable hypotheses. Section 2.3 introduces the data and empirical methodology. Section 2.4 presents the results of our panel regressions for testing the main hypotheses (H1 and H2) and moderating hypotheses (H3 and H4). In Section 2.5, we perform a variety of endogeneity checks. Section 2.6 provides a discussion on contributions and limitations of this study, outlines the practical implications of our findings, and explores possible directions for future research. Lastly, Section 2.7 summarizes the conclusions and findings.

2.2 Literature Review and Hypothesis Development

2.2.1 CEO inherited altruism and the importance of cultural origins

According to the upper echelons theory (Hambrick and Mason, 1984; Hambrick, 2007), CEOs influence firm outcomes through their leadership, which is partly shaped by their personal values (Berson, Oreg, and Dvir, 2008). Scholars are increasingly delving into how CEO intrinsic motivations and social values impact firm outcomes, either directly (Bromiley and Rau, 2016) or via a moderating role (Sadri et al., 2011). In our study we focus on altruism, which involves acts performed voluntarily and intentionally with the primary goal of benefitting another person or other people rather than oneself (Bar-Tal, 1976). More specifically, we explore the idea of *inherited* altruism whose theoretical development and empirical measurement we illustrate below.

From early evolutionary theories, researchers have introduced the notion of altruism resulting from a process of natural selection via two channels: firstly, natural selection favours groups over individuals through an increased likelihood of passing on genes successfully (Hoffman, 1981) and secondly, reciprocal altruism is established among non-kin due to its long-term benefits (Trivers, 1971). These two notions of natural selection represent a first establishment and perpetuation of "altruistic" genes in populations, laying the foundation for a concept of an inherited predisposition to altruism.

Researchers have further developed several theories of altruism and its establishment among social groups, including the social learning theory and the normative theory. The social learning theory

posits that behaviors can be learned through observation of others, who are referred to as "models" (Bandura, 1977). According to this perspective, our moral responses are acquired through the 'laws of learning' (Rushton, 1981) and the internalisation of values is facilitated by observational learning (Grusec, 1981). Parental models exert the strongest and most prolonged influence on this internalisation process (Dovidio and Penner, 2004). For instance, experimental studies have consistently shown that children display greater generosity when they are exposed to generous models (Lipscomb et al. 1982). Hence, altruism is a value that can be learned from parents, and that parents may have learned from their parents, so it is transmitted from generation to generation. Furthermore, according to the normative theory of altruism (Schwartz, 1977), one of the strongest triggers of altruism is the intensity of moral obligations or norms. These obligations are influenced by shared group expectations about appropriate behavior and social rewards. This influence starts with the first and most basic 'group' to which an individual belongs: their family of origin.

We build on these earlier approaches of natural selection, social learning and normative approaches which regard altruism as a 'learned' and 'transmitted' value. Specifically, our study focuses on an *epidemiological* approach (Fernández, 2011) to define a measure of 'inherited' altruism. In social studies focussed on the impact of culture — defined broadly as a set of preferences, beliefs, and behavioral norms shared by socially or ethnically homogenous groups – the epidemiological approach involves studying the descendants of immigrants in a country and their *cultural heritage.* This method helps to better isolate cultural effects from other variables, such as influences stemming purely from economic and institutional factors (Fernandez and Fogli, 2009). To explain how cultural heritage is transmitted from one generation to the next, Bisin and Verdier (2000, 2001) argue that parents evaluate their children's actions based upon their own preferences and attempt to shape their children's behavior based on their own (inherited) cultural traits. Building on this work, Tabellini (2008b) provides further theoretical discussion on how culture is transmitted when parents believe that what they consider "right" for themselves also applies universally and to their children. To empirically demonstrate these mechanisms, the author shows that the trust attitudes of third-generation U.S. immigrants can still be explained by the political institutions and education that prevailed in the ancestors' countries of origin around or before 1900. Dohmen et al. (2012) test empirically the transmission of attitudes among generations and document a strong influence of parents' attitudes on the risk and trust attitudes of children. The influence of parents on children's attitudes is not solely genetic; it is also shaped through a process of socialization. In line with this

evidence, Guiso, Sapienza, and Zingales (2006) show that cultural heritage is a persistent trait: the beliefs and values that ethnic groups transmit remain virtually unchanged from generation to generation.

The epidemiological approach to identify social values and attitudes has already been applied to investigate the influence of corporate leaders' inherited beliefs on corporate strategies and outcomes. For instance, Liu (2016) shows that firms with higher corruption culture, measured by the corruption levels in the corporate insiders' ancestral countries, tend to be more tolerant toward corrupt behavior and are more likely to engage in corporate misconduct. Furthermore, Pan et al. (2020) find that U.S. firms managed by CEOs with origins in cultures with higher uncertainty avoidance are significantly less likely to engage in risky acquisitions.

Building on this socio-economic and management literature, we measure CEOs' altruism as an *inherited trait* by looking at the level of altruism attributed to the CEO's ancestral country of origin. A CEO's ancestral country of origin is the country from where their ancestors came when they first migrated to the U.S. Specifically, we employ the altruism scores from the Global Preference Survey (GPS) for the CEO's ancestral country of origin as our measure of CEOs' inherited altruism.

The U.S. is a multicultural society with a long immigration history, so it provides substantial variation in CEO cultural origins. In the U.S., the vast majority (90%) of married-couple households across all States are not interracial or interethnic. This tendency to 'endogamy' serves as an efficient means of intergenerational cultural transmission, creating some persistency in cultural heritage that many individuals continue to refer to (Kalmijn, 1998; Bisin and Verdier, 2000).

We acknowledge that our epidemiological approach to defining inherited altruism is only one of several alternative ways one can measure social values. We discuss the limitations and benefits of our approach in Section 2.6.

2.2.2 Link between CEO inherited altruism, stakeholder orientation, and firms' CSR performance

In this section, we pose the important question of whether CEOs with more altruistic (other-regarding) tendencies are more inclined to implement other-regarding corporate policies and adopt a stakeholder-orientated approach. As a measure of firms' other-regarding corporate policies we use firms' engagement and performance in CSR. CSR broadly captures voluntary organizational policies and actions of firms that go beyond what is obligated by law, generating benefits not only to the firm's owners but to other stakeholders as well (McWilliams and Siegel, 2001). Some scholars argue that a firm's CSR performance is less affected by 'chance' than its financial performance and it is more the outcome of a deliberate decision taken by the firm and its leadership. Wernicke et al. (2022) show that CEOs explain about 30% of the total variance in CSR performance, which is a sizable effect. Because of the voluntary nature of CSR, researchers have argued that CEOs enjoy considerable leeway over their firms' CSR profiles (Margolis and Walsh, 2003; Waldman and Siegel, 2008). Hence, we expect CEOs' social values and attitudes to be a significant determinant of firms' CSR performance.

The question of the role of leadership in firms' CSR policies can be further contextualised within the broader leadership discourse. In early debates about leadership and CSR strategies, CSR was seen as driven by corporate "enlightened self-interest" rather than altruism (Piliavin and Charng, 1990): normative and peer pressures were viewed as the main factors behind an increase in firms' social responsibility performance (Moore and Richardson, 1988). Since these early discussions, the leadership literature has evolved significantly. It has incorporated views like 'transformational leadership', which emphasizes self-sacrifice for the long-term good of the larger group or collective (Bass, 1998; Howell and Avolio, 1993). Additionally, 'servant leadership' has emerged, explicitly adding the component of social responsibility to transformational leadership (Graham, 1991). This leadership approach also creates opportunities to empower and develop people and encourages organizations to act according to ethical principles such as humility, authenticity, interpersonal acceptance, stewardship, empathy, and compassion displayed by the leaders (Luthans and Avolio, 2003; Scalzo et al., 2023). Consequently, organizations and their leaders are expected to engage with CSR in a substantial manner, rather than just in a performative way.

Following this latest strand of literature, we argue that a CEO's inherited altruism directly shapes their willingness to invest in CSR, because concerns for collectively beneficial outcomes influence the CEO's utility function. CEOs with altruistic tendencies are expected to be less likely to focus solely on shareholders' interests linked to their compensation (Zajac and Westphal, 1995). Instead, we expect them to be more inclined to consider the interests of multiple stakeholders, including employees, customers, and other societal members, as emphasized by the stakeholder approach (Harrison and Freeman, 1999). This perspective is consistent with prior research suggesting a link between altruism and the willingness to contribute to public goods (Andreoni, 1990; Clark, Kotchen, and Moore, 2003), including actions beneficial to maintaining the physical environment. For example, while a greedy CEO might invest less in environmental clean-ups, pollute more, or reduce investments in customer service or product quality to achieve short-term performance goals, we expect more altruistically inclined CEOs to prioritise environmentally-friendly actions and focus on the welfare of both internal and external stakeholders. CEOs with altruistic tendencies may also provide more concessions in labour negotiations, offer more generous employee benefits, and improve workplace quality, even if that does not maximize their short-term self-interests. On the flipside, they are likely to be less willing to pursue cost saving measures that require the closing of facilities, eliminating jobs, or offshoring of positions, out of concern for those who would be affected. Furthermore, CEOs with stronger altruistic tendencies may also possess a longer-term perspective: altruism focuses on the wellbeing of others and future generations, so CEOs with a strong sense of altruism may prioritise sustainable business practices that benefit the society, instead of pursuing short-term, self-oriented gains.

As discussed in the previous section, we relate a CEO's altruistic tendencies to culturally inherited values. CEOs from different ethnic origins vary in their degree of inherited altruism, providing a possible explanation for the heterogeneity in CSR engagement across firms. Based on the notion that CEOs' altruistic tendencies affect their corporate decision making, we expect a CEO's inherited altruism to translate into more other-regarding and stakeholder-oriented policies, leading to better CSR outcomes. This leads us to formulate our first hypothesis:

H1: CEO inherited altruism is positively related to the firm's stakeholder orientation as measured by its CSR performance.

2.2.3 Link between CEO inherited altruism, shareholder orientation, and shareholder returns

The neoclassical economic theory of the firm suggests that CEOs should act in the best interests of shareholders and engage in other-regarding activities only if they benefit the shareholders. This concept is connected to Friedman (1962)'s 'shareholder primacy view', which asserts that leaders' primary focus should be towards advancing shareholder interests. Hence, here we investigate the impact of CEOs' altruistic tendencies on shareholder wealth maximization. Reviewing the rich literature on this topic, we find competing arguments regarding the possible 'sign' of this impact.

On the positive side, more altruistically inclined CEOs may prioritise employee wellbeing and engagement, which can lead to a better work culture, higher employee satisfaction, productivity and retention, and ultimately result in stronger financial performance (Edmans, 2011). Higher CEO inherited altruism might also translate into policies targeting positive brand reputation, higher customer loyalty and satisfaction, leading to better financial outcomes for the firm (Fornell et al., 2006). These intangible benefits of CEOs with altruistic tendencies might create value for shareholders and be reflected in the share price, leading to stronger shareholder returns for these firms.

On the negative side, CEOs with higher inherited altruism can cause misallocation of resources as they may prioritize social and environmental initiatives over profit-maximizing activities, leading to lower firm profitability (Margolis and Walsh, 2003). This effect might be especially strong when these other-regarding initiatives target wider social issue participation rather than direct stakeholders of the firm (Berman et al., 1999). In addition, investing in CSR initiatives, such as those connected to sustainability or community development projects, can have long-term benefits but they can also carry high short-term costs. While these initiatives may enhance the company's reputation over time, they may reduce profitability and shareholder returns in the short term. Hence, CEOs with altruistic tendencies may pursue initiatives that align with their personal other-regarding values. If these initiatives are value-destroying in the short term they will generate a conflict of interest with shareholders seeking maximum financial returns.

Because of these two competing arguments, we formulate our second hypothesis in two opposing ways and test which one (if any) is supported by the empirical analysis: a positive or a negative relationship between CEO inherited altruism and shareholder returns. However, the nature of the relationship (positive, negative, or neutral) remains an empirical question.

H2: CEO inherited altruism has a positive impact on the firm's stock returns (supporting value creation).

Alternative H2: CEO inherited altruism has a negative impact on the firm's stock returns (leading to value destruction).

2.2.4 The moderating role of crises and financial constraints on the impact of CEO inherited altruism on stakeholders and shareholder interests

While we have so far focused on exploring the direct impacts of CEOs' inherited altruism on CSR and shareholder returns, the extent to which CEOs are guided by their social values may also depend on the circumstances under which they make the decisions, including external economic conditions and the specific characteristics of the firm. For instance, Boone et al. (2022) emphasize the role of CEOs' altruistic tendencies in navigating complex decision environments, while Chiu and Walls (2019) highlight the challenges CEOs face when resources are limited but CEOs face competing demands from shareholders and various stakeholder groups. Here, we focus on episodes of financial crises and firms' financial constraints and develop the moderating role of these factors on the impact of CEO inherited altruism on stakeholder and shareholder interests.

Firstly, we expect that CEOs have more scope to act according to their personal values, including stronger other-regarding preferences, and for these attitudes to affect corporate strategic policies, during non-crisis periods and when firms have more (financial) resources to deploy. As previously defined, CSR can be considered as voluntary organizational activities that go beyond what is obligated by law (McWilliams and Siegel, 2001). In the absence of financial crises and constraints, CEOs have more resources available to dedicate towards voluntary initiatives. Hence, CEOs with altruistic tendencies can allocate these resources more freely towards CSR initiatives, without having to divert resources away from essential operational activities and without facing significant pushback from shareholders due to competing demands. In addition, greater financial stability – as

experienced in non-crisis periods and when a firm does not face financial constraints – allows a CEO greater flexibility in their strategic choices (Leong and Yang, 2021; Beladi et al., 2021). As such, CEOs with higher altruistic tendencies can pursue long-term CSR projects that require sustained resources and commitment, knowing that the firm's financial position can support these initiatives. Hence, we expect CEOs with altruistic tendencies to be more prone to advance stakeholder interests during such times of financial stability.

On the other hand, during times of crises and in situations of resource restraints, the personal characteristics and preferences of CEOs are expected to be less likely to affect CEOs' engagement with stakeholders via CSR, because even though their inherited altruistic tendencies would predispose them to stronger stakeholder orientation, their focus should be on the survival of the firm.

Hence, we formulate the first moderating hypothesis H3:

H3: *The positive relation between CEO inherited altruism and the firm's CSR performance strengthens during times of greater financial stability and when the firm's resources are less constrained.*

We further argue that financial crises and firms' resource constraints moderate the impact of CEOs' altruistic tendencies on shareholder returns. Specifically, we propose that the social capital and trust built by altruistic CEOs during 'good times' can support the firm during crises, thereby enhancing shareholder returns.

CEOs with higher inherited altruism, who are inclined towards stakeholder-oriented activities, such as CSR, contribute to developing trust and collaboration among stakeholders in good times. This trust becomes particularly valuable during crises, when firm financial performance and resource availability are low. Lins et al. (2017) and Fiordelisi et al. (2022) provide evidence of the value-preserving effect of social trust on firm returns during the Great Financial Crisis and the Covid-19 period, respectively. However, these studies approximate social trust through firms' CSR engagement, which can also be driven by strategic and performative motives rather than genuine other-regarding attitudes (Avolio and Locke, 2002; Boone et al., 2022). We argue that genuine altruistic tendencies of CEOs are a more reliable source of social trust among stakeholders, that can,

in turn, shield firms in part from the financial downturn during times of financial turmoil. Specifically, stakeholders, including employees, customers and the wider community, might be more willing to support firms led by altruistic CEOs during crises, through their increased loyalty and effort towards the survival of the firm, reflecting a reciprocity frequently explored in social capital studies: stakeholders who have benefitted from the firm's concern and collaboration in the past are more inclined to assist the company in overcoming adverse situations (Lins et al., 2017). Hence, the effects of CEO inherited altruism might hedge firms against negative shocks and limited resource availability, for example by mitigating employee-related disputes, reducing syndication risk, and *preserving* shareholder value.

From a shareholder perspective, firms that have built strong social connections via their CEOs' altruistic tendencies may be seen as more dependable. Investors might assign a higher value to these firms when overall trust in businesses is diminished, as seen during events like the Great Financial Crisis.

The role of trust and social capital established by an altruistic CEO during a crisis becomes especially relevant for smaller firms with fewer financial resources which are naturally less well equipped to weather difficult times. In contrast, firms with greater resources rely less on 'intangibles' such as trust and capital. Hence, we define the second moderating hypothesis H4:

H4: *A positive relation between CEO inherited altruism and the firm's stock returns strengthens during times of greater financial instability and when the firm's resources are more constrained.*

2.3 Data

2.3.1 Measuring inherited altruism

Since self-reported data on CEO cultural origins are not available, we follow Pan et al. (2020) and infer CEOs' cultural origins from their surnames using the passenger lists of ships arriving at the port of New York from 1820-1957, available at the website Ancestry.com. The passenger lists provide passengers' first names and surnames (family names), date of arrival, ethnicity, and other demographic characteristics. We search for each CEO's surname and use the ethnicity of passengers with the same surname to estimate the frequency distribution across ethnicities. We then attribute

to each surname the country with the highest frequency for that specific surname: this country will be inferred as the country of origin of the CEO. For female CEOs, we use their maiden names to infer their culture of origin. We identify maiden names from various sources, including Marquis Who's Who, NNDB.com, and Google searches.[4]

In summary, we create a dataset that maps CEOs' surnames to ethnicity data from passenger records to identify their country of origin. We then use these countries of origin to assign each CEO a country-level altruism score. We drop records where information on ethnicity is missing.[5] Our surnames dataset contains information about the ethnicity in passenger records for 4,581 different surnames which are linked to 5,934 different U.S. CEOs.[6]

We obtain the countries' altruism scores from the Global Preference Survey (GPS), which relies on a range of qualitative and quantitate survey items to construct preference measures from 80,000 people in 76 countries (Falk et al., 2018). This empirically-validated survey captures preferences across countries in the following dimensions: time preference, risk preference, positive and negative reciprocity, altruism, and trust. Altruism is constructed using a qualitative and a quantitative question, both related to donations. The qualitative question asks respondents about their willingness to give to a charitable cause without expecting anything in return. The quantitative scenario describes a situation where the respondent receives 1,000 Euros unexpectedly and is asked to indicate how much they would donate.

An example of how we identify the origin of a surname and associate it to the country-of-origin altruism score is the following. We look at the ancestral origins of William Amelio, former U.S. CEO of Lenovo and Avnet. First, we search the surname 'Amelio' in the passengers' records available at Ancestry.com. We find 510 records, of which 359 carry information regarding the passengers' countries of origin. 343 of these records (about 96%) are immigrant-passengers coming

[4] For few cases, we are unable to identify a female CEO's maiden name. In addition, as culture is passed down by both fathers and mothers, we would ideally like to identify the surnames of CEOs' mothers. However, both these information gaps may not be serious issues in the U.S. context: firstly, female CEOs only account for 3% of our sample; secondly, intra-ethnic marriage rates are quite high in the U.S.

[5] Passenger records with 'American' ethnicity are also excluded because they identify returning U.S. citizens. We map English, Welsh and Scottish to Great Britain. When 'Scandinavian' is reported in the records as a uniform group, we use the Scandinavian country (Denmark, Norway, or Sweden) where the surname reports the highest frequency.

[6] We are able to identify a dominant country of origin for around 90% of the CEOs.

from Italy; hence, we link this CEO to the altruism score of Italy in the GPS. Italy has a score of 0.346 which is above all countries' distribution average.

While the surname approach is widely used in the empirical literature to identify cultural origins (e.g., Liu, 2016), one concern is that its use to infer the country of origin may still involve some measurement error (Giannetti and Zhao, 2018). First, Pan et al. (2020) perform a cross-validation with data from Nguyen et al. (2018), as the two papers use slightly different surname-ethnicity identification approaches. Both approaches yield the same origin in 80% of cases and most mismatches are close to one another. Second, we note that if we use the weighted average of the altruism score associated with each country-of-origin j, i.e. $\text{Altrusim}_l = \sum w_{lj} \times Altruism_j$, where w_{lj} is the frequency of surname l in country j that appears in the passenger records, we obtain qualitatively and quantitatively similar results. We discuss the results of analysis using this alternative measure, together with a variety of other robustness checks, in Appendix A4.

2.3.2 Sample construction

Following a large body of studies related to firms' CSR choices (e.g. Jiao, 2010; Jo and Harjoto, 2012, and McCarthy et al., 2017), we use the ratings provided by Kinder, Lydenberg, and Domini (KLD) to construct our measure of CSR performance. KLD provides the most comprehensive data on firms' social performance assessed by looking at strengths and concerns for seven major categories: community (COM), workforce diversity (DIV), employee relations (EMP), human rights (HUM), environment impact (ENV), product quality and corporate governance. In this study, following previous literature (e.g., Servaes and Tamayo, 2013, Lins, Servaes and Tamayo, 2017), we use the KLD ratings for five categories, which are the aforementioned-seven categories excluding product quality and corporate governance that cover some items we consider to be outside the scope of CSR.[7] We provide details for each of the five categories' strengths and concerns in Appendix A1. Our KLD sample period covers 1992 to 2018.

For each individual category, KLD assigns a binary score (0/1) to the set of strengths and concerns. Each strength or concern is assigned a value of one if it meets the specified criteria, and a value of zero otherwise. For example, there are eight strength items and seven concern items under the

[7] However, our results continue to hold when we include the product category in the overall CSR score.

Environment category. An example of a strength is Beneficial Products and Services, where the company receives a score of 1 if it generates significant revenue from products or services that are environmentally beneficial. On the other hand, an example of a concern item is Hazardous Waste, where the company receives a score of 1 if its liabilities for hazardous waste sites exceed $50 million, or the company has recently paid substantial fines or civil penalties for waste management violations.[8] Some studies use 'raw' CSR scores obtained by subtracting the number of concerns from the number of strengths for each CSR category and aggregate them to form an overall CSR score. However, this could lead to a biased measurement because the number of CSR items varies across years and the number of strengths and concerns items varies across categories. Therefore, we follow Deng et al. (2013), Servaes and Tamayo (2013), and Lins et al. (2017) and construct an adjusted CSR score. We first calculate the total strength (concern) score for each category and then divide it by the maximum number of strengths (concerns) for each category to obtain the adjusted strength (concern) scores for that category. Then we capture the performance of a firm for each category of CSR by subtracting the adjusted concern score from the adjusted strength score. Finally, the overall adjusted CSR score is the sum of all adjusted CSR category scores. Each individual category's score has a possible range of -1 to +1. Hence, the possible range of the overall adjusted CSR score is -5 to +5.

We measure shareholder returns by calculating firms' monthly abnormal stock returns. We download data on stock returns for all firms in our sample from the CRSP database and then estimate abnormal returns using, alternatively, the Capital Asset Pricing Model (CAPM), the Fama-French three-factor model, and the Fama-French four-factor model (with momentum factor).

To test the moderating effects, we construct proxies for periods of crises and for firms' (financial) resource constraints. For our measure of crisis periods, we use two classifications based on the occurrence of recessionary periods in the U.S. and the occurrence of the Great Financial Crisis. In particular, following the definition of the National Bureau of Economic Research (NBER) of U.S. Business Cycle Expansions and Contractions, we define recessionary periods as the years 2001 and 2007-2009, with all other sample years considered non-recessionary. Following Lins et al. (2017),

[8] For further detailed explanations of each category's strengths and concerns, please also refer to Appendix 1 of the paper by Becchetti, Ciciretti, & Hasan (2015). KLD sources the information on firms' performance in each CSR category from companies' annual reports and regulatory filings, governments and NGOs data, global media sources and newspapers, publicly available information from government agencies, and proxy statements.

we identify the years 2008-2009 as the financial crisis period, and all other sample years as non-crisis years. To capture firms' financial resource constraints, we rely on three different proxies: firm size (defined as the natural log of total assets), industry-adjusted profitability, and free cash flow. We argue that, on average, larger firms have more resources available to spend on voluntary activities such as CSR (e.g., Udayasankar, 2008) and greater access to funding in times of financial difficulties (e.g., Beck and Demirguc-Kunt, 2006), making them less resource constrained. Similarly, more profitable firms, measured by industry-adjusted return on assets (i.e. earnings before interest and taxes to total assets), are likely to have more resources to spend on CSR and greater flexibility in allocating resources (e.g., Waddock and Graves, 1997; Wang et al., 2016). Finally, we use firms' free cash flow as a proxy, defined as cash flow from operations minus capital expenditures, because cash-rich firms can afford to conduct more CSR activities (Lys et al., 2015). Although none of these three measures alone fully capture a firm's financial resource availability, we argue that using these three proxies collectively offers a multi-faceted assessment of firms' resource constraints. We source data on these three measures from Compustat.

We also collect various variables intended to capture other time-varying firm characteristics and CEO-specific characteristics that capture CEOs' demographic features and external incentives. We construct this set of variables from several different sources. We start from ExecuComp, which provides executive names and CEO-related information for S&P 1500 firms starting from 1992. During years of CEO turnover or in the few cases where the firm has a co-CEO, we assign to the firm the CEO with the CEO annual flag (CEOANN) in the specific fiscal year, which in turn is based on who was identified as the CEO in the firm's summary compensation table. From ExecuComp we collect information on a CEO's age, gender, and tenure. Prior research finds that firms led by female CEOs are more likely to engage in socially responsible corporate practices (e.g., Manner, 2010; Kimball, Palmer, and Marquis, 2012). CEO age is also observed to have a direct influence on CSR (Fabrizi, Mallin, and Michelon, 2014). Chen, Zhou, and Zhu (2019) find that firms' CSR performance decreases with CEO tenure.

Firms' financial information is retrieved from Compustat. In addition to firm size, profitability and free cash flow, we also collect information on firm leverage measured as long-term debt plus debt in current liabilities divided by total assets. We consider R&D expenditures (scaled by total assets)

as firms with higher R&D expenditures appear to invest more heavily in CSR (McWilliams and Siegel, 2000).

We add to this dataset the firm's institutional ownership data from the Refinitiv database because institutional investors' monitoring attention and selective preferences could influence the CSR policies of their portfolio firms (Chen, Dong, and Lin, 2020). The data on the percentage of shares held by different types of investors start in 1997, therefore our final merged sample starts from 1997 and ends when KLD data ends in 2018.

Finally, we obtain the countries' scores for all other available cultural dimensions (besides altruism) – time preference, risk preference, positive and negative reciprocity, and trust - from the GPS. All variable definitions and sources are listed in Table A2.1 in the Appendix.

Financial and utility firms are excluded from the sample. Continuous variables are winsorized at the 1% and 99% levels. Our final sample consists of 7,823 firm-year observations for 992 U.S. firms with 1,704 CEOs, whose ancestral origins are traced back to 29 different countries.[9] Table A2.2 in the Appendix illustrates the frequency of the CEOs' ancestral countries of origin in our sample.

2.3.3 Summary statistics

Table 2.1 presents the descriptive statistics, and Table A2.3 in the Appendix shows the correlation matrix of all variables used in our main tests, including CSR ratings, firm stock returns, cultural scores, and all other firm and CEO characteristics. Figure 2.1 reports the distribution of overall adjusted CSR scores.

Our variable of interest, CEO inherited altruism, has a mean of -0.013 and a standard deviation of 0.191, which is close to the distribution described in GPS. GPS integrates the quantitative and qualitative questions associated with altruism into a single score for each surveyed individual. The score is standardized to have a mean of zero and standard deviation of one at the individual level. 12.3% of the variation in the individual level is then attributed to cross-country differences in preference for altruism (Falk et al., 2018). In general, populations from Western Europe and neo-

[9] Our final sample size is comparable to recent studies that use ExecuComp and KLD database, e.g. McCarthy, Oliver and Song (2017) and Chen, Zhou and Zhu (2019).

European countries (e.g., English-speaking countries and Scandinavia) show high levels of altruism, while Eastern Europe exhibits lower levels. For example, Italy, which represents 8.41% of the sample, has a relatively high altruism score (0.35), potentially reflecting a stronger tendency toward stakeholder-oriented decisions, whereas countries like Hungary (-0.59) and the Czech Republic (-0.94) have lower scores.

The overall adjusted CSR score ranges from -1.867 to +4.444, and its sample mean is 0.156. The mean CSR score is positive for each of the five primary categories, which indicates that, on average, firms in our sample have more strengths than concerns. The distribution of the overall adjusted CSR score is reported in Figure 2.1, which shows that the scores are concentrated around zero, with limited variation in extreme CSR performance. The descriptive statistics for all other firm and CEO characteristics in our sample closely resemble those of other studies that also focus on large U.S. public firms over a similar sample period (e.g., Cronqvist and Yu, 2017; Yuan et al., 2019; Chen, Dong, and Lin, 2020).

2.4 Empirical Results

2.4.1 Baseline test for H1

To test hypothesis H1, we first estimate the baseline multivariate panel regression in equation (2.1) with CEO and firm controls and a set of fixed effects (*i* represents the firm, *t* the year). CEO Altruism is the key regressor as our measure of CEO inherited altruism derived from the GPS altruism score associated to the CEO's country of origin. Estimated standard errors are clustered at the firm level.[10]

$$\begin{aligned} CSR\ Score_{it} = {} & \alpha_1 + \beta_1 CEO\ Altruism_{it} + \beta_2 CEO\ Age_{it} + \beta_3 CEO\ Gender_{it} \\ & + \beta_4 CEO\ Tenure_{it} + \beta_5 Firm\ Size_{it} + \beta_6\ ROA_{it} + \beta_7 Leverage_{it} \\ & + \beta_8 Free\ Cash\ Flow_{it} + \beta_9 RandD_{it} + \beta_{10} Inst\ Ownership_{it} \\ & + Time\ FE + Industry\ FE + \varepsilon_{it} \end{aligned} \tag{2.1}$$

[10] In unreported checks we use all other possible clustering methodologies (at industry level, year level, and industry-year level). We also replace industry fixed effects with firm fixed effects. Our results remain unchanged.

Table 2.2 in column (1) reports the results of this baseline panel regression. We observe that a higher value of the CEO's inherited altruism score results in a higher CSR score for the firm, after controlling for all other CEO- and firm-related characteristics. The coefficient on *CEO Altruism* is positive (0.193) and statistically significant at the 1% level (t-statistics of 3.075). This coefficient suggests that when a CEO's inherited altruism score increases by one standard deviation, the firm's CSR rating will increase on average by 0.037 (0.193 × 0.191), ceteris paribus. This explains approximately 5.4% (0.037/0.690) of the variance in the dependent variable and translates into an approximately 23.7% (0.037/0.156) increase in the firm's CSR rating, compared to a firm that takes an average value in our sample. The effect is therefore both economically and statistically significant.

Firms led by female CEOs and firms with more free cash flow perform better in CSR. Firm size, R&D expenses, and ROA also have a significant positive impact, while CEO tenure and institutional ownership have a significant negative impact.[11]

Next, in Table 2.2, columns (2) and (3), we use a firm's CSR strengths (corporate socially responsible actions) and CSR concerns (corporate socially irresponsible actions), separately, as our dependent variables in line with the CSR literature that shows they are distinct concepts and affect firm characteristics differently (e.g., Kotchen and Moon, 2012; Oikonomou, Brooks, and Pavelin, 2012). We find that CEOs' inherited altruism increases firms' CSR strengths but has no impact on CSR concerns. In other words, a CEO's inherited altruistic tendencies help to stir the firm towards taking 'good', socially-responsible actions, rather than refraining from 'bad', irresponsible ones. Studies on social capital suggest that CSR strengths rather than concerns create trust and cooperation between the firm and its stakeholders (Guiso et al. 2004; Scrivens and Smith, 2013). Hence, our findings align with this proposed channel. Furthermore, it can be argued that CEOs have greater discretionary power to take pro-active actions to generate positive CSR outcomes than to prevent the firm from experiencing negative ones. As Servaes and Tamayo (2013) point out, it is very unlikely that a firm with a poor environmental performance has made some 'effort' to obtain such a record.

[11] Oikonomou, Yin and Zhao (2020) find a strong negative effect on CSR for short-term investors (estimated to be the majority of institutional investors – i.e. 44%), and a positive effect for long-term investors (20%).

Overall, the results illustrated in this section provide support for hypothesis H1.[12]

2.4.2 Baseline test for H2

To test hypothesis H2, we estimate the baseline multivariate panel regression in equation (2.2) with CEO and firm controls and a set of fixed effects (*i* represents the firm, *t* the month-year). CEO Altruism is again our key regressor. The dependent variable is now the firm's monthly abnormal stock returns.

$$\begin{aligned} &Abnormal\ Stock\ Returns_{it} \\ &\quad = \alpha_1 + \beta_1 CEO\ Altruism_{it} + \beta_2 CEO\ Age_{it} + \beta_3 CEO\ Gender_{it} \\ &\quad + \beta_4 CEO\ Tenure_{it} + \beta_5 Firm\ Size_{it} + \beta_6\ ROA_{it} + \beta_7 Leverage_{it} \\ &\quad + \beta_8 Free\ Cash\ Flow_{it} + \beta_9 RandD_{it} + \beta_{10} Inst\ Ownership_{it} \\ &\quad + Time\ FE + Industry\ FE + \varepsilon_{it} \end{aligned} \qquad (2.2)$$

Estimated standard errors are clustered at the firm level.[13]

Columns (1) to (3) of Table 2.3 report the results for three different measures of abnormal firm stock returns, estimated respectively using the CAPM, the Fama-French three-factor model, and the Fama-French four-factor model (with momentum factor). We observe that in all specifications the CEO's inherited altruism score has no significant impact on the firm's abnormal stock returns, hence on the wealth created for shareholders, after controlling for all other CEO- and firm-related characteristics. This means that CEOs with stronger altruistic tendencies neither destroy value for shareholders, nor create extra shareholder value when considering the entire sample period.

[12] In Appendix A4, we run a battery of robustness tests on this first result. We use alternative measures of altruism, we control for additional cultural and CEO-related variables, for the local state culture, we exclude the dominant country of origin and foreign CEOs, and we use alternative estimation methodologies such as the Tobit regression. Our results remain robust to all these alternative specifications. In unreported results, we also replace industry fixed effects in the panel regression with firm fixed effects and confirm that our findings hold.

[13] In unreported checks we use all other possible clustering methodologies (at industry level, year level, and industry-year level). We also replace industry fixed effects with firm fixed effects. Our results remain unchanged.

As expected, a high ROA and free cash flow have a positive impact on abnormal stock returns. Firm size, CEO age, and institutional ownership instead are negatively associated to firms' abnormal stock returns, ceteris paribus.

Overall, the results presented in Table 2.3 show that hypothesis H2, which posits a positive relationship, as well as its alternative, which posits a negative relationship between CEO inherited altruism and firms' stock returns, can be rejected. Consequently, a higher altruism score of the CEO's ancestral country of origin indicating a stronger inherited altruistic predisposition of the CEO do not lead to net value creation or net value destruction for shareholders. Additionally, we analyze the evolving impact of inherited traits, using measures of immigration time-distance, which captures the elapsed time since a CEO's ancestors arrived in the U.S. The corresponding results are reported in Appendix Table A2.5.

2.4.3 Moderating factors impacting the relationship between CEO's inherited altruism and CSR

Next, we test for the moderating impact of crises and firms' resource constraints on the relation between CEOs' inherited altruism and CSR. The test for hypothesis H3 is performed in two ways. We first re-estimate equation (2.2) over different sub-periods: recessionary (2001, 2007-2009) versus non-recessionary periods, and financial crisis (2008-2009) versus non-crisis periods. The results are shown in Table 2.4, Panel A. As hypothesised, we find that the CEO's inherited altruism has a significant positive effect only during 'good' times, i.e. in non-recessionary and non-crisis periods, while no significant effect is observed during crises and recessions.

We further divide the firms by sub-samples based on the median values of the firm's size per year (log of total assets),[14] industry-adjusted profitability (measured by the industry-adjusted ROA), and free cash flow. These three measures indicate the firm's level of resources available for investing in CSR and other stakeholder-oriented projects. As shown in Table 2.4, Panel B, our results support hypothesis H3: the positive relationship between CEO inherited altruism and CSR performance is statistically significant at conventional levels only for firms with higher profitability and greater

[14] We observe that the size of firms varies over the years; hence, we rely on the yearly median to distinguish between larger and smaller firms.

availability of free cash flow. In terms of firm size, this relationship is significant in both sub-samples, but it is stronger for relatively larger firms in our sample, as measured by total assets, with both the coefficient value and statistical significance being higher. To further validate that these coefficients are statistically different, we perform tests of differences in coefficients and find that the p-values for the F-tests are smaller than 0.01. This provides robust evidence that the effect of CEO inherited altruism on CSR performance varies across different firm characteristics.

2.4.4 Moderating factors impacting the relationship between CEO's inherited altruism and shareholder return

Next, we execute the same tests for H4, hence using as dependent variables the abnormal stock returns of the firm. Since we observe in Table 2.3 that results do not change dramatically across the three different measures of abnormal returns, we report only those based on the three-factor Fama-French model as for this model we find both an insignificant intercept and a slightly higher adjusted R-squared compared to the other models. As these regressions are performed at the monthly frequency, the crisis period is re-defined to run from August 2008 to March 2009, and the recessionary periods spans March to November 2001 and December 2007 to June 2009 (following Lins et al., 2017, and the NBER identification of recessionary periods).

All results are reported in Table 2.5, Panels A and B. In contrast to our baseline results for H2, the sub-sample analysis now reveals significant relationships between CEO inherited altruism and shareholder returns. While we have observed that CEO inherited altruism does not have any impact on shareholder returns over the *full* sample period, firms led by a more altruistically inclined CEO record significantly higher abnormal returns during the global financial crisis period and the two NBER-classified recession periods. In contrast, CEOs' altruistic tendencies do not have a significant impact on stock returns in the non-crisis years and in expansionary periods.

Next, we investigate the conditional impact of firms' financial resource constraints on the relationship between CEOs' inherited altruism and shareholder returns during crisis periods. In particular, in Panel B of Table 2.5, we split the sample by yearly median size, operating performance (industry-adjusted ROA), and free cash flow, and we restrict the period under investigation to the

financial crisis.[15] This allows us to evaluate whether the positive and significant impact of CEO inherited altruism on returns, shown in Panel A of Table 2.5, may be linked to larger and/or better performing firms that are usually in a better position during crises periods (thus the results in Panel A could be somewhat mechanical). Interestingly, we observe instead that higher CEO inherited altruism has a significant positive effect in protecting the returns of those firms which are worse-equipped to fare crises, i.e. smaller firms, worse-performing firms, and cash-poorer firms, while it has no impact on the others. Our results suggest that CEOs' altruistic tendencies help firms to build and maintain strong human and social capital in good times, which is then particularly valuable in times of crises, when trust in corporations at large is eroded. This effect is particularly pertinent for firms facing greater financial resource constraints.

Taken together, the results in Tables 2.4 and 2.5 show support for the view that a leader with stronger altruistic tendencies protects both the interests of shareholders and those of the wider stakeholder community. A CEO's altruistic tendencies play a crucial role in shaping firms' CSR during times when more resources can be deployed. During these periods, CEOs with stronger inherited altruism build social cohesion and trust, without destroying financial value for shareholders. This social capital helps firms navigate market-wide turbulences, especially those with more limited resources. This suggests that CEO inherited altruism is not value-destroying, but can, in fact, be value preserving during challenging times, which may be reassuring for shareholders.

2.4.5 Testing for a mediating impact of CSR on the relationship between CEO inherited altruism and shareholder returns

While we have argued that altruistic CEOs invest in CSR and build social capital during 'good times' which protects firms during times of market and economic downturns, we have not specified whether the social capital is established by CEOs' altruistic tendencies or the CSR initiatives they implement. In other words, does CSR serve as a mediator for the impact of CEOs' inherited altruism on stock abnormal returns, or is it primarily CEOs' altruistic tendencies that have a direct impact on shareholder returns during crises? Past literature has either silently identified CEO social values

[15] We report results on the global financial crisis, but they are very similar if presented for recessionary periods.

and altruism with CSR (Borghesi et al., 2014), or shown that only CSR has a shareholder value-preserving role during crisis periods (Lins et al., 2017), without investigating any of the CEO's social value traits. Hence, we ask now whether CEO inherited altruism supports a firm's value-preservation in crisis periods *only because* the more altruistic CEOs do better in CSR. To test a possible *mediating* role of CSR in the relationship between inherited altruism and firm abnormal returns, we include *both* the CEO's inherited altruism score and the firm's CSR score as independent variables in the regression explaining firms' abnormal stock returns during the financial crisis period. Following Lins et al. (2017), we employ the firm's CSR score related to the period when the crisis has just started or the years before the crisis has started in this meditation test specification. If CSR has a mediating role for CEO altruistic tendencies, we expect that the coefficient on the CSR score is positive and statistically significant, and the coefficient on CEOs' inherited altruism score is either insignificant (full mediation) or has a reduced size and significance (partial mediation).

The results are reported in Table 2.6. We observe that CEO inherited altruism remains statistically significant (with a positive coefficient), while the past CSR performance score is *not* statistically significant in explaining shareholder returns once CEO inherited altruism is controlled for. Hence, we conclude that CSR performance is *not* mediating the relationship between CEO inherited altruism and shareholder returns during times of crises. This result has important implications because it suggests that the positive impact of the CEO's inherited altruistic nature goes *beyond* the CSR initiatives of the firm, and it is a wider-encompassing positive value that may help boost a firm's financial resilience in difficult times. We will further discuss the practical implications of our results in Section 2.6.

2.5 Endogeneity Checks

A valid concern in our research design is that CEOs with stronger inherited altruistic tendencies might favor those firms that are already more socially-committed, have higher CSR scores, or are better at preserving shareholder value during difficult periods. Hence, in this section we run tests to alleviate concerns that possible endogeneity issues drive our results for hypotheses H1, H2, H3 and H4.

We use propensity score matching (PSM) analysis (Rosenbaum and Rubin, 1983) to account for the possibility that the choice of an altruistic CEO may not be random but related to a firm's and/or a CEO's other observable characteristics. We first perform a probit regression to estimate a firm's likelihood to hire a CEO with higher inherited altruism as a function of firm and CEO characteristics. The dependent variable is a dummy equal to one if the CEO has an inherited altruism score above zero (the country-distribution median value), and zero otherwise.[16] We then match firms with higher-altruistic CEOs (treated firms) to firms with lower-altruistic CEOs (control firms) based on the estimated propensity scores using a one-to-one nearest neighbor matching methodology with replacement. This matching is chosen as it results in higher-quality matches and a larger sample size than matching without replacement (Shipman et al., 2017). Next, we re-run the regressions in equations (2.1) and (2.2) using the matched sample and the same sets of control variables as in our baseline models in Tables 2.2 and 2.3. We also re-estimate all the tests on moderating factors reported in Tables 2.4 and 2.5.

Table 2.7, Panel A, reports the PSM diagnostic tests ensuring that, after matching, treated and control groups are balanced and comparable. Panel B shows similar propensity score distributions for treated and control groups. Panel C reports the results of the PSM-regressions for equations (2.1) and (2) over the whole sample period and then separately on the crisis and non-crisis sub-samples. Panel D reports the results of the PSM-regressions for equations (2.1) and (2.2) over the sub-samples of firms split by median values of size, industry-adjusted ROA, and free cash flows. The results of all our tests remain robust in the matched sample, confirming they are not driven by the selected observable characteristics.[17]

The second approach that allows us to address the endogeneity concern is a difference-in-difference (DiD) test based on CEO turnover events due to CEO death, illness, and voluntary retirement (as in Eisfeldt and Kuhnen, 2013). These turnover events are unlikely to be endogenously associated to firm performance and CSR scores. The DiD analysis with CEO turnovers requires several years of consecutive data for the firms and cannot be performed over smaller sub-samples (e.g., the crisis

[16] To lessen concerns that the choice of dichotomizing the altruism score (above and below zero) is an arbitrary way to create a treatment variable, we have performed alternative PSM regressions. These are based on probit regressions estimating an alternative 'high-altruism dummy' which is equal to one if the CEO has an altruism score above the 2-digit SIC industry median score. The results do not change; hence we only report one set for brevity.

[17] In unreported results we also perform PSM without replacement and results remain robust.

period only spans a period of less than two years). Hence, we use this analysis for endogeneity checks of the results of H1 and H2, but not for H3 and H4. The methodological approach is explained in more detail in Appendix A6, where we also report the full set of results. Overall, using the DiD setting, we find that our conclusions regarding H1 and H2 hold.

2.6 Discussion

In this section, we discuss the theoretical contributions and practical implications of our findings and outline the limitations of our study alongside avenues for future research.

2.6.1 Theoretical contributions

This chapter offers several contributions. Firstly, we contribute to the literature, based on the upper echelons theory, that investigates the importance of leaders' personal traits in explaining firms' CSR policies and performance.[18] Several studies argue that CEOs' demographic and individual traits are a significant driver of their firms' CSR (Borghesi, Houston, and Naranjo, 2014), including gender, education, age, ability, marital status, the gender of CEOs' offspring, CEOs' political ideology and their materialistic tendencies (Manner, 2010; Chin et al., 2013; Cronqvist and Yu, 2017; Davidson et al., 2019; Yuan et al., 2019; Hegde et al., 2023). Another stream of literature focuses on CEOs' psychological traits, including narcissism and hubris (Al-Shammari et al., 2019; Tang et al., 2018), as well as anxiety (Mannor et al., 2016). Further related studies suggest that CEOs' past work and non-work experiences account for differences in CSR strategic decisions, including tenure (Chen et al., 2019), internal promotion (Chiu and Walls, 2019), international experience (Slater and Dixon-Fowler, 2009), military experience (Zhang et al., 2022), and childhood traumas (Han et al., 2022). We add to this literature by focusing on the role of leaders' social values, and in particular CEOs' altruistic tendencies. Unlike much of the existing literature that infers leaders' social values from their observed behavior (e.g., Chin et al., 2013; Guo et al., 2018), we look at altruistic tendencies that CEOs inherit from their culture of origin. Following Kleinhempel, Klasing, and Beugelsdijk (2023), we argue that because culture is durable and portable, the intergenerational transmission of

[18] It is important to note that the relationship between traits, leadership, and corporate strategy may be complex. For a review of the topic, see Antonakis, Day, & Schyns (2012). De Neve et al. (2023) differentiate between false negatives and false positives, i.e., traits that matter but are not perceived by observers as important vs. traits that in reality do not matter but are perceived as important by the observers.

cultural dispositions becomes important for firm decision-making; hence, we show that U.S. CEOs of different ancestries make different choices despite being embedded in the same economic and institutional context (in the U.S.). We further demonstrate that CEOs whose ancestors come from a country with a stronger altruistic culture are more likely to make other-regarding decisions when leading an organization. They engage in meaningful CSR activities when the firm has enough resources and focus on shielding firm returns and ensuring survival during periods of market turbulence. This approach not only returns value to shareholders but also benefits stakeholders, such as employees, supply chain relationships, and the wider business community.

Secondly, our study makes contributions to the literature that highlights the role of cultural origins and transmitted cultural values in shaping individuals' cultural traits by providing novel insights into the role of leaders' cultural heritage on corporate decision-making. Guiso, Sapienza, and Zingales (2006) and Tabellini (2008a) show that cultural heritage is a persistent trait: the beliefs and values that ethnic groups transmit remain fairly unchanged from generation to generation. While previous research has provided empirical evidence on the causal effect of CEOs' inherited beliefs and cultural traits on various corporate actions and policies, such as corporate misconduct (Liu, 2016), banks' strategies (Nguyen et al., 2018), and acquisitions (Pan et al., 2020); to the best of our knowledge, our study is the *first* to explore the role of CEOs' cultural heritage, and particularly of CEOs' inherited altruism, in driving the allocation of corporate resources and in improving firms' CSR performance.

Third, our study adds to the wider literature on the debate between the shareholder primacy view and the stakeholder orientation view, and – related to that – the vast body of research that investigates whether CSR is driven by agency conflicts between firm leadership and shareholders (to the advantage of other stakeholders) or rather signifies an expression of good leadership and good corporate governance. The existing literature provides conflicting findings, with some studies supporting the agency view (e.g., Bénabou and Tirole, 2010; Masulis and Reza, 2015) – that is CSR is practiced by leaders for self-serving reasons, such as enhancing one's reputation or career (Boone et al., 2022) – and others providing evidence in line with the good governance view of CSR (e.g., Edmans, 2011; Deng et al., 2013; Ferrell et al., 2016; Davidson, Dey, and Smith, 2019). Our findings are more in line with the good governance perspective of a genuine altruism-driven CSR.

Finally, we add to the literature on social trust and social capital during crises (Lins et al., 2017; Fiordelisi et al., 2022) by showing that CEOs' altruistic values can create social capital, protecting firms against stock price declines during financial crises. Previous research has argued that CSR can build social trust among stakeholders, benefiting firms in times of crisis (Lins et al., 2017). Our results indicate that CEOs' inherited altruistic tendencies, rather than general CSR policies, help to generate social capital among stakeholders, leading to value protection during financial downturns. These findings align with broader discussions on how CEOs' altruistic actions can foster indirect reciprocity (Balakrishnan, Sprinkle and Williamson, 2011).

2.6.2 Limitations of the study and extensions for future research

Although we believe our findings are a valuable contribution to the upper echelons literature and to understanding the possible implications of cultural heritage on positive leadership styles and firm decision-making, this study should not be interpreted as: 1) an overarching explanatory framework for the cultural determinants of certain leadership styles; or 2) a model that explains leadership drivers of firms' CSR performance (as CSR is a multidimensional and complex concept).

Regarding the former point addressing cultural determinants of positive leadership styles, we are aware of several critiques claiming that studies of positive leadership styles may conjure false correlations between (leaders' objective) behaviors and (observers' subjective evaluation of) those behaviors and firm outcomes (see, for instance, Fischer, Dietz, and Antonakis, 2024). Our framework proposes a way to capture a leadership trait (altruism as an inherited trait) in a less confounding manner and via association to countries' altruism scores which we do not subjectively assign but take from value-preference surveys. We do not dwell in theorising what positive leadership is or may be and, importantly, we do not measure altruism upon a specific behavior which may be interpreted (or not) as altruistic by external observers. However, the critique stands in some respects.

Although we consider the use of inherited altruism to measure CEOs' altruistic tendencies as a contribution of our study, we acknowledge limitations in the way we define, observe and measure CEOs' altruistic tendencies, particularly if we look at alternative approaches of 'true' altruism. Under these approaches, in fact, the existence of a 'trait' of altruism and of an 'altruistic personality' type becomes also possible via a tendency to *experience* cognitive and affective empathy (Rushton,

1981). Feigin, Owens, and Goodyear-Smith (2014) argue that the motivational (intra- and interpersonal) and behavioral influences behind altruism are complex in nature and do not arise from a single source but rather from a multitude of sources both within and outside the individual. While we focus on one dimension that could be observed and measured (the inherited aspect of altruism), the obvious limitation of this choice is that we could potentially under-state the extent and implications coming from all those other sources. In addition, while we assign CEOs an altruism score based on the average altruistic tendencies of people living in their ancestral countries of origin, we acknowledge that altruism as a personal trait is a continuum, and individuals may lie on different points on the altruistic distribution. However, we assume that CEOs from ancestral countries of origin that have higher altruism scores, on average, tend to show higher altruistic tendencies.

Moreover, the epidemiological strategy has its own set of problems. For instance, over time, assimilation to the dominant U.S. culture may weaken the strength of the original culture. This is in line with the predictions of the theory of imprinting, firstly introduced by Stinchcombe (1965) in the organizational and leadership literature. This theory holds that leaders form their worldviews, values, and beliefs in sensitive periods that typically occur when they are experiencing transitions or changes (Higgins, 2006; Liu, He, and Wang, 2023), rather than simply in the "early" periods of their lives (e.g., Kish-Gephart and Campbell, 2015). In these critical phases, leaders display not just a willingness to acquire new skills but also a receptiveness to environmental influences. They often achieve alignment with their new surroundings, leading to an imprinting effect that mirrors the traits of the environment in question (Zhang et al., 2022). However, since the theory of imprinting may introduce a bias towards finding inherited culture to be *insignificant* for corporate strategies, we are reassured that if we do find a significant result, we can claim *some* impact of the inherited value (altruism) against the competing effect of local cultural assimilation. In addition, the merit of our research design relying on differences in country-of-origin inherited altruism within a single-country study is to ensure that the local environment remains constant and only cultural heritage varies across CEOs, with the advantage of singling out other country-level confounding factors, such as the level of economic, social, and political development, as well as relevant institutional features.

Regarding the latter point that CSR represents a multidimensional and complex concept, we acknowledge that there may be other factors we have not considered that may lead to different

outcomes in CSR performance and different impacts of CEO traits on CSR. Hence, we believe that our framework might serve as a baseline model that can be extended in many ways, which in turn opens up exciting avenues for future research. Below we outline some of these possible avenues.

First, it can be important to understand the interaction between the quality of corporate governance in the firm and certain positive leadership styles: future research may therefore explore how their interrelation may impact firms' CSR (and financial) performance. In our context, the impact of the interaction between firms' corporate governance environment and CEOs' leadership style is not clear a-priori. On the one side, a CEO with higher inherited altruism can be more conducive of stakeholder-oriented policies and improve CSR in firms with better corporate governance quality, where shareholders have more control on managerial decisions. Better quality of corporate governance in fact may incentivise the more altruistically inclined CEOs to "keep their bar straight", i.e. to retain a more balanced consideration of all stakeholders and shareholders. CEOs with stronger altruistic tendencies may also be able to adopt more stakeholder-oriented initiatives with the support of more powerful shareholders, hence leading to better CSR performance. On the other side, the genuinely altruistic nature of the CEO may be particularly important in avoiding value-destructive projects in firms with lower corporate governance quality, where shareholders have less ability to exert pressure on CEOs.[19]

Future research could also explore how, and to what extent, CEOs' altruistic tendencies can have a spill-over effect to other hierarchical layers in firms and can be scaled-up to the collective behavior, facilitating an organizational climate where people engage in collectively beneficial behavior. It would also be critical to discern other drivers and mediating factors of the influence of leaders' inherited social values on organizational outcomes, such as their authenticity (e.g., Gardner, Cogliser, Davis, and Dickens, 2011), the degree of leadership discretion (Chin et al., 2013), a

[19] We have performed some preliminary analysis measuring corporate governance quality with the entrenchment index (E-index of Bebchuk, Cohen, and Ferrell, 2009). A lower score in the E-index is associated with higher shareholders' control and pressure on the CEO because the index is based on six provisions, four setting constitutional limits on shareholder voting power, which is the primary power shareholders have, and two other provisions being salient measures taken in preparation for a hostile offer (poison pills and golden parachute arrangements). We observe that the impact of CEO inherited altruism on the CSR score is positive and significant for firms with lower E-Index, hence when shareholders have stronger power to monitor the management. However, we do not observe any significant difference between sub-samples of higher and lower (i.e. above and below median) values of the E-Index for the impact of CEO altruism on firm shareholder returns and results on mediating factors are also mixed. We do not report this analysis in the current study for space constraints and for the findings' limitation, but we believe this can be an important avenue for future research extensions.

leader's transformational capacity (e.g., Bass and Riggio, 2006), and ability to instill high-quality relationships (e.g., Graen and Uhl-Bien, 1995), or to represent and promote a shared social identity (Hogg, van Knippenberg, and Rast, 2012). In addition, under the lenses of the social identity theory (Tajfel and Turner, 1979), future work could investigate how CEOs with stronger altruistic tendencies may decide to prioritize different stakeholders if they are facing competing demands. For instance, an interesting question emerging from our study's findings is whether CEOs with more altruistic tendencies display in-group favoritism – i.e., an expression of bounded altruism where the CEOs' focus is primarily on individuals within their immediate circle - or, due to their other-regarding nature, show more attention to a broader range of (out-group) stakeholders.

2.6.3 Practical implications

The results of this study have important implications for firms' leadership choices. One of the board of directors' main tasks is to select a CEO and executive team that best align with the firms' strategic priorities and provides the best CEO-firm match to drive relevant corporate policies. CSR, as one important corporate policy in the realm of the CEO, has been shown to have notable implications for organizations' long-run stability (DesJardine et al., 2019) and creates positive impact for the society at large (Sutcliffe and Vogus, 2003). We show that CEOs who value altruism more because of their cultural heritage (and above the influence of their local U.S. culture) appear more inclined to take corporate socially responsible actions, as a result of their higher concern for 'others' (their stakeholders, their community, and future generations). Our results therefore suggest that if a board of directors aims to select and hire the 'right' CEO – one whose social values align with the organization's goals and mission – and, in particular, if the board aims to improve their firm's CSR performance without diverting resources from important investments that maximize shareholder value, they should consider the CEO's altruistic tendencies (and cultural heritage) in their hiring decisions.

Our findings also have implications for understanding how firms and leaders build social capital and trust, which, in turn, protects firms from stock price downturns during times of market turmoil and crisis. In contrast to existing literature (e.g., Lins et al., 2017), our findings suggest that it is not CSR performance, per se, that creates social capital and trust among stakeholders but that the value-protecting effects of social capital and trust are built through leaders' social values, and particularly

their altruistic tendencies. Practically, this implies that simply increasing CSR engagement may not protect shareholder value unless the engagement is driven by genuine altruistic motives and is part of a wider leadership-driven organizational culture.

Finally, our findings suggest that altruistic tendencies in CEOs may serve shareholder interests, especially during times of financial and market turmoil. This contradicts critiques suggesting that CEOs with altruistic tendencies prioritize stakeholder interests over those of shareholders. Therefore, shareholders should not be concerned about appointing CEOs with stronger other-regarding values; instead, they should consider leaders with such qualities as valuable assets that can enhance firm stability and performance in challenging times.

2.7 Conclusions: Summary of Findings

This study presents first-hand evidence of the positive impact that CEO inherited altruism, transmitted from the ancestral culture of origin, has on the CSR performance and stock returns of the firm the CEO leads. The impact of CEO inherited altruism on CSR performance is higher during normal ‘good’ economic times, when firms have more resources available. In addition, CEO inherited altruism does not have a negative impact on firms’ stock returns, while it protects shareholder returns in times of financial crisis and recessions, particularly for firms with limited financial flexibility and fewer available resources.

Our main findings survive controls for unobservable industry characteristics and common trends (captured by fixed effects). They are also robust to a battery of control variables and robustness checks, and to controls for endogeneity, using propensity score matching and a quasi-natural experiment based on changes in CEO inherited altruism following exogenous CEO turnover events.

2.8 Figures and Tables

Figure 2.1 Distribution of Overall Adjusted CSR Score

This figure presents a histogram of overall adjusted CSR score for sample firms over the period 1992–2018

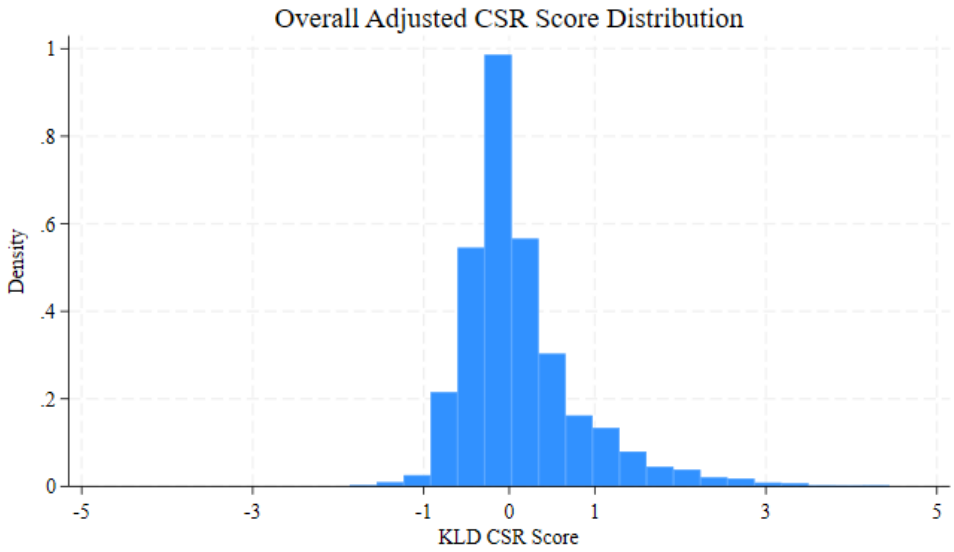

Table 2.1 Summary Statistics

This table presents summary statistics for all variables used in our tests. A detailed description of the variables and the sources of the data is provided in Appendix Table A2.1.

Variable	Obs.	Mean	Std. Dev.	Min	Max
CSR Scores					
KLD_CSR5	7,823	0.156	0.690	-1.867	4.444
KLD_STR5	7,823	0.417	0.643	0.000	4.800
KLD_CON5	7,823	0.261	0.338	0.000	3.267
Cultural Dimensions					
CEO_altruism	7,823	-0.013	0.191	-0.940	0.634
CEO_patience	7,823	0.475	0.242	-0.431	1.071
CEO_risktaking	7,823	0.006	0.114	-0.792	0.244
CEO_posrecip	7,823	-0.021	0.124	-0.532	0.570
CEO_negrecip	7,823	0.029	0.214	-0.375	0.739
CEO_trust	7,823	0.093	0.195	-0.519	0.609
CEO_egalitarianism	7,817	4.924	0.196	4.230	5.270
CEO_altruism_mean	7,823	-0.020	0.163	-0.940	0.505
Firms' Financials and Corporate Governance					
ROA	7,823	0.115	0.078	-0.415	0.370
Leverage	7,823	0.199	0.179	0.000	0.954
Log Size	7,823	7.618	1.584	3.603	11.477
Log Free Cash-Flow	7,823	4.898	1.771	0.029	9.055
R&D	7,823	0.046	0.057	0.000	0.417
Inst_Ownership	7,823	0.814	0.173	0.072	1.000
E-index	4,197	3.245	1.149	0.000	6.000
G-index	3,314	9.467	2.572	2.000	17.000
Firm's Monthly Abnormal Stock Returns					
Abreturn_CAPM	92,174	0.0050	0.0917	-0.4499	0.5684
Abreturn_FF3	92,174	0.0039	0.0873	-0.4764	0.5941
Abreturn_FF3mom	92,174	0.0045	0.0858	-0.4885	0.5954
CEO Characteristics					
Log Age	7,823	4.017	0.125	3.664	4.344
Gender	7,823	0.031	0.173	0.000	1.000
Log Tenure (in months)	7,823	4.165	0.951	1.792	6.064
CEO overconfidence	6,518	0.711	0.453	0.000	1.000
Log CEOComp Delta	7,608	5.613	1.522	0.000	13.473
Log CEOComp Vega	7,608	3.874	2.001	0.000	9.153
Sustainability_ MonetIncentive	2,978	0.299	0.458	0.000	1.000

Table 2.2 Test for H1.

Column (1) shows the results of the baseline panel regressions where the overall KLD CSR score with five categories is regressed on the altruism score of the CEO's ancestral country of origin, and several other firm and CEO characteristics. In columns (2) and (3) the overall KLD CSR score is replaced by the separate scores for 'strengths' and 'concerns'. We include industry and year fixed effects. The models are estimated over the entire sample period. Variable definitions are provided in Table A2.1. Robust t-statistics are reported in parentheses; they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(3)
Dependent Variables:	KLD_CSR5	KLD_STR5	KLD_CON5
CEO_altruism	**0.193*** **	**0.177*** **	**-0.016**
	(3.075)	**(3.426)**	**(-0.457)**
ROA	0.298*	0.164	-0.141
	(1.873)	(1.105)	(-1.626)
Leverage	-0.122	-0.173**	-0.0519
	(-1.443)	(-2.347)	(-1.271)
Log Size	0.148***	0.201***	0.0512***
	(8.973)	(14.20)	(5.868)
Log Free Cash-Flow	0.055***	0.0430***	-0.0112*
	(5.288)	(4.762)	(-1.826)
R&D	1.473***	1.164***	-0.323***
	(6.213)	(5.723)	(-2.964)
Log CEO Age	-0.122	-0.0966	0.0288
	(-1.197)	(-1.133)	(0.568)
CEO Gender	0.443***	0.393***	-0.0491
	(5.503)	(4.984)	(-1.561)
Log CEO Tenure	-0.024**	-0.0191*	0.00454
	(-2.008)	(-1.837)	(0.755)
Inst. Ownership	-0.260***	-0.465***	-0.209***
	(-2.910)	(-6.507)	(-3.251)
Constant	-0.613	-0.527	0.000706
	(-1.308)	(-1.567)	(0.00342)
Industry FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Observations	7,823	7,823	7,823
Adjusted R-squared	0.389	0.470	0.283

Table 2.3 Test for H2.

This table presents the results of panel regressions of CEO inherited altruism on firm's monthly abnormal returns calculated using the CAPM model, the Fama-French three-factors and four-factors models, controlling for several other firm and CEO characteristics. We include industry and month-year fixed effects. The models are estimated over the entire sample period. Variable' definitions are provided in Table A2.1. Robust t-statistics are reported in parentheses; they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(3)
Dependent Variables:	Abreturn_CAPM	Abreturn_FF3	Abreturn_FF3Mom
CEO_altruism	0.0003	0.001	0.0008
	(0.217)	(0.697)	(0.565)
ROA	0.022***	0.024***	0.021***
	(3.690)	(4.166)	(3.630)
Leverage	-0.001	-0.003	-0.003
	(-0.658)	(-1.579)	(-1.606)
Log Size	-0.005***	-0.004***	-0.004***
	(-7.581)	(-7.835)	(-7.601)
Log Free Cash-Flow	0.003***	0.003***	0.003***
	(5.664)	(5.708)	(5.523)
R&D	-0.004	-0.007	-0.006
	(-0.489)	(-1.059)	(-0.782)
Log CEO Age	-0.005**	-0.006**	-0.004*
	(-2.020)	(-2.089)	(-1.658)
CEO Gender	-0.001	-0.0009	-0.001
	(-0.920)	(-0.633)	(-0.822)
Log CEO Tenure	0.00009	0.0002	0.00005
	(0.258)	(0.585)	(0.017)
Inst. Ownership	-0.010***	-0.010***	-0.00958***
	(-4.353)	(-4.755)	(-4.427)
Constant	0.052***	0.001	0.0008
	(4.854)	(0.697)	(0.565)
Industry FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Observations	92,174	92,174	92,174
Adjusted R-squared	0.038	0.014	0.011

Table 2.4 Tests for H3.

Panel A presents a sub-sample analysis of the impact of CEO inherited altruism on CSR scores based on recessionary/non-recessionary and crisis/non-crisis periods. Panel B shows the results of the panel regressions on sub-samples of firms split by yearly median value of size (natural log of total assets), and median values of industry-adjusted ROA and free cash flow. We include industry and year fixed effects. In all regressions, we control for all firm and CEO characteristics included in our baseline regressions reported in Table 2.2. In Panel B, we also report the p-values for tests of differences in coefficients of *CEO_altruism* between subsamples. Robust t-statistics are reported in parentheses, and they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

Panel A.	(1)	(2)	(3)	(4)
Dependent Variable:	KLD_CSR5	KLD_CSR5	KLD_CSR5	KLD_CSR5
Sub-Samples:	Recession (Years: 2001, 2008, 2009)	Non-Recession	Crisis (Years: 2008, 2009)	Non-Crisis
CEO_altruism	0.0804	**0.209*** **	0.130	**0.202*** **
	(1.019)	**(3.145)**	(1.571)	**(3.033)**
ROA	0.028	0.415**	0.030	0.386**
	(0.180)	(2.270)	(0.179)	(2.149)
Leverage	-0.075	-0.140	-0.128	-0.129
	(-0.726)	(-1.578)	(-1.180)	(-1.461)
Log Size	0.064***	0.168***	0.082***	0.162***
	(2.634)	(9.572)	(3.652)	(9.157)
Log Free Cash-Flow	0.035**	0.053***	0.032**	0.055***
	(2.018)	(4.697)	(2.024)	(4.839)
R&D	0.866***	1.554***	0.937***	1.526***
	(3.658)	(5.887)	(3.861)	(5.791)
Log CEO Age	-0.144	-0.101	-0.127	-0.108
	(-1.141)	(-0.935)	(-0.923)	(-1.001)
CEO Gender	0.340***	0.445***	0.331***	0.449***
	(5.559)	(5.009)	(5.340)	(5.036)
Log CEO Tenure	-0.015	-0.027**	-0.023	-0.025**
	(-1.035)	(-2.074)	(-1.376)	(-1.965)
Inst_Ownership	-0.204**	-0.258***	-0.177*	-0.260***
	(-2.255)	(-2.697)	(-1.821)	(-2.741)
Constant	0.071	-0.734*	-0.111	-0.677
	(0.143)	(-1.741)	(-0.206)	(-1.603)
Observations	1,132	6,688	953	6,867

Adjusted R-squared	0.250		0.398		0.261	0.393
Industry FE	Yes		Yes		Yes	Yes
Time FE	Yes		Yes		Yes	Yes

Panel B.	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	KLD_CSR5	KLD_CSR5	KLD_CSR5	KLD_CSR5	KLD_CSR5	KLD_CSR5
Sub-Samples by:	Firm's Size		Industry-adjusted ROA		Free Cash-Flow	
	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median
CEO_altruism	0.0712	**0.250****	**0.112***	**0.282*****	0.037	**0.217****
	(1.617)	**(2.243)**	**(1.694)**	**(3.106)**	(0.792)	**(2.044)**
ROA	0.170	0.438	0.094	0.105	0.102	-0.026
	(1.419)	(1.374)	(0.371)	(0.380)	(0.847)	(-0.090)
Leverage	0.022	-0.113	-0.072	-0.174	0.027	-0.068
	(0.284)	(-0.736)	(-0.647)	(-1.624)	(0.325)	(-0.507)
Log Size	0.062***	0.182***	0.112***	0.187***	0.051***	0.115***
	(3.366)	(5.277)	(6.043)	(7.744)	(3.277)	(3.466)
Log Free Cash-Flow	0.003	0.086***	0.057***	0.044**	0.007	0.189***
	(0.324)	(4.664)	(5.096)	(2.437)	(0.877)	(5.831)
R&D	0.843***	2.048***	1.048***	1.676***	0.724***	1.712***
	(4.755)	(3.800)	(4.645)	(4.726)	(4.128)	(3.567)
Log CEO Age	-0.047	-0.219	-0.247**	-0.019	-0.041	-0.194
	(-0.519)	(-1.302)	(-2.235)	(-0.141)	(-0.487)	(-1.189)
CEO Gender	0.475***	0.296**	0.590***	0.267**	0.445***	0.329***
	(6.259)	(2.250)	(5.444)	(2.456)	(6.353)	(2.659)
Log CEO Tenure	-0.019*	-0.024	-0.012	-0.033*	-0.028***	-0.021
	(-1.938)	(-1.220)	(-0.928)	(-1.943)	(-2.790)	(-1.062)
Inst_Ownership	4.949	-27.180	-17.230*	-27.560**	1.765	-13.180
	(0.749)	(-1.447)	(-1.769)	(-2.375)	(0.278)	(-0.700)
Constant	-0.307	-0.683	0.123	-1.080**	-0.230	-0.888
	(-0.826)	(-0.896)	(0.280)	(-1.983)	(-0.679)	(-1.256)
Observations	3,915	3,903	3,909	3,911	3,909	3,910
Adjusted R-squared	0.315	0.445	0.355	0.432	0.268	0.439
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
F-test (p value)	0.0044		0.0071		0.0034	

Table 2.5 Tests for H4.

Panel A presents a sub-sample analysis of the impact of CEO inherited altruism on firm's monthly abnormal returns (calculated using the Fama-French three-factors model) based on recessionary/non-recessionary and crisis/non-crisis periods. Panel B show the results of the crisis-period panel regressions on sub-samples of firms split by yearly median value of size (natural log of total assets), and median values of industry-adjusted ROA and free cash flow. We include industry and month-year fixed effects and control for all firm and CEO characteristics included in our baseline regressions reported in Table 2.3. Robust t-statistics are reported in parentheses, and they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

Panel A.	(1)	(2)	(3)	(4)
Dependent Variable:	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3
Sub-Samples:	Recessions (2001, 2008, 2009)	Non-Recessions	Crisis (2008, 2009)	Non-Crisis
CEO_altruism	**0.013*** **	0.00009	**0.030*** **	0.00004
	(2.851)	(0.059)	**(3.327)**	(0.0278)
ROA	0.022	0.026***	0.013	0.025***
	(1.258)	(4.452)	(0.452)	(4.303)
Leverage	-0.008	-0.003	-0.009	-0.003
	(-1.298)	(-1.315)	(-0.729)	(-1.451)
Log Size	-0.008***	-0.004***	-0.008***	-0.004***
	(-4.397)	(-6.718)	(-2.653)	(-7.421)
Log Free Cash-Flow	0.007***	0.002***	0.009***	0.003***
	(4.486)	(4.424)	(3.159)	(5.139)
R&D	0.007	-0.009	0.041	-0.009
	(0.332)	(-1.202)	(1.096)	(-1.255)
Log CEO Age	-0.016*	-0.005*	-0.041**	-0.005*
	(-1.815)	(-1.808)	(-2.463)	(-1.718)
CEO Gender	-0.015**	0.0004	-0.020	-0.0003
	(-2.008)	(0.252)	(-1.511)	(-0.197)
Log CEO Tenure	0.0006	0.0002	0.0009	0.0002
	(0.488)	(0.653)	(0.425)	(0.567)
Inst_Ownership	-0.011	-0.010***	-0.003	-0.011***
	(-1.448)	(-4.705)	(-0.189)	(-5.031)
Constant	0.105***	0.047***	0.187***	0.0479***
	(2.916)	(4.195)	(2.859)	(4.412)
Observations	9,881	82,292	3,717	88,457
Adjusted R-squared	0.019	0.013	0.025	0.015
Industry FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes

Panel B. Crisis sub-sample.	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3	Abreturn_FF3
Firms split by:	Firm's Size		Industry-adjusted ROA		Free Cash-Flow	
	Below Yearly Median	Above Yearly Median	Below Median	Above Median	Below Median	Above Median
CEO_altruism	**0.0353*** **	0.0178	**0.037*** **	0.015	**0.034*** **	0.021
	(2.653)	(1.476)	**(2.609)**	(1.216)	**(2.699)**	(1.643)
ROA	0.0478	-0.0696*	0.066	0.020	0.053	-0.068*
	(1.248)	(-1.760)	(0.980)	(0.440)	(1.403)	(-1.669)
Leverage	-0.0303	0.00783	-0.024	0.009	-0.036*	0.010
	(-1.588)	(0.547)	(-1.233)	(0.552)	(-1.827)	(0.630)
Log Size	-0.00660	-0.00998**	-0.008*	-0.011**	-0.004	-0.012**
	(-0.964)	(-2.427)	(-1.866)	(-2.138)	(-0.953)	(-2.226)
Log Free Cash-Flow	0.0110**	0.00869**	0.009**	0.010**	0.011***	0.012**
	(2.478)	(2.500)	(2.532)	(2.237)	(2.732)	(2.173)
R&D	0.0574	0.0389	0.088	-0.012	0.078	0.011
	(1.055)	(0.926)	(1.338)	(-0.288)	(1.350)	(0.259)
Log CEO Age	-0.0618***	-0.00733	-0.048*	-0.024	-0.070***	-0.003
	(-2.672)	(-0.343)	(-1.759)	(-1.170)	(-2.939)	(-0.154)
CEO Gender	-0.00780	-0.0301*	-0.030	0.003	-0.010	-0.024
	(-0.447)	(-1.915)	(-1.206)	(0.321)	(-0.540)	(-1.350)
Log CEO Tenure	0.00172	-0.00102	0.0007	0.002	0.004	-0.003
	(0.534)	(-0.376)	(0.205)	(0.649)	(1.082)	(-1.128)
Inst_Ownership	-0.00625	-0.00344	-0.005	-0.017	-0.024	0.007
	(-0.341)	(-0.153)	(-0.260)	(-1.009)	(-1.257)	(0.268)
Constant	0.251***	0.0844	0.217*	0.134	0.279***	0.062
	(2.711)	(0.962)	(1.928)	(1.635)	(2.927)	(0.702)
Observations	1,852	1,865	1,876	1,840	1,854	1,863
Adjusted R-squared	0.036	0.024	0.032	0.018	0.033	0.020
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.6 Test on mediating role of CSR.

This table presents further analysis of the impact of CEO inherited altruism on firm's abnormal returns based only on crisis periods, adding to the specifications of Table 2.5, Panel A, column 3, a control for the past CSR performance score to test CSR's mediating role. We include industry and month-year fixed effects and control for all firm and CEO characteristics which are included in our baseline regressions reported in Table 2.3. Robust t-statistics are reported in parentheses, and they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)
Dependent variables:	Abreturn_FF3	Abreturn_FF3
Sub-sample period:	Crisis	Crisis
KLD_CSR5 period:	KLD-CSR5: 2008	Average KLD-CSR5: 2006-2007
CEO_altruism	0.030***	0.031***
	(3.373)	(3.167)
KLD_CSR5	-0.0006	-0.002
	(-0.158)	(-0.419)
ROA	0.014	0.012
	(0.484)	(0.411)
Leverage	-0.008	-0.012
	(-0.703)	(-0.954)
Log Size	-0.008***	-0.009***
	(-2.689)	(-2.733)
Log Free Cash-Flow	0.009***	0.010***
	(3.172)	(3.535)
R&D	0.046	0.038
	(1.190)	(0.942)
Log CEO Age	-0.043**	-0.042**
	(-2.584)	(-2.373)
CEO Gender	-0.020	-0.022
	(-1.503)	(-1.258)
Log CEO Tenure	0.001	0.001
	(0.483)	(0.506)
Inst_Ownership	-0.005	0.006
	(-0.369)	(0.363)
Constant	0.197***	0.182**
	(3.002)	(2.579)
Observations	3,708	3,077
Adjusted R-squared	0.025	0.027
Industry FE	Yes	Yes
Time FE	Yes	Yes

Table 2.7 Propensity Score Matching.

Panel A presents the results of the t-tests conducted on the differences between the sample means for all main variables used in the panel regression in the treated and control groups. Panel B illustrates the distribution of the estimated propensity scores for treatment and control firms. Panel C shows the results of the probit model (column 1) and the panel regressions using the matched sample for the CSR performance and the firm's abnormal returns, respectively over the whole sample (columns 2 and 3) and then the crisis and non-crisis sub-samples (columns 4 to 7). Panel D shows the results of the panel regressions over sub-samples of firms split by yearly median values of size (yearly logarithm of total assets), and median values of performance (industry-adjusted ROA) and free cash flow. The probit regression estimates the firm's propensity (likelihood) to have an altruistic CEO as a function of firm and CEO characteristics. The dependent variable is a dummy variable that equals one if the CEO's country of origin has an altruism score above zero and zero otherwise. Firms with high-altruistic CEOs (treated firms) are matched with firms with low-altruistic CEOs based on the estimated propensity scores from the probit model. We use a one-to-one nearest neighbor matching methodology with replacement. The PSM panel regressions are estimated using the matched sample and the same sets of control variables and fixed effects as in our baseline models in Tables 2.2 and 2.3. Robust t-statistics are reported in parentheses and calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

Panel A. T-tests on Sample Means for Treated and Control Firms

Variables:	Sample Mean Treated Firms	Sample Mean Control Firms	Difference btw Sample Means	t-stat for Difference btw Sample Means	p-value
ROA	0.1139	0.1159	-0.0020	-1.25	0.212
Leverage	0.2050	0.2063	-0.0013	-0.36	0.722
Firm Size	7.6881	7.6997	-0.0116	-0.35	0.726
Log Free Cash-Flow	4.9469	4.9607	-0.0138	-0.37	0.711
R&D	0.0462	0.0469	-0.0007	-0.59	0.552
Inst_Ownership	0.8101	0.8152	-0.0051	-1.39	0.165
Log CEO Age	4.0152	4.0168	-0.0016	-0.66	0.512
CEO gender	0.0325	0.0364	-0.0039	-1.03	0.304
Log CEO Tenure	4.1236	4.1172	0.0064	0.32	0.752

Panel B. Estimated propensity score distribution for Treated and Control Firms

Propensity score	N	Mean	S.D.	P1	P5	P50	P95	P99
Treatment	2,052	0.589	0.041	0.504	0.521	0.588	0.658	0.684
Control	2,119	0.589	0.041	0.506	0.522	0.589	0.659	0.683
Difference	67	0.000	0.000	-0.002	-0.001	-0.001	-0.001	0.001

Panel C. PSM Regression Results

	Pre-match	Matched sample regressions					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		H1:	H2:	H3:		H4:	
Dependent Variables:	Probit High Altruism Dummy	KLD_CSR5 (All Period)	Abreturn_FF3 (All Period)	KLD_CSR5 (Non-Crisis Period)	KLD_CSR5 (Crisis Period)	Abreturn_FF3 (Non-Crisis Period)	Abreturn_FF3 (Crisis Period)
Regressors:							
CEO_altruism		**0.186*** **	**0.001**	**0.203*** **	**0.086**	**-0.0002**	**0.035*** **
		(3.001)	**(0.523)**	**(2.997)**	**(1.029)**	**(-0.100)**	**(2.763)**
ROA	-0.131	0.408**	0.025***	0.495**	0.0009	0.029***	-0.027
	(-0.600)	(2.268)	(3.098)	(2.390)	(0.005)	(3.539)	(-0.636)
Leverage	0.161*	-0.0220	-0.005	-0.022	-0.064	-0.004	-0.015
	(1.782)	(-0.239)	(-1.645)	(-0.230)	(-0.474)	(-1.424)	(-0.902)
Firm Size	0.065***	0.133***	-0.004***	0.149***	0.043	-0.003***	-0.007
	(2.904)	(7.201)	(-4.277)	(7.483)	(1.634)	(-4.088)	(-1.638)
Log Free Cash-Flow	-0.032	0.0541***	0.002***	0.053***	0.049**	0.020**	0.009**
	(-1.584)	(4.432)	(2.877)	(3.901)	(2.449)	(2.494)	(2.334)
R&D	0.253	1.605***	-0.002	1.681***	0.975***	-0.003	0.034
	(0.935)	(6.338)	(-0.154)	(5.832)	(3.370)	(-0.289)	(0.627)
Log CEO Age	-0.094	-0.113	0.0006	-0.109	-0.014	0.002	-0.048**
	(-0.747)	(-1.120)	(0.144)	(-1.031)	(-0.089)	(0.526)	(-2.032)
CEO Gender	0.085	0.382***	-0.003	0.386***	0.351***	-0.002	-0.024
	(1.001)	(4.159)	(-1.557)	(3.884)	(3.606)	(-0.980)	(-1.308)
Log CEO Tenure	-0.057***	-0.0235*	-0.00008	-0.026**	-0.025	-0.0002	0.003
	(-3.420)	(-1.954)	(-0.161)	(-1.987)	(-1.225)	(-0.327)	(1.112)
Inst_Ownership	-0.194**	-0.318***	-0.011***	-0.324***	-0.192*	-0.012***	-0.004
	(-2.312)	(-3.906)	(-3.481)	(-3.699)	(-1.753)	(-3.752)	(-0.216)
Constant	0.629	-0.442	0.026	-0.545	-0.353	0.020	0.203**
	(1.274)	(-1.073)	(1.594)	(-1.265)	(-0.577)	(1.241)	(2.200)
Time FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,823	4,170	49,079	3,630	534	47,000	2,078
Pseudo R-squared	0.0053						
Adjusted R-squared		0.387	0.014	0.393	0.205	0.014	0.023

Panel D. PSM Regression Results

Dependent Variables:	H3 KLD_CSR5 (All Period)						H4 Abreturn_FF3 (Crisis Period)					
	Low Size	High Size	Low Ind. Adj.-ROA	High Ind. Adj.-ROA	Low FCF	High FCF	Low Size	High Size	Low Ind. Adj.-ROA	High Ind. Adj.-ROA	Low FCF	High FCF
CEO_altruism	0.0855	**0.190***	0.079	**0.282*****	0.050	**0.173***	**0.048****	0.016	**0.034***	0.028	**0.048*****	0.024
	(1.441)	**(1.777)**	(1.006)	**(3.113)**	(0.858)	**(1.674)**	**(2.537)**	(1.024)	**(1.720)**	(1.620)	**(2.790)**	(1.310)
ROA	0.225	0.460	0.239	0.359	0.172	0.149	0.019	-0.068	0.031	0.024	0.006	-0.036
	(1.605)	(1.230)	(0.903)	(1.128)	(1.166)	(0.445)	(0.303)	(-1.105)	(0.334)	(0.322)	(0.0985)	(-0.539)
Leverage	0.0310	0.0451	-0.030	-0.011	0.020	0.073	0.003	-0.033	-0.037	-0.008	-0.018	-0.018
	(0.377)	(0.278)	(-0.240)	(-0.092)	(0.229)	(0.480)	(0.085)	(-1.455)	(-1.247)	(-0.374)	(-0.665)	(-0.762)
Firm Size	0.0642***	0.146***	0.106***	0.173***	0.061***	0.097**	0.0002	-0.012	-0.012*	-0.0008	-0.00005	-0.011
	(2.844)	(3.786)	(4.825)	(5.986)	(3.277)	(2.424)	(0.018)	(-1.626)	(-1.883)	(-0.137)	(-0.009)	(-1.161)
Log Free Cash-Flow	0.00870	0.0800***	0.062***	0.032	0.012	0.167***	0.009	0.009	0.011**	0.005	0.009	0.010
	(0.821)	(3.677)	(4.643)	(1.544)	(1.175)	(4.397)	(1.486)	(1.620)	(2.107)	(0.812)	(1.618)	(1.023)
R&D	0.874***	2.578***	1.087***	2.040***	0.731***	2.244***	0.084	-0.034	0.061	-0.015	0.083	-0.004
	(4.257)	(4.926)	(4.008)	(5.319)	(3.507)	(4.620)	(1.044)	(-0.547)	(0.682)	(-0.270)	(0.978)	(-0.0710)
Log CEO Age	-0.0294	-0.250	-0.266**	0.026	-0.040	-0.251	-0.085***	0.018	-0.030	-0.047	-0.080***	-0.010
	(-0.289)	(-1.447)	(-2.171)	(0.182)	(-0.424)	(-1.492)	(-2.703)	(0.555)	(-0.840)	(-1.619)	(-2.608)	(-0.290)
CEO Gender	0.505***	0.175	0.470***	0.306***	0.464***	0.243*	0.014	-0.046	-0.034	-0.011	0.012	-0.048*
	(5.845)	(1.110)	(3.651)	(2.632)	(5.908)	(1.697)	(0.620)	(-1.643)	(-1.056)	(-0.450)	(0.582)	(-1.668)
Log CEO Tenure	-0.0250**	-0.0159	-0.023	-0.023	-0.038***	-0.005	0.004	0.001	0.00006	0.006	0.004	-0.0004
	(-2.170)	(-0.812)	(-1.563)	(-1.304)	(-3.297)	(-0.243)	(0.961)	(0.258)	(0.015)	(1.449)	(0.997)	(-0.0885)
Inst_Ownership	-0.0176	-0.392**	-0.388***	-0.222**	-0.059	-0.270	-0.018	-0.005	-0.004	-0.013	-0.023	-0.007
	(-0.238)	(-2.356)	(-3.726)	(-2.079)	(-0.835)	(-1.501)	(-0.655)	(-0.132)	(0.015)	(1.449)	(-0.852)	(-0.168)
Constant	-0.341	-0.200	0.433	-1.282**	-0.211	-0.405	0.300**	-0.0009	0.173	0.163	0.293**	0.101
	(-0.808)	(-0.256)	(0.858)	(-2.211)	(-0.563)	(-0.555)	(2.290)	(-0.007)	(1.150)	(1.492)	(2.410)	(0.763)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,079	2,087	2,084	2,084	2,084	2,083	1,030	1,048	1,054	1,024	1,040	1,038
Adjusted R-squared	0.326	0.437	0.352	0.422	0.278	0.424	0.037	0.017	0.024	0.015	0.033	0.010

Appendix

Table A2.1 Variable Descriptions

Variable Name	Description	Source
	CSR Measures	
KLD_CSR5	The sum of adjusted Community, Diversity, Employee, Environment and Human rights corporate social responsibility scores. The adjusted CSR score is calculated by scaling the raw strength and concern scores of each category by the number of items of the strength and concern of that category in the year and then taking the net difference between adjusted strength and concern scores for that category.	MSCI KLD
KLD_STR5	The sum of the CSR adjusted strengths scores for the categories: Community (including charitable and giving, support for housing and education, volunteer programs), Diversity (in CEO gender and ethnicity, in promotion, in board of directors, work/life benefits, women and minority contracting, employment of the disabled, gay and lesbian policies), Employee (including good union relations, no-layoff policy, cash profit sharing, employee involvement, retirement benefits, health and safety provisions), Environment (including beneficial products, pollution prevention, recycling, clean energy, communications, and management systems) and Human rights (including indigenous people relations and labor rights strength). The adjusted strength score is calculated by scaling the raw strength of each category by the number of strengths-items of the category in the year.	MSCI KLD
KLD_CON5	The sum of the CSR adjusted concerns scores for the categories: Community (including investment controversies, negative economic impact, tax disputes), Diversity (controversies, lack of representation in board and amongst senior managers), Employee (poor union relations, health and safety concerns, workforce reductions, retirement benefits concerns), Environment (including hazardous waste, regulatory problems, ozone depleting chemicals, substantial emissions, agricultural chemicals, climate change) and Human rights (including labor rights concerns, bad indigenous relations). The adjusted concern	MSCI KLD

	score is calculated by scaling the raw concern of each category by the number of concerns-items of the in the year.	
	Firm Stock Abnormal Returns	
Abreturn_CAPM	Firm's monthly stock abnormal returns estimated from the CAPM model	CRSP and authors' calculations
Abreturn_FF3	Firm's monthly stock abnormal returns estimated from the Fama-French Three-Factor model	CRSP and authors' calculations
Abreturn_FF3Mom	Firm's monthly stock abnormal returns estimated from the Fama-French Four-Factor model with momentum	CRSP and authors' calculations
	Cultural Dimensions	
CEO_altruism	A measure of willingness to donate to the charity. Measured as a combination of one qualitative and one quantitative item. The qualitative question asked respondents how willing they would be to give to good causes without expecting anything in return on an 11-point scale. The quantitative scenario depicted a situation in which the respondent unexpectedly received 1,000 euros and asked them to state how much of this amount they would donate.	Global preference survey
CEO_altruismmean	Weighted average of altruism score, where the weight is determined by the frequency of passengers' records across origins associated with a CEO's surname in Ancestry.com.	Global preference survey
CEO_patience	A measure of patience, i.e., how individuals prefer the earlier payment to the larger delayed payment.	Global preference survey
CEO_risktaking	A measure of how individuals trade off risky payments and sure payments.	Global preference survey
CEO_posrecip	A measure of the individuals' willingness to reciprocate positively.	Global preference survey
CEO_negrecip	A measure of the individuals' willingness to reciprocate negatively.	Global preference survey
CEO_trust	A measure of willingness to trust strangers.	Global preference survey
CEO_egalitarianism	A measure of egalitarian culture. Egalitarian cultures seek to induce people to recognize one another as moral equals who share basic interests as human beings. They try to socialize their members to internalize a commitment to cooperate and to feel concern for everyone's welfare. People are expected to act for the benefit of others as a matter of choice.	Schwartz (2006)
	Firm Characteristics	

ROA Return on asset	Earnings before interest and taxes (EBIT)/Total assets (AT)	Compustat
Leverage	Total debt (DLTT + DLC)/Total assets (AT)	Compustat
Firm Size	Log of total assets (AT) of a firm.	Compustat
Log Free Cash-Flow	Log of Cash flow from operations (OANCF) less capital expenditures (CAPX)	Compustat
R&D	R&D intensity = Annual firm dollars spent on R&D (XRD) scaled by total assets (AT)	Compustat
Inst_Ownership	Total institutional ownership	Refinitiv
	CEO Characteristics	
Log CEO Age	Log of CEO age	ExecuComp
CEO Gender	CEO gender dummy (1 = woman, 0 otherwise)	ExecuComp
Log CEO Tenure	Log of CEO tenure in months	ExecuComp
Log CEOComp Delta	Log of CEO compensation Delta. Delta is defined as the dollar change in an executive's wealth for a 1% change in stock price.	ExecuComp
Log CEOComp Vega	Log of CEO compensation Vega. Vega is defined as the dollar change in an executive's wealth for a 1% change in volatility.	ExecuComp
Sustainability_ MonetIncentive	A dummy variable that is equal to one if senior executives' compensation is linked to the firm's sustainability performance in the year, and zero otherwise. The data item is derived from the following question: "Does the company have an extra-financial performance-oriented compensation policy?", where the compensation policy includes remuneration for the CEO, executive directors, non-board executives, and other management bodies based on sustainability factors.	Refinitiv
CEO Overconfidence	A dummy variable that is equal to one for all CEO tenure years after the CEO fails to exercise an option that is deep in-the-money (67%), and zero otherwise.	ExecuComp
	Additional Control Variables	
Non-CEO pay slice	It equals to one minus CEO pay slice. The latter is the fraction of the aggregate compensation of the firm's top-five executive team captured by the CEO, as defined in Bebchuk, Cremers and Peyer (2011).	ExecuComp
Social capital	The social capital of the county where the firm is headquartered constructed as in Rupasingha, Goetz and Freshwater (2006).	Rupasingha, Goetz and Freshwater (2006)
Blue state dummy	A dummy variable that is equal to one if Democratic wins in the gubernatorial elections, and zero otherwise. The dummy variable changes every four years except in New Hampshire and Vermont where governors serve two-year terms.	CQ Press U.S. Political Stats

Definition of Time Periods		
Financial Crisis Period	A dummy variable that is equal to one from August 2008 to March 2009, and zero otherwise.	Lins, Servaes and Tamayo (2017)
Recession Period	A dummy variable that is equal to one from March 2001 to November 2001 and from December 2007 to June 2009, and zero otherwise.	NBER U.S. Business Cycle Expansions and Contractions

Table A2.2 Distribution of CEO's ancestral countries of origin

Country	Frequency	Percent	Altruism Score
Great Britain	3,689	47.16	0.03
Germany	1,476	18.87	-0.05
Italy	658	8.41	0.35
Israel	478	6.11	-0.33
France	283	3.62	-0.17
Sweden	181	2.31	-0.17
China	151	1.93	0.50
Netherlands	128	1.64	-0.19
Poland	111	1.42	-0.37
Spain	99	1.27	-0.13
Greece	84	1.07	-0.27
India	84	1.07	-0.17
Russia	77	0.98	-0.07
Switzerland	70	0.89	0.09
Hungary	56	0.72	-0.59
Austria	46	0.59	-0.04
Czech Rep	42	0.54	-0.94
Portugal	21	0.27	0.05
Turkey	17	0.22	-0.28
Canada	14	0.18	0.23
Finland	12	0.15	-0.25
Croatia	11	0.14	-0.07
Ukraine	9	0.12	-0.12
Japan	7	0.09	-0.24
Jordan	6	0.08	-0.73
Lithuania	6	0.08	0.16
Brazil	4	0.05	0.46
Egypt	2	0.03	0.63
Estonia	1	0.01	-0.57
Total	7,823	100	

Table A2.3 Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) KLD_CSR5	1.00															
(2) KLD_STR5	0.87	1.00														
(3) KLD_CON5	-0.32	0.19	1.00													
(4) CEO_altruism	0.06	0.06	-0.01	1.00												
(5) CEO_patience	0.01	-0.03	-0.06	-0.03	1.00											
(6) CEO_risktaking	0.02	0.01	-0.03	0.07	0.69	1.00										
(7) CEO_posrecip	0.03	0.01	-0.04	0.66	-0.26	-0.14	1.00									
(8) CEO_negrecip	-0.02	0.00	0.04	0.11	-0.38	0.22	0.21	1.00								
(9) CEO_trust	0.02	0.02	-0.02	0.13	0.22	0.31	0.23	0.08	1.00							
(10) CEO_egalitarianism	0.03	0.03	0.00	0.39	0.18	0.04	0.18	0.08	-0.24	1.00						
(11) CEO_altruism_mean	0.06	0.08	0.05	0.92	-0.06	0.09	0.60	0.21	0.14	0.42	1.00					
(12) ROA	0.13	0.12	-0.04	-0.08	-0.01	0.01	0.01	0.00	0.01	0.01	-0.07	1.00				
(13) Leverage	0.13	0.10	-0.07	0.06	-0.05	-0.06	0.08	-0.05	0.02	0.07	0.04	0.04	1.00			
(14) Log Size	0.37	0.56	0.34	0.12	-0.09	-0.01	0.10	0.09	0.05	0.04	0.14	-0.01	0.16	1.00		
(15) Log Free Cash-Flow	0.40	0.56	0.27	0.09	-0.07	0.01	0.10	0.12	0.08	0.02	0.12	0.28	0.07	0.86	1.00	
(16) R&D	0.10	0.03	-0.14	0.08	-0.04	-0.02	0.11	0.08	0.09	-0.11	0.10	0.01	-0.20	-0.11	0.02	1.00
(17) Inst_Ownership	-0.13	-0.28	-0.29	-0.04	-0.06	-0.05	0.06	0.03	-0.03	-0.05	-0.05	-0.21	-0.06	-0.41	-0.40	0.15
(18) E-index	-0.12	-0.20	-0.16	-0.09	0.00	-0.06	-0.06	-0.11	-0.05	-0.03	-0.11	-0.14	0.06	-0.30	-0.33	-0.05
(19) Abreturn_CAPM	-0.02	-0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	-0.01	0.00	0.03	-0.02	-0.01	0.02	0.00
(20) Abreturn_FF3	-0.02	-0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.03	-0.01	-0.01	0.01	-0.01
(21) Abreturn_FF3mom	-0.02	-0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.03	-0.01	-0.01	0.01	0.00
(22) Log Age	-0.01	0.00	0.03	0.00	-0.07	0.00	0.06	0.03	-0.04	-0.08	0.01	-0.05	0.03	0.03	-0.01	-0.15
(23) Gender	0.16	0.18	0.03	-0.03	-0.02	0.12	0.04	0.08	0.01	-0.05	-0.01	0.09	-0.05	0.14	0.15	-0.09
(24) Log Tenure (in months)	-0.11	-0.14	-0.05	-0.08	0.06	-0.01	-0.03	0.02	-0.02	0.05	-0.08	0.00	-0.04	-0.15	-0.14	0.04
(25) CEO overconfidence	-0.07	-0.10	-0.05	0.13	0.00	0.00	0.11	0.01	0.03	0.03	0.12	0.13	-0.05	-0.01	0.03	0.00
(26) Log CEOComp Delta	0.09	0.18	0.16	-0.05	-0.03	-0.01	0.00	0.08	0.01	-0.01	-0.03	0.35	-0.03	0.39	0.46	-0.04
(27) Log CEOComp Vega	0.11	0.22	0.20	-0.09	0.00	-0.04	-0.06	-0.01	0.03	-0.06	-0.09	0.20	0.03	0.38	0.38	-0.08
(28) Sustainability_MonetIncentive	0.17	0.27	0.18	0.04	-0.09	-0.13	0.04	-0.06	-0.03	0.01	0.06	0.03	0.03	0.24	0.21	-0.06

Variables	(17)	(18)	(19)	(20)	(21)	(21)	(23)	(24)	(25)	(26)	(27)	(28)
(17) Inst_Ownership	1.00											
(18) E-index	0.23	1.00										
(19) Abreturn_CAPM	-0.01	0.00	1.00									
(20) Abreturn_FF3	-0.01	0.00	0.95	1.00								
(21) Abreturn_FF3mom	-0.01	0.00	0.92	0.98	1.00							
(22) Log Age	0.03	0.00	-0.01	0.00	0.00	1.00						
(23) Gender	-0.02	-0.14	0.01	0.01	0.01	-0.06	1.00					
(24) Log Tenure (in months)	0.05	0.05	0.01	0.01	0.00	0.33	-0.09	1.00				
(25) CEO overconfidence	0.06	-0.09	0.01	0.01	0.00	0.08	0.05	0.31	1.00			
(26) Log CEOComp Delta	-0.31	-0.27	0.06	0.05	0.05	0.14	0.02	0.39	0.28	1.00		
(27) Log CEOComp Vega	-0.29	-0.15	0.01	0.01	0.01	-0.04	-0.08	0.05	-0.03	0.57	1.00	
(28) Sustainability_MonetIncentive	-0.06	0.02	-0.01	-0.01	-0.01	0.05	0.05	0.06	-0.02	0.13	0.14	1.00

A2.4 Robustness Checks on Test for H1: Additional controls and alternative samples

In this section we perform several additional tests to confirm our result with respect to hypothesis H1). We start by using alternative measures for CEO's altruism: in column (1), following Haynes et al.'s (2015) compensation-based measure of CEO greed, we use 'Non-CEO pay slice' (equal to 1 minus the percentage of CEO compensation to the total of the five highest-paid firm's managers) to identify a less-greedy CEO; in columns (2) and (3) we use, respectively, the country-weighted average altruism score discussed in section 2.3.1 and Schwartz's egalitarianism score.[20] Results are reported in Appendix Table A2.4 below. We observe that all alternative measures of altruism have a significant positive impact on the CSR score of the firm.[21] Next, in column (4) we add controls for all other country-of-origin cultural dimensions included in the GPS (patience, risk taking, positive and negative reciprocity, and trust): we find that none of them is statistically significant; only altruism appears to be strongly related to the CSR score, with an estimated coefficient of 0.181 (t-statistics of 2.016).[22] In columns (5) and (6) we add controls for CEOs' risk perception and monetary incentives: the sensitivity of CEO compensation to stock volatility (vega) is not statistically significant, while the sensitivity to stock returns (delta) has a negative impact on CSR performance (as in Fabrizi et al., 2014), but with significance only at the 10% level. We then control for a dummy that captures the existence of a policy for CEOs' extra compensation linked to the firm's sustainability performance. We find the dummy insignificant. Our main result remains robust to this alternative specification. Further, following past literature (Di Giuli and Kostovetsky, 2014; Rupasingha, Goetz and Freshwater, 2006), we control for the cultural influence of the CEOs' U.S. county/state: in column (7) we add a dummy variable named 'Blue State' which is equal to one when the State is governed by Democrats and zero otherwise and changes every four years (as

[20] Egalitarian cultures induce people to recognize one another as moral equals who share basic interests as human beings and try to influence their members to internalize a commitment to cooperate and to feel concern for everyone's welfare (Schwartz, 2006). Hence, Schwartz's egalitarian score closely aligns with our measure of altruism.

[21] Our result on altruism is also robust to controls for Hofstede's cultural dimensions (Hofstede, 1980): power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. Hence, it is not driven by other cultural traits of the culture of origin.

[22] In unreported regressions where we control for each cultural dimension separately, we still find all of them insignificant with the exception of positive reciprocity which shows a positive coefficient that is statistically significant only at the 10% level. This is due to the similarity between these two concepts: altruism is 83% correlated with positive reciprocity. However, the latter dimension measures respondents' propensity to act in a positively *reciprocal* manner. The difference with altruism is that altruism does not require any precedent action or good deed that one feels the need to reward or reciprocate, it is a purer self-less action motivated by a focus on others.

an outcome of the general elections); in column (8) we use the county-level index of social capital, which is based on census mail response rates, total number of votes cast in presidential elections, and number of associations and non-profit organizations per 10,000 people.[23] The estimated coefficients on the variable CEO altruism remain positive and highly significant. To separate CEO altruism from "warm glow" (Andreoni, 1990) and rule out that narcissistic, overconfident CEOs may engage in more externally visible CSR policies for status-seeking and self-image motives rather than pure altruism, in column (9) we control for CEO overconfidence (measured as in Malmendier and Tate, 2005): CEO inherited altruism remains positive and statistically significant. Moreover, we adjust the sample to show that the results do not depend on potential selection biases: in column (10) we drop the United Kingdom as the CEO's country of origin from our sample as this is the dominant country (with 46.17% CEO-observations, see Table A2.2 in the Appendix); in column (11) we exclude from the sample the foreign-national CEOs that were likely born abroad (representing 3% of the sample) to avoid confounding effects coming from their possible direct experience and connection with the country of origin. The main result of a positive impact of CEO altruism on the CSR score survives.[24] Finally, as CSR scores range from -5 to +5, we repeat our analysis using a censored regression model (Tobit). The results reported in column (12) also confirm the initial results.

[23] We linearly interpolate social capital values which are freely available online for the years 1990, 1997, 2005, 2009, and 2014. The data have been retrieved from the website: https://aese.psu.edu/nercrd/community/social-capital-resources (last accessed on 2 November 2023).

[24] In unreported checks, we drop countries that in aggregate represent only 1% of the CEOs' origins and may represent outliers (Canada, Finland, Croatia, Ukraine, Japan, Jordan, Lithuania, Brazil, Egypt, and Estonia). We also re-run the regression with all independent variables lagged by 1 year (while requiring the CEO to be the same) to ameliorate possible concerns of endogeneity coming from the use of contemporaneous dependent and independent variables. The results are unchanged.

Table A2.4 Robustness Checks on Test for H1: Additional controls and alternative samples

The table presents the results of several robustness checks for the panel regression testing H1: we use alternative measures of altruism (columns 1 to 3), we control for other cultural dimensions, CEO compensation and compensation-sensitivity variables (columns 4, 5, and 6), we control for the influence of 'local' culture (columns 7 and 8), for CEO overconfidence (column 9), and for firms and CEOs sample selection (columns 10 and 11), and finally we use an alternative estimation methodology (Tobit, column 12). All variables are defined in Table A2.1 of the Appendix. Robust t-statistics are reported in parentheses, and they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represents respectively statistical significance at the 1%, 5%, and 10% level.

	Alternative Measures of Altruism			Additional Controls Variables						Alternative Samples		Alternative Est. Methodology
	Non-CEO Pay-Slice	Weighted average of altruism	Schwartz egalitarianism	Adding other cultural dimensions	Adding CEO compensation sensitivity	Adding sustainability monetary incentive	Blue States	State social capital	Adding CEO over-confidence	Exclude UK origin	Exclude Foreign CEOs	Tobit
Dependent Variable: KLD_CSR5	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Regressors:												
CEO_altruism	-	-	-	**0.181** **(2.016)**	**0.214*** **(3.007)**	**0.223*** **(1.686)**	**0.206*** **(2.825)**	**0.222**** **(2.370)**	**0.215**** **(2.570)**	**0.190**** **(2.558)**	**0.177**** **(2.397)**	**0.224*** **(3.158)**
Non-CEO_PaySlice	**0.131**** **(2.099)**											
CEO_ altruism_mean		**0.205**** **(2.420)**										
CEO_egalitarianism			**0.150**** **(1.966)**									
CEO_patience				0.087 (0.954)								
CEO_risktaking				-0.125 (-0.746)								
CEO_posrecip				0.0137 (0.106)								
CEO_negrecip				0.0662 (0.854)								
CEO_trust				0.00886								

				(0.117)								
Log CEOComp Delta					-0.024*							
					(-1.688)							
Log CEOComp Vega					0.003							
					(0.379)							
Sustainability_						0.057						
MonetIncentive						(1.020)						
Blue States Dummy							0.003					
							(0.145)					
State Social Capital								0.146**				
								(2.024)				
Other Firm-Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other CEO-Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.802	-0.024	-0.704	-0.664	-0.039	0.793	-0.109	-0.543	0.088	-0.629	-0.150	-0.104
	(1.511)	(-0.0454)	(-1.107)	(-1.426)	(-0.075)	(0.627)	(-0.205)	(-0.892)	(0.147)	(-0.783)	(-0.275)	(-0.185)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,906	7,823	8,897	7,823	7,608	2,978	7,649	4,650	6,518	4,134	7,533	7,823
Adjusted R-squared	0.606	0.620	0.606	0.389	0.618	0.670	0.620	0.582	0.614	0.672	0.616	
Pseudo R-squared												0.529

A2.5 Immigration time distance

We conduct additional analyses to better understand the evolving impact of inherited traits, particularly inherited altruism, over time. To do this, we use estimated measures of CEO ancestors' immigration time-distance, building on approaches used by Nguyen et al. (2018) and Pan et al. (2020). Immigration time-distance refers to the elapsed time since the arrival of a CEO's ancestors in the U.S. Intuitively, one might expect that the shorter the immigration time-distance, the stronger the influence of ancestral cultural heritage on CEOs' expressed values and decision-making. For example, second- or third-generation U.S. citizens might adhere more closely to their ancestral values compared to those whose families immigrated further back in time.

To test this, we re-run our baseline regressions, adding an interaction term between the CEO inherited altruism score and the immigration time-distance variables. A unique feature of our data is the availability of arrival and birth years from passenger records, which allows us to estimate how long a CEO's family has been in the United States. However, for CEOs with common last names—indicated by a large number of passenger records associated with the name—the distribution of arrival times may not accurately reflect the specific CEO's family immigration history. Conversely, for CEOs with relatively unique last names (fewer passenger records associated with the name), the likelihood of accurately identifying the family's arrival time increases.

To address this limitation, we follow Pan et al. (2020) and focus on a subsample of CEOs whose last names have no more than 250 associated passenger records. For each last name in this subsample, we calculate the average arrival year of all passengers with that name. We also compute the average birth year of passengers with the same last name and subtract it from the CEO's birth year to estimate the generational distance since immigration. Both variables are demeaned in the analysis to facilitate interpretation.

Despite these efforts, we do not find strong and consistent empirical evidence supporting the prediction that shorter immigration time-distance strengthens the impact of ancestral cultural heritage on CEOs' values and decision-making. This could be due to the persistence of cultural heritage over longer periods than expected, meaning that even CEOs with longer immigration time-distances continue to exhibit values influenced by their ancestry. Alternatively, the lack of consistent findings may stem from measurement error in the immigration time-distance variable

itself. While we mitigate this issue by focusing on CEOs with relatively unique last names, some degree of error still remains, potentially obscuring the true relationship.

Table A2.5 Accounting for Immigration Time-Distance.

This table reports the results of panel regressions where yearly KLD CSR scores (in column 1 and 2) and monthly firm abnormal stock returns (in columns 3 and 4) are regressed on the interaction between *CEO_altruism* and some variables that estimate the CEO ancestors' immigration time-distance. In this table, we focus on a subsample of CEOs whose last names have at most 250 passenger records. In columns (1) and (3), we interact *CEO_altruism* with the demeaned average arrival year associated with the CEO's last name. In columns (2) and (4), we interact *CEO_altruism* with the demeaned difference between the CEO's birth year and the average birth year of passengers' records associated with the CEO's last name. In all regressions, we control for all firm and CEO characteristics which are included in our baseline regressions reported in Tables 2.2 and 2.3. We also include industry and year (month-year) fixed effects. All variables are defined in Table A2.1 of the Appendix. Robust t-statistics are reported in parentheses, and they are calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

Dependent Variables:	(1) KLD_CSR5	(2) KLD_CSR5	(3) Abreturn_FF3	(4) Abreturn_FF3
CEO_altruism	0.235**	0.237**	0.00211	0.00279
	(2.451)	(2.436)	(1.018)	(1.289)
Average Arrival Year (Demeaned)	0.000800		3.72e-05	
	(0.774)		(1.530)	
CEO_altruism × Average Arrival Year (Demeaned)	-0.00401		0.000139	
	(-0.613)		(1.016)	
Average Generational Distance (Demeaned)		-0.000742		-7.16e-05***
		(-0.671)		(-2.805)
CEO_altruism × Average Generational Distance (Demeaned)		0.00421		-0.000104
		(0.691)		(-0.727)
Other Firm-Controls	Yes	Yes	Yes	Yes
Other CEO-Controls	Yes	Yes	Yes	Yes
Constant	-0.980	-0.848	0.0857***	0.0972***
	(-1.476)	(-1.175)	(5.024)	(5.314)
Observations	2,802	2,769	33,064	32,680
Adjusted R-squared	0.417	0.418	0.013	0.014
Industry FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes

A2.6 Endogeneity check: Difference-in-Difference analysis based on CEO turnovers

To perform this analysis, we first map turnovers identified from CEO changes in ExecuComp to the CEO dismissal database developed by Gentry et al. (2021) and retrieve the reasons for CEO departures.[25] Event years (year 0) are identified as those years when the predecessor CEO is in his/her last year in office according to the ExecuComp CEOANN flag. The 'treated' turnovers are those when a CEO is replaced by a successor CEO from a country of origin that has a *higher* altruism score. The 'control' turnovers are those when a CEO is replaced by a successor CEO from a country of origin that has a *lower* altruism score. Consequently, our identified treatment effect is highly likely to be directly attributable to the altruism score change rather than to the CEO turnover per se. Excluding CEOs with a tenure lower than two years, we are able to identify 334 turnover events in our sample, of which 175 are treated events and 159 are control events. The estimated DiD models are:

$$CSR\ Score_{it} = \alpha_1 + \beta\, Treated_{it} \times CEO\ Turnover_{it} + \gamma\ Controls_{\ it} + Time\ FE + Event\ FE + \varepsilon_{it} \quad (2.3)$$

$$Abnormal\ Stock\ Returns_{it} = \alpha_1 + \beta\, Treated_{it} \times CEO\ Turnover_{it} + \gamma\ Controls_{\ it} + TimeFE + Event\ FE + \varepsilon_{it} \quad (2.4)$$

'Treated' is a dummy variable that equals one (both in pre- and post-turnover periods) if the firm has experienced a CEO transition from a less to a more altruistic CEO at some point, and zero for the control firms. 'CEO Turnover' is a dummy variable taking the value of one in periods following an exogenous turnover and zero during the pre-turnover period. A causal effect of altruistic CEOs on CSR would manifest in a positive and statistically significant coefficient on the interaction term 'Treated × CEO Turnover'. This is what we report in column (1) of Table A2.5 below. The results here confirm that firms with a more altruistic replacement-CEO have higher CSR ratings after the turnover than firms where the CEO's inherited altruism score declines after the turnover. Instead, column (3) confirms the lack of a statistically significant impact of this type of CEO turnover on firms' abnormal stock returns. In columns (2) and (4) we

[25] Gentry et al. (2021) collect news articles and SEC filings for each CEO turnover event and identify eight departure reasons. They use 23 independent coders to read through the articles and categorize turnovers into eight categories. The data have been retrieved from: https://doi.org/10.5281/zenodo.4543893 (last accessed on 2 November 2023).

add a set of year dummies to verify a parallel trend assumption (the event year, year 0, is omitted and serves as the reference for comparison). In column (2) the pre-turnover year dummies are all insignificant, suggesting there is virtually no difference between the treated and the control group prior to the turnover, while the post-turnover year dummies echo our finding in column (1), that firms' CSR performance improves after a CEO is being replaced by a CEO with higher inherited altruism. In column (4), all year dummies are insignificant which confirms that firm's financial performance is not affected after a CEO is being replaced by a more altruistic CEO.

Table A2.6 Difference-in-Difference Analysis based on CEO Turnover Events

This table reports the results of a panel regression where yearly KLD CRS score (in column 1) and monthly firm abnormal stock returns (in column 3) are regressed on the interaction variable Treated × CEO_Turnover, where 'Treated' is a dummy variable equal to 1 if the turnover-event is part of the 'treated group', i.e. those turnovers where the new CEO comes from a country of origin with a higher altruism score than the previous CEO (otherwise the dummy is 0); and 'CEO_Turnover' is a dummy equal to 1 after an exogenous turnover event occurs due to CEO death, illness and voluntary retirement for both treated and control groups, and 0 if it's before such a turnover event. For the treated group, the interaction variable is zero before (including) the event year and one after the event year; for the untreated group, it is zero throughout all the years. The event year is the last year the old CEO is in his/her position (the last year that he/she has the CEO annual flag in ExecuComp). In columns (2) and (4) parallel trends tests are performed, and the event year (year 0) is the reference for comparison. Before5+ indicates a dummy variable that is equal to one in all years before year -5 and zero otherwise; Before4 is a dummy variable equal to one in year -4 and zero otherwise; etc. Post5+ indicates a dummy variable that is equal to one in all years after year 5 and zero otherwise; Post4 is a dummy variable equal to one in year 4 and zero otherwise; etc. A CEO must have at least a tenure of two consecutive years to be included in the sample. The regressions include the same control variables and fixed effects as in baseline models (Tables 2.2 and 2.3). Robust t-statistics are reported in parentheses, calculated from estimated standard errors clustered at the firm level. ***, **, and * represent, respectively, statistical significance at the 1%, 5%, and 10% level.

	(1)	(2)	(3)	(4)
Dependent Variables:	KLD_CSR5	KLD_CSR5	Abreturn_FF3	Abreturn_FF3
Regressors:				
Treated × CEO_Turnover	**0.152*** **		-0.0004	
	(2.695)		(-0.221)	
Before5+		-0.103		0.006*
		(-1.072)		(1.879)
Before4		0.058		-0.002
		(0.909)		(-0.560)
Before3		0.022		0.004
		(0.362)		(1.118)
Before2		0.019		0.0001
		(0.384)		(0.029)
Before1		0.027		0.001
		(0.669)		(0.330)
Post1		**0.147*** **		-0.0001
		(2.755)		(-0.030)
Post2		**0.095***		0.002
		(1.782)		(0.622)
Post3		**0.132** **		0.0001
		(2.007)		(0.023)
Post4		**0.156** **		0.0002
		(2.142)		(0.067)
Post5+		**0.226*** **		0.002
		(2.642)		(0.560)
Other Firm-Controls	Yes	Yes	Yes	Yes
Other CEO-Controls	Yes	Yes	Yes	Yes
Constant	-1.022	-0.801	0.115***	0.106***
	(-1.076)	(-0.906)	(3.433)	(3.167)
Event FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	2,736	2,736	38,937	38,937
Adjusted R-squared	0.618	0.619	0.021	0.021
Number of Turnover Events	334	334	334	334

Chapter 3

The Impact of CSR Contracting on Firm's Green Innovation: Evidence from the U.S.

3.1 Introduction

Sustainability is increasingly recognized as a crucial driver of business value, leading many firms to integrate corporate social responsibility (CSR) criteria into their executive compensation packages. This practice, commonly referred to as "CSR contracting", links executive compensation to social and environmental performance metrics such as CO2 emission targets, employee satisfaction, and compliance with ethical standards. Through CSR contracting, executive compensation is tied to the nonfinancial performance of various stakeholder-friendly initiatives, aligning managerial performance targets with the interests of employees, customers, the community, and the environment.

The proportion of global firms incorporating ESG metrics into executive compensation has surged from 3% in 2010 to over 30% in 2021, as reported by the ISS Executive Compensation Analytics (ECA) database (Cohen et al., 2023). This trend highlights a shift towards sustainable business practices, aligning executive goals with stakeholder interests and promoting a long-term outlook in corporate strategy (Flammer et al., 2019). This alignment is particularly relevant in the context of green innovation, where firms invest in technologies and processes that reduce their environmental impact. Green innovation is crucial for achieving sustainable development goals and mitigating climate change, and CSR contracting can play an important role in promoting such innovations.

A large body of literature argues that stakeholders are crucial for sustaining a firm's competitiveness and long-term growth. For instance, treating employees well can enhance engagement and productivity, thereby improving firm performance (Edmans, 2011, 2012). CSR initiatives also positively influence customers' perceptions, leading to increased goodwill, sales, and profits (Du et al., 2011; Elfenbein et al., 2012; Servaes and Tamayo, 2013). Importantly, environmentally-friendly practices can improve a firm's reputation and financial performance (Klassen and McLaughlin, 1996), while poor environmental performance is negatively correlated with the value of firms' intangible assets (Konar and Cohen, 2001).

However, managers may hesitate to address stakeholder claims due to conflicting interests and a preference for short-term rewards. This preference is driven by short-term executive compensation and pressure to meet quarterly earnings expectations (Graham et al., 2005). Consequently, managers often prioritize stakeholder claims that align with short-term earnings targets (Flammer and Bansal, 2017). Since compensation schemes significantly influence executives' incentives and, in turn, corporate strategies (Manso, 2011), linking executive compensation to CSR targets can create powerful incentives for executives to prioritize sustainable and innovative practices (Li and Thibodeau, 2019).

A majority of studies on CSR contracting suggest that this compensation practice plays a positive role in enhancing both CSR and firm performance. Firms that adopt CSR contracting experience a significant increase in firm value, which in turn foreshadows an increase in long-term operating profits (Flammer et al., 2019). Furthermore, Hong et al. (2016) confirms that providing executives with direct incentives for CSR is an effective tool to enhance a firm's social performance. However, Maas (2018) shows that CSR contracting does not enhance performance outcomes in general, but incorporating quantitative, hard targets in CSR contracting helps. On the other hand, Liu et al. (2024) highlight a dark side of CSR contracting by demonstrating its positive association with a firm's stock crash risk.

Moreover, recent studies have started to examine the impact of CSR contracting on specific aspects of social and environmental performance. For instance, Haque (2017) finds that a sustainable compensation policy positively influences carbon reduction initiatives in UK firms. Al-Shaer et al. (2023) examines how CEO power and CSR-linked compensation influence environmental performance in FTSE-All-Share companies. They find that CEOs with CSR-linked compensation improve environmental performance. In particular, newly appointed CEOs

engage more in environmental initiatives to mitigate their career concerns, and CEOs with managerial power engage less.

In this study, we aim to contribute to this literature by investigating whether and how CSR contracting influences firm's green innovation. While prior research has explored the general impact of CSR on firm financial and environmental performance, the specific effects of CSR-linked compensation on green innovation outcomes remain in fact underexplored. Building on the premise that aligning executive compensation with CSR objectives can drive executives to focus on long-term environmental goals, we hypothesize that CSR contracting leads to more green innovation.

To test our hypothesis, we analyze a comprehensive dataset that includes CSR contracting practices and green innovation outcomes for a large sample of U.S. firms. Data on CSR contracting is sourced from the ASSET4 database and indicate whether the firm's senior executive compensation is linked to CSR/Health and Safety/Sustainability targets. Innovation variables are constructed from the PatentsView database, which covers all patents granted by the U.S. Patent and Trademark Office (USPTO). Our primary measures of green innovation include the quantity and quality of green patents, as well as the originality and generality of these innovations. We also differentiate between exploratory and exploitative innovations to understand how CSR contracting influences the style of green innovation.

Throughout, we find that CSR contracting is positively associated with the quantity of green patents, indicating that firms with CSR-linked executive compensation produce more green innovations. Additionally, we find that CSR contracting enhances the quality of these innovations, as evidenced by higher citation counts and the economic value of green patents. However, the effect on the originality and generality of green innovations is more nuanced. While CSR contracting fosters the development of patents with broader technological roots, it does not necessarily lead to a wider range of forward citations, suggesting that these innovations may not be as broadly applicable across different technological fields. Moreover, we further differentiate between exploratory and exploitative innovations. Our findings suggest that CSR contracting encourages both exploitative innovations, which refine existing technologies, and exploratory innovations, which pursue new technological frontiers.

We employ propensity score matching analysis to mitigate concerns of selection bias and to confirm our main findings that CSR contracting significantly increases both the quantity and quality of green innovations.

Furthermore, we explore whether green innovation mediates the relationship between CSR contracting and overall environmental performance. Using the Environmental Pillar score in ASSET4 to measure corporate environmental performance, we found that while CSR contracting is positively associated with improved environmental outcomes, green innovation does not appear to serve as a mediator for this effect. Further research is needed to fully understand the dynamics between CSR contracting, green innovation, and environmental performance.

The closest paper to our study is by Tsang et al. (2021), which investigates the relationship between CSR contracting and firm innovation. Tsang et al. (2021) find that integrating CSR criteria into executive compensation is associated with greater innovation output in general. This positive association is particularly strong in countries with weak stakeholder orientation and weak legal environments. However, it is still worth investigating green innovation, as it differs from non-green innovations in several ways. For instance, Barbieri et al. (2020) highlight that green technologies are more complex and novel compared to non-green technologies. They emphasize that green technologies involve broader knowledge recombination processes and lead to significant technological spillovers, which differ from the impacts of general innovations.

This chapter makes several contributions. First, it contributes to the broad literature that examines the determinants of green innovation. Most prior studies on the determinants of green innovation typically focus on the impact of regulations, institutional factors, and firm-level characteristics. For instance, Demirel and Kesidou (2011) suggest that eco-innovations are motivated by both external policy tools and market factors such as cost savings. Amore and Bennedsen (2016) show that worse governed firms generate fewer green patents relative to all their innovations. Recent literature uncovers how top executive's traits and experience, such as their gender, hometown identity, hometown ties, and international experience impact green innovation (Ren et al., 2021; Javed et al., 2023; Quan et al., 2023; Xu et al., 2024). However, the role of compensation incentives in driving green innovation remains underexplored.

Second, our research contributes to the literature on the effects of managerial compensation schemes on corporate policies and outcomes. Prior studies have predominantly focused on the role of long-term financial and equity-based executive incentives in reducing managerial myopia and encouraging risk-taking (Cheng, 2004; Manso, 2011; Mao and Zhang, 2018). Research on CSR contracting is limited and has mixed results regarding its impact on corporate outcomes (Hong et al., 2016; Maas, 2018; Flammer et al., 2019; Liu et al., 2024). Our study extends this

body of work by demonstrating that CSR-linked compensation can foster not only general firm financial and CSR performance, but specifically green innovation.

The remainder of this chapter is organized as follows. Section 3.2 develops our hypotheses on the relationship between CSR contracting and green innovation quantity, quality, and style. Section 3.3 describes the variables and sample construction. Section 3.4 discusses the empirical results. Section 3.5 presents additional analyses. Finally, Section 3.6 concludes the chapter.

3.2 Hypothesis Development

3.2.1 CSR contracting and green patent counts

Stakeholder theory posits that firms should meet stakeholders' needs by improving social and environmental performance (Freeman, 1984). Stakeholders are essential for a firm's long-term success, with CSR initiatives boosting employee engagement, innovation, and customer perceptions, thereby enhancing financial performance. However, managers often prioritize short-term gains due to their career concerns and quarterly earnings pressures, potentially neglecting long-term investments (Flammer et al., 2019). To address this, companies are increasingly incorporating CSR criteria into executive compensation. This approach holds executives accountable for eco-friendly behavior and their impact on sustainable performance, as the attention managers give to stakeholders' demands depends on their incentives and interests.

Innovative activities are often characterized by long gestation periods and a high rate of failure. Several empirical findings support this argument. For example, Aghion et al. (2013) find that firms with a higher fraction of institutional shareholders—i.e., shareholders with a longer time horizon—are more innovative. Azoulay et al. (2011) find that scientists produce more innovative research when they receive rewards with long-term horizons. These findings suggest that CSR contracting may be able to promote green innovation. By aligning executive compensation with CSR objectives, companies can incentivize managers to focus on long-term environmental goals, which are crucial for green innovation.

However, one could also argue that CSR contracting might not necessarily lead to more green innovation. Bebchuk and Tallarita (2022) argue that current practices of CSR contracting may not be an effective tool for efficient incentive contracting, suggesting instead that it enables entrenched executives to extract additional managerial rents. They contend that including ESG metrics in compensation contracts might disguise excessive managerial compensation, as the

outcomes are challenging for outsiders to measure and verify.[26] This concern aligns with other literature indicating that CSR initiatives may be used by managers to further their personal interests (e.g., Masulis and Reza, 2015; Hong et al., 2016; Cheng et al., 2023).

Another critical argument is the potential for managerial opportunism. Executives might manipulate CSR metrics to meet compensation targets without genuinely investing in green innovation. Furthermore, firms may adopt CSR contracting to different extents and for a variety of purposes. While some firms may substantially integrate CSR criteria in CEO performance measurement, other firms may adopt a more symbolic (or vestigial) use. This could involve "greenwashing", where firms present an environmentally-responsible image without significant underlying changes (Qin and Yang, 2022).

We formulate our first hypothesis as follows:

H1: *CSR contracting leads to a larger number of corporate green patents.*

Given the contrasting views we have discussed above, hypothesis H1 remains open to empirical verification.

3.2.2 CSR contracting and green innovation quality

Although green patent counts reflect the volume of green innovation, they often fail to measure the true impact or quality of these innovations. CSR contracting can positively impact the quality of green innovation by embedding sustainable business practices into the firm's strategy. This integration into executive compensation packages can attract high-calibre talent, access more resources, and enhance relationships with stakeholders. For instance, Bhattacharya et al. (2008) argue that firms with strong CSR commitments can differentiate themselves in the competitive job market by aligning corporate values with the personal values of prospective employees, thereby making the company more attractive to top talent. Consequently, firms can produce higher-quality green innovations by tapping into a broader spectrum of knowledge.

Moreover, CSR contracting can reduce the uncertainty associated with green innovations by providing a stable framework for investment in sustainable technologies. Incorporating CSR criteria into performance evaluations of top executives can enhance trust, foster cooperation, and

[26] Most CSR activities are reported through qualitative statements, which are less verifiable compared to quantitative measures like reported earnings and other financial outcomes. This low verifiability gives managers greater control over CSR contracting.

encourage reciprocity between firms and their investors (Qin and Yang, 2022). Trust and support from investors encourage firms committed to CSR to proactively adopt environmentally-friendly technologies and practices, thereby enhancing the quality of their innovations.

Considering these perspectives, we formulate our second hypothesis as:

H2: *CSR contracting results in higher quality or more valuable innovations.*

However, innovation decisions are fundamentally investment decisions, and thus they inherently involve the standard challenges of capital allocation (Holmstrom, 1989). There are concerns that CSR contracting might divert resources from core R&D activities that create value to those activities that boosts CSR initiatives. This diversion could potentially lead to lower green innovation quality.

3.2.3 CSR contracting and green innovation style

Besides quantity and quality of green innovations, CSR contracting can potentially shift the style of green innovation. One crucial aspect of innovation influenced by CSR contracting is the originality and generality of green innovations. Originality refers to the degree to which new patents utilize unique and diverse prior knowledge, indicating a more novel contribution to the field. Generality, on the other hand, reflects the extent to which new patents are cited by subsequent patents across different technological domains, suggesting broader applicability of the innovation.

Innovations can be also classified as exploratory or exploitative. Exploratory innovations involve the pursuit of new knowledge and technologies, often associated with higher risks and uncertainty but offering the potential for ground-breaking advancements. Exploitative innovations, on the other hand, focus on refining and improving existing technologies, typically being less risky but offering incremental improvements.

CSR contracting might influence the green innovation style in several ways. Executives motivated by CSR-linked compensation may be more inclined to pursue ambitious and innovative projects that tackle complex environmental challenges. This focus can lead to investments in ground-breaking research and the exploration of diverse technological avenues, contributing to the development of highly original patents (Tsang et al., 2021). Moreover, the integration of CSR criteria into executive compensation can drive firms to develop technologies with broad applicability, enhancing the generality of their innovations.

Conversely, executives may prioritize meeting the minimum requirements for CSR performance to secure their compensation, potentially stifling more ambitious, high-risk innovation efforts. This could imply that CSR contracting might be associated with more exploitative innovations, which are generally less risky and aim to refine existing technologies.

The potential for CSR contracting to influence the style of innovation, particularly in promoting either more original/general or more exploratory versus exploitative innovations, leads us to our third hypothesis:

H3: *CSR contracting influences the style of green innovation, potentially affecting the originality and generality of patents, as well as fostering more exploratory versus exploitative innovations.*

3.3 Research Design

3.3.1 Measuring CSR contracting

Following prior literature (e.g. Tsang et al., 2021; Aresu et al., 2022), we source the data on CSR contracting from ASSET4. Specifically, our dependent variable (CSR Contracting) equals one for the firm-year observations in which a firm adopts CSR contracting and zero for the firm-year observations that does not adopt CSR contracting. This CSR contracting indicator is based on the ASSET4 item that classifies firms based on the question: "Is the senior executive's compensation linked to CSR/Health and Safety/Sustainability targets?".

While an increasing number of firms are incorporating CSR metrics into CEO compensation contracts, there is considerable variability in how these measures are formulated. As suggested by Flammer et al. (2019), some firms vaguely indicate that CSR metrics are considered, whereas others clearly specify the percentage of annual incentives linked to CSR criteria and the quantitative targets the CEO must achieve. Additionally, there are notable differences in the number of CSR dimensions included in the contracts, with some firms focusing on a single dimension and others incorporating multiple dimensions.

Panel A of Table 3.1 presents the distribution of firms adopting CSR contracting over time, which is consistent with Tsang et al. (2021). It shows an increasing trend in the number of CSR contracting adopters, with significant growth starting in 2006 and a peak in 2013 with 145 adopters. However, starting from 2015, there is a marked increase in the number of firms recorded as non-adopters, which also significantly raises the total number of firms' observations

for our key variable. This observed trend does not imply a reduction in CSR adopters in recent years; instead, it indicates that the majority of newly-included firms in the dataset are non-adopters.[27]

While we confirm that there is an increasing number of firms adopting CSR contracting policies over time, at the firm level, we observe that some companies also reverse this trend.[28] Generally, CSR contracting policies are quite stable, with most firms either maintaining their initial policy or changing it only once during the sample period. Nonetheless, there are a few firms that frequently alter their CSR contracting policies.

Panel B reports the distribution of firms adopting CSR contracting across industries. The use of CSR contracting is most popular in highly polluting industries, such as chemicals (34.51%), mining (45.86%), and wood (58.33%) industry. This finding mirrors Cohen et al. (2023, 2024) who show that more polluting firms have a higher incentive to improve environmental performance because they face higher costs for their emissions.

3.3.2 Measuring green innovation

We follow the innovation literature (e.g. Griliches, 1998) by using patents and citations as measures of innovation outcomes. Our primary innovation variables are constructed from the PatentsView database, which covers all patents granted by the U.S. Patent and Trademark Office (USPTO) from 1976 to 2019. PatentsView provides comprehensive information from the patent record, including application and grant dates, backward and forward citations, technology classifications, and more. We focus exclusively on utility patents, which are issued for the invention of new and useful processes, machines, manufactures, or compositions of matter. Utility patents, often referred to as "patents for invention," constitute approximately 90% of all patents issued in recent years.

To match patent assignees in PatentsView to U.S. public firms, we utilize the KPSS database (Kogan et al., 2017), which provides a name-matching algorithm to link patent records with the Centre for Research in Security Prices (CRSP) company identifier (PERMNO code). This matching process enables us to connect patents to their respective firms accurately.

[27] The observed trends are not driven by a sample selection issue, as the CSR contracting data has expanded its coverage in the ASSET4 universe over the years.

[28] In our sample, we notice that there are 89 firms that transform from non-adopters into adaptors, while 38 firms reverse the trend.

Next, we classify patents into green patents based on guidelines set by the Organization for Economic Co-operation and Development (OECD)[29]. Green patents are related to environmental technologies and are categorized into broad areas such as environmental management, water-related adaptation technologies, biodiversity protection, ecosystem health, climate change mitigation technologies, and waste management. Haščič and Migotto (2015) provide a detailed explanation of the OECD's algorithm that identifies patents containing technologies addressing environmental challenges.

The timeline from the initiation of an innovative project to the filing of a patent application varies significantly across industries, primarily influenced by the complexity of the invention and sector-specific requirements. For instance, in the pharmaceutical and biotechnology sectors, the research and development (R&D) process is often protracted, typically spanning 5 to 10 years, due to the necessity of extensive research, clinical trials, and regulatory compliance before a patent application can be submitted. In contrast, industries such as software and information technology (IT) experience considerably shorter timelines, with innovations often taking 6 months to 2 years to reach the patent filing stage, owing to faster prototyping and testing processes. On average, the R&D phase for most patents typically requires 1 to 3 years, followed by an additional 1 to 2 years for the patent application to be granted (Hall et al., 2005).

Following the innovation literature (e.g. Griliches et al., 1986), we date the patent by its application year, which researchers generally agree is a better estimation of the actual timing of innovation than the grant year. Therefore, the first measure of innovation is the number of patent applications filed by a firm in a given year.

The second measure of innovation is the total number of citations to the green patents. Patents vary widely in their technological and economic relevance, and a common way to measure the relevance of a patent is by the number of citations it subsequently receives. Hall et al. (2005) show that the subsequent citing typically indicate that the cited innovation has significant economic value.

However, owing to the finite length of the sample, citations suffer from a time truncation bias. Since citations are received for many years after a patent is created, patents created near the ending year of the sample have less time to accumulate citations. We address this concern by re-

[29] The classification of green patents is based on their International Patent Classification (IPC) and the Cooperative Patent Classification (CPC), both systems are used to categorize patents based on their technological content, the detailed information regarding the classification can be found here: https://dx.doi.org/10.1787/5js009kf48xw-en

scaling the raw citation count by the average number of citations received in the same industry during the same year.

The final set of measures examines a firm's innovation style and strategy. In order to examine different aspects of the patented innovations, we calculate the generality and originality score for each patent as suggested in Hall et al. (2001) and Trajtenberg et al. (1997).

The generality score is defined as:

$$\text{Generality}_i = 1 - \sum_j^{n_i} S_{ij}^2$$

where S_{ij} denotes the percentage of citations received by patent i that belong to the patent class j, out of n_i patent classes. Thus, the generality score is higher if the patent is cited by subsequent patents that belong to a wider range of technology fields.

Originality is defined the same way, except that it refers to citations made, that is, originality score equals to one minus the Herfindahl index of the citations made by the patent. Thus, if a patent cites previous patents that belong to a narrow set of technologies the originality score will be low, whereas citing patents in a wide range of fields would render a high score.

Furthermore, we classify firms' patent activity into exploratory and exploitative as proposed by Benner and Tushman (2003). Exploratory innovations are radical innovations designed to create new markets while exploitative innovations are incremental innovations designed for existing customers or markets (Jansen et al., 2006). We construct proxies for exploitative and exploratory patents according to the extent to which a firm's new patents use existing versus new knowledge. A firm's existing knowledge base consists of the set of patents that have been cited by the firm's past patents. A patent is categorized as exploitative if at least 60% of its citations are based on existing knowledge, while a patent is categorized as exploratory if at least 60% of its citations are based on new knowledge, i.e., citations not included in the firm's existing knowledge base. We then calculate the ratio of exploitative (exploratory) patents for a given firm-year as the number of exploitative (exploratory) patents filed in a given year divided by the number of all patents filed by the firm in the same year. A higher ratio of exploitative patents suggests a more focused innovative strategy, while a higher ratio of exploratory patents suggests a more divergent innovative strategy.

3.3.3 Control variables

We control for time-varying firm characteristics and CEO-specific variables. Specifically, we control for the firm's ROA, measured as earnings before interest and taxes to total assets, to account for firm profitability, and firm size, captured by the natural logarithm of the firm's total assets. We add as controls also R&D expenditure scaled by total assets, which accounts for differences in R&D expenses across firms, serving as the key input for innovations. We also control for the leverage ratio, calculated as long-term debt plus debt in current liabilities divided by total assets, and capital intensity, measured as property, plant, and equipment divided by the number of employees, book-to-market ratio, and one-year buy and hold return. Since competition affects innovation outcomes (Aghion et al., 2005), we control for the HHI (i.e., 10-K text-based network (TNIC) industry concentration). Lastly, we include institutional ownership data from the FactSet/LionShares database as a larger presence of institutional investors can influence the strategic direction of a firm (Aghion et al., 2013).

Further, we include CEO-related controls. We control for CEO's gender, tenure and age. Age is related to risk-taking behavior (e.g., Serfling, 2014; Andreou et al., 2017), while longer tenure is often cited as a factor that enables CEOs to accumulate power within the firm (Simsek, 2007). Javed et al. (2023) indicate that female executives have a notable impact on corporate green innovation, particularly in contexts where environmental regulations and tax burdens have increased. We further control for CEO stock options' 'delta' and 'vega'. CEO stock option's delta is defined as the dollar change in a CEO's stock and option portfolio for a 1% change in stock price and measures the CEO's incentives to increase the firm's stock price. CEO stock option's vega is the dollar change in a CEO's option holdings for a 1% change in stock return volatility and measures the risk-taking incentives generated by the CEO's option holdings. The two measures capture CEO risk-taking incentives and are calculated using the SAS program file available on Lalitha Naveen's website.[30] We also control for CEO overconfidence measured by an option-based proxy, because overconfident CEOs are found to invest more in innovation, obtain more patents and patent citations, and achieve greater innovative success for a given amount of R&D expenditures (Hirshleifer et al., 2012).

[30] The methodology is based on Core and Guay (2002). SAS program is available on https://sites.temple.edu/lnaveen/data/

3.3.4 Sample construction

We construct our sample from multiple sources to create a comprehensive dataset. The sample intersects data from Compustat, CRSP, ExecuComp, ASSET4, and various patent databases. The primary source for patent information is PatentsView, which offers detailed data on patents issued by the United States Patent and Trademark Office (USPTO). Additionally, we utilize the KPSS database for patent valuations, basing its assessments on stock market reactions to patent grant announcements. Our sample period starts in 2003, due to the availability of ASSET4 CSR Contracting data which we need to construct our dependent variable. We exclude financial firms and utility firms (SIC codes 4900-4999 and 6000-6999) to maintain consistency in our analysis. Continuous variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. The summary statistics are reported in Table 3.2.

The average log-transformed green patent count, Log(1+Patent), is 0.281 with a standard deviation of 0.801, indicating substantial variation in patenting activity across firms. Similarly, the log-transformed green citation count, Log(1+Citation), averages 0.342 with a standard deviation of 1.052, suggesting that a significant range also in the impact of these innovations. The CSR contracting variable has an average of 0.211 and a standard deviation of 0.408, which means that firms with CSR contracting account for about 21% of our firm-year observations.

3.3.5 Research design

To examine whether CSR contracting is associated with firms' green innovation outcomes, we conduct multivariate analyses using the following baseline OLS model:

$$\begin{aligned} &Green\ Innovation\ Outcome_{it} \\ &= \alpha_1 + \beta_1 CSR\ Contracting_{it-1} + \sum \beta_j Controls_{it-1} \\ &+ Year\ FE + Firm/IndustryFE + \varepsilon_{it-1} \end{aligned} \tag{3.1}$$

where *i* denotes the firm and *t* denotes the year. All variables are defined in the Appendix Table A3.1. In the test for H1, the dependent variable is *Log(1+Patent)* to quantify firms' green patent counts. It changes to either *Log(1+Citation), Log(1+Adjusted Citation),* or *Log(1+Patent Value)* for H2. Lastly, when we consider the innovation style to test H3 we use *Log(1+Originality), Log(1+Generality), Log(1+ExploitativePatent),* and *Log(1+ExploratoryPatent)*. All independent variables are lagged by one year, as it typically takes time for innovation activities

to translate into outcomes. In all these settings, we expect the coefficients on CSR contracting (β_1) to be significantly positive.

The baseline model includes year fixed effects to control for unobservable time-variant effects and either firm or three-digit industry fixed effects to account for time-invariant firm or industry factors. The inclusion of firm fixed effects is particularly useful as it enforces comparisons within firms. Since our variable of interest, CSR contracting, varies at firm level, we cluster the robust standard errors at the firm level in all regressions.

3.4 Empirical Results

3.4.1 CSR contracting and green patent counts

The main regression results, as presented in Table 3.3, provide robust evidence supporting Hypothesis 1, which posits a positive relationship between CSR contracting and firm innovation. Specifically, the results indicate that CSR contracting has a significantly positive impact on the log-transformed green patent counts, *Log(1+Patent).* In Columns (1) and (2), green patent counts are regressed only on our variable of interest, CSR contracting. In Columns (3) and (4), we control for firm characteristics, and in Columns (5) and (6), we further control for CEO characteristics. The coefficients of CSR contracting are positive and significant at 5%, ranging from 0.067 to 0.068 in firms fixed effect specifications, and from 0.099 to 0.209 in industry fixed effect specifications. Control variables like firm size and R&D expenditure are significant, highlighting their role in green innovation quantity.

Economically, these results suggest that, for the same firm, linking executive compensation to CSR targets can increase the average number of green patents by approximately 7%. This finding is economically meaningful compared with other variables. For example, R&D spending has a standard deviation of 0.051, and a coefficient of 1.668 in Column (5). That is, a one standard deviation increase of R&D spending is associated with about 8.5% (1.668×0.051) rise in green patent counts.

This finding underscores the role of CSR contracting in promoting the quantity of green patents, indicating that firms which tie executive compensation to CSR targets are more likely to engage in and produce green innovations.

3.4.2 CSR contracting and green innovation quality

Table 3.4 Panel A presents regression estimates analyzing the impact of CSR contracting on the quality of green innovation, measured by the number of forward citations received by a firm's patents. The dependent variables are the logarithm of one plus the citation counts in columns (1) and (2), and the logarithm of one plus truncation-adjusted citation counts in columns (3) and (4).

In column (1), using firm fixed effects, *CSR Contracting* shows a positive but not significant coefficient (0.069, t = 1.345). However, using industry fixed effects in columns (2) and adjusted citations in columns (3) and (4), the coefficient becomes positive and significant, indicating a moderate impact at the industry level. This suggests that CSR contracting has a more pronounced effect across industries than within individual firms. Overall, the results from Table 3.4 Panel A suggest that CSR contracting positively influences patent quality, especially when considering industry-wide effects.

In Panel B, the dependent variable is *Log(1+Patent Value)*, representing the economic value of patents. The results indicate a positive relationship between CSR contracting and patent value, suggesting that CSR contracting enhances the economic impact of green patents. Overall, findings align with the notion that CSR contracting motivates executives to pursue valuable green innovations.

3.4.3 CSR contracting and green innovation style

Table 3.5 examines the effect of CSR contracting on different styles of green innovation through OLS panel regressions. Panel A focuses on the originality and generality of green patents, while Panel B differentiates between exploitative and exploratory patents. A higher originality score indicates that the technological roots of the invention are broader, while a higher generality score indicates that the innovations are applicable in a wider range of subsequent technological developments.

Columns (1) and (2) of Panel A use the *Originality Index* as dependent variables to assess whether CSR contracting influences the diversity and breadth of knowledge in innovation. The results in column (1) show that *CSR Contracting* is positively associated with the *Originality Index*, with a coefficient of 0.052 (t-statistic = 2.058). This suggests that firms with CSR contracting produce more original patents, utilizing a broader set of prior knowledge.

However, the green patents driven by CSR contracting do not receive a wider range of forward citations. In column (3), the coefficient for *CSR Contracting* is -0.016 (t-statistic = -1.233). Although Barbieri et al. (2020) imply greater generality scores for green patents compared to non-green innovations, our study does not find that CSR contracting leads further to higher generality scores for green patents. These findings imply that while CSR contracting encourages firms to innovate by drawing on a broader range of technological fields, it does not necessarily lead to these innovations being cited across a wider spectrum of future technological developments.

Table 3.5 Panel B examines the impact of CSR contracting on the types of green innovations, distinguishing between exploitative and exploratory patents. The dependent variables are the log-transformed counts of exploitative and exploratory green patents in each year. In column (1), the coefficient for *CSR Contracting* is 0.069, with a t-statistic of 2.444, indicating a positive and significant relationship between CSR contracting and the number of exploitative green patents. Similarly, in column (2), the coefficient for *CSR Contracting* is positive and significant at the 5% level.

Exploratory innovations involve riskier searches for new technologies that can potentially transform a business. The coefficient for *CSR Contracting* in column (3) is 0.050 with a t-statistic of 1.977, indicating a positive and significant relationship at the 5% level. In column (4), the coefficient for *CSR Contracting* further increases to 0.067 with a t-statistic of 2.017, again significant at the 5% level. These findings suggest that firms with CSR contracting are also more likely to pursue exploratory innovations.

Overall, Table 3.5 Panel B reveal that firms with CSR-linked executive compensation engage more in both refining existing technologies (exploitative innovations) and exploring new technological frontiers (exploratory innovations). These findings indicate that CSR contracting does not merely drive firms towards incremental improvements but also promotes ambitious, high-risk innovation activities essential for sustainable growth and technological advancement.

3.4.4 Propensity score matching

There could be significant differences in firm- and CEO-level characteristics between firms that implement CSR contracting and those that do not. It's possible that firms with CSR contracting are larger, more profitable, and have higher cash flows and R&D expenditures, which might lead them to engage in more green innovations. To mitigate this concern and ensure that our results

are not driven by such firm- and CEO-level differences, we employ a propensity score matching (PSM) analysis to carefully match the treated and control groups.

We employ a one-to-one matching technique with replacement, establishing a tight caliper (i.e., the maximum difference in propensity score) of 0.001. Table 3.6 reports the results using our propensity-score matched sample. We separate our sample into Treated and Control groups, where Treated denotes firms with CSR contracting and Control refers to matched samples of firms without CSR contracting. Panel A of Table 3.6 shows that all firm and CEO characteristics are no longer statistically different after implementing the PSM procedure. Additionally, Panel B confirms that the firm and CEO characteristics have little predicting power on CSR contracting post-matching.

After matching, we re-run our baseline regression for the matched sample. The results in Panel C of Table 3.6 are from estimating our primary equation using the PSM matched sample. We find that the coefficients on CSR Contracting remain positive and statistically significant at the 5% level in column (1), indicating that firms with CSR contracting produce significantly more green patents compared to firms without CSR contracting in matched sample. Green patents from firms with CSR contracting receive more citations. Moreover, CSR contracting influences the style of innovation by promoting both exploitative and exploratory patents, with a notable increase in originality.

Overall, the findings in this section provide strong support for our baseline results and mitigate the potential effect of selection bias that could otherwise question our main findings. The propensity score matching analysis thus validates our conclusion that CSR contracting positively impacts green innovation by increasing both the quantity and quality of green patents produced by firms.

3.5 Further Analysis

Having established that CSR contracting promotes green innovation, in this section we investigate whether green innovation serves as a mediating channel through which CSR contracting impacts the overall firm's environmental performance.

Following prior literature (e.g. Arouri et al., 2019; Boubakri et al., 2019; Jia and Li, 2020), we use the Environmental Pillar score provided by Thomson Reuters ASSET4 as our measure of

environmental performance.[31] The score varies from 0 to 100, allowing for benchmarking across industries.

The results are presented in Table 3.7. We find that a positive and significant link between CSR contracting and environmental performance within our sample. Interestingly, the number of green patents is also positively related to corporate environmental performance in the specification in column (4) which includes industry fixed effects. However, we cannot conclude that green innovation is the primary channel through which CSR contracting promotes environmental performance, as the coefficients and significance levels in columns (2) and (4) are comparable to those in columns (1) and (3).[32] The impact of CSR contracting on environmental performance likely depends on a combination of other factors, such as regulatory compliance, market pressures, broader corporate strategies, and stakeholder engagement. Further research is necessary to explore additional factors and their interactions with CSR contracting and green innovation, to provide a more comprehensive understanding of how firms can effectively enhance their environmental performance through CSR contracting.

3.6 Conclusion

This paper explores the relationship between CSR contracting and green innovation. Our analysis reveals that firms implementing CSR contracting produce a higher number of green patents and generate innovations of greater economic value. CSR contracting fosters green patents with broader technological roots but does not necessarily lead to their application in a wider range of subsequent technological developments. Moreover, CSR contracting encourages both incremental (exploitative) and breakthrough (exploratory) innovations.

We show that the positive impacts of CSR contracting on green innovation persist even after an endogeneity check through propensity score matching. Our findings suggest that aligning executive incentives with CSR objectives can effectively motivate firms to pursue sustainable and impactful innovations.

[31] ASSET4 was founded in Switzerland by Peter Ohnemus and Henrik Steffensen. It was acquired by Thomson Reuters in 2009 and rebranded as 'Thomson Reuters ESG Scores' in 2017, it later merged into Refinitiv in 2018, which was sold to the London Stock Exchange Group in 2021. Despite these changes, ASSET4 remains a key reference in academic research (Berg et al., 2020). ASSET4 provides ESG data since 2002. Before 2017, ASSET4 featured four pillars: environmental, social, corporate governance, and economic. The economic pillar was later replaced by the ESG Controversy pillar.

[32] If A influences B through a mediator M, we expect the coefficient of A to decrease when both A and M are included in the regression model with B as the dependent variable (Hayes, 2015).

Further analysis reveals that while CSR contracting effectively promotes both green innovation and corporate environmental performance, green innovation alone may not mediate the relationship between CSR contracting and environmental performance, indicating the need for further research to identify other contributing factors.

Our study contributes to the literature on the determinants of green innovation by highlighting the role of CSR contracting in driving environmentally-friendly technological advancements. It also enhances the understanding of how managerial compensation impacts corporate policies and outcomes, particularly in promoting sustainable practices. Our findings have practical implications for controlling shareholders and boards of directors in designing executive compensation. By aligning executive incentives with sustainability goals, firms can stimulate innovative efforts that address environmental challenges and drive sustainable growth.

3.7 Tables

Table 3.1 CSR contracting Distribution

This table presents the CSR contracting distribution. Panel A reports the CSR contracting across years. Panel B reports the CSR contracting across industries. The sample comprises 6,605 firm-year observations from 2003 to 2019.

Panel A. CSR contracting across years

Year	Adaptor	Non-Adaptor	Obs	% of Adopters
2003	11	162	173	6.36%
2004	11	162	173	6.36%
2005	11	201	212	5.19%
2006	14	222	236	5.93%
2007	20	225	245	8.16%
2008	30	231	261	11.49%
2009	56	260	316	17.72%
2010	86	264	350	24.57%
2011	126	242	368	34.24%
2012	138	230	368	37.50%
2013	145	204	349	41.55%
2014	130	209	339	38.35%
2015	134	211	345	38.84%
2016	105	372	477	22.01%
2017	69	496	565	12.21%
2018	58	453	511	11.35%
2019	87	457	544	15.99%
Total	1,231	4,601	5,832	21.11%

Panel B. CSR contracting across industries

Industry	Adaptor	Non-Adaptor	Obs	% of Adopters
Chemicals	117	222	339	34.51%
Communication	15	136	151	9.93%
Construction	19	116	135	14.07%
Electronic Equipment	45	333	378	11.90%
Food	83	194	277	29.96%
Furniture	17	40	57	29.82%
Machinery and Equipment	107	363	470	22.77%
Manuf: instruments	70	400	470	14.89%
Manuf: miscellaneous	4	57	61	6.56%
Manuf: rubber/plastics/metal etc.	50	279	329	15.20%
Mining	155	183	338	45.86%
Paper and Printing	25	88	113	22.12%
Pharmaceuticals	68	218	286	23.78%
Real Estate	12	19	31	38.71%

Retail	86	517	603	14.26%
Services	148	748	896	16.52%
Textiles	9	66	75	12.00%
Transportation	152	392	544	27.94%
Wholesale	20	204	224	8.93%
Wood	14	10	24	58.33%
Other	15	16	31	48.39%
Total	1,231	4,601	5,832	21.11%

Table 3.2 Summary Statistics

This table presents the summary statistics for green innovation outcomes, CSR contracting, firm and CEO controls. Variable definitions are provided in Table A3.1 in the Appendix.

Variable	Obs.	Mean	Std. dev.	Min	Max
Log(1+Patent)	5,832	0.281	0.801	0.000	6.293
Log(1+Citation)	5,832	0.342	1.052	0.000	7.314
Log(1+Adjusted Citation)	5,832	0.005	0.035	0.000	0.693
Log(1+Patent Value)	5,832	0.623	1.567	0.000	8.327
Log(1+Originality)	5,832	0.183	0.585	0.000	5.421
Log(1+Generality)	5,832	0.022	0.176	0.000	2.968
Log(1+ExploitativePatent)	5,832	0.189	0.636	0.000	6.001
Log(1+ExploratoryPatent)	5,832	0.163	0.553	0.000	4.844
CSR Contracting	5,832	0.211	0.408	0.000	1.000
ROA	5,832	0.109	0.087	-0.397	0.364
Log(Asset)	5,832	8.659	1.382	3.921	11.525
R&D	5,832	0.029	0.051	0.000	0.339
Leverage	5,832	0.255	0.177	0.000	0.859
PPEEM	5,832	0.242	0.798	0.002	6.265
BTM	5,832	0.385	0.306	-0.514	2.331
Buy and Hold Return	5,832	0.146	0.400	-0.779	2.333
HHI	5,832	0.290	0.249	0.029	1.000
Institutional Ownership	5,832	0.841	0.146	0.176	1.000
CEO Overconfidence	5,832	0.753	0.431	0.000	1.000
Log(1+Delta)	5,832	6.100	1.385	0.444	9.497
Log(1+Vega)	5,832	4.699	1.690	0.000	7.102
CEO Gender	5,832	0.035	0.183	0.000	1.000
Log(CEO Age)	5,832	4.025	0.116	3.664	4.317
Log(1+Tenure)	5,832	4.148	0.889	1.792	6.040

Table 3.3 CSR contracting and Patent Counts

This table presents the results of OLS panel regressions that estimate the effect of CSR contracting on patent counts. The dependent variable, *Log(1+Patent)* is the log of one plus number of green patents. CSR contracting is an indicator variable that equals one if senior executives' compensation is linked to CSR targets in the year and zero otherwise. Variable definitions are provided in Table A3.1 in the Appendix. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES (Lagged)	Log(1+Patent)					
CSR Contracting	0.067**	0.209***	0.067**	0.099**	0.068**	0.100**
	[1.975]	[3.199]	[1.989]	[1.976]	[2.012]	[2.010]
ROA			0.066	-0.205	0.073	-0.190
			[0.509]	[-1.057]	[0.567]	[-0.974]
Log(Asset)			0.048	0.187***	0.049	0.185***
			[1.334]	[7.025]	[1.333]	[6.793]
R&D			1.639**	1.297***	1.668**	1.311***
			[1.964]	[2.850]	[1.997]	[2.880]
Leverage			-0.006	-0.243*	-0.002	-0.252*
			[-0.052]	[-1.783]	[-0.020]	[-1.806]
PPEEM			-0.028*	0.007	-0.028*	0.006
			[-1.801]	[0.277]	[-1.773]	[0.233]
BTM			0.062*	-0.191***	0.066	-0.196***
			[1.658]	[-3.114]	[1.562]	[-3.170]
Buy and Hold Return			0.015	-0.018	0.013	-0.012
			[0.956]	[-0.838]	[0.894]	[-0.603]
HHI			-0.123	0.047	-0.125*	0.042
			[-1.630]	[0.451]	[-1.669]	[0.408]
Institutional Ownership			0.208	-0.530***	0.209	-0.541***
			[1.534]	[-3.671]	[1.596]	[-3.776]
CEO Overconfidence					-0.012	0.011
					[-0.309]	[0.248]
Log(1+Delta)					0.008	-0.010
					[0.411]	[-0.666]
Log(1+Vega)					-0.003	0.008
					[-0.254]	[0.634]
CEO Gender					-0.007	-0.034
					[-0.066]	[-0.280]
Log(CEO Age)					-0.091	0.119
					[-0.504]	[0.780]
Log(1+Tenure)					-0.009	-0.016
					[-0.586]	[-0.846]
Constant	0.270***	0.237***	-0.355	-0.801***	0.012	-1.168*
	[37.395]	[11.450]	[-1.002]	[-4.378]	[0.017]	[-1.872]
Observations	5,766	5,828	5,766	5,828	5,766	5,828
R-squared	0.761	0.373	0.763	0.451	0.763	0.451
Year FE	YES	YES	YES	YES	YES	YES
Firm FE	YES		YES		YES	
Industry FE		YES		YES		YES

Table 3.4 CSR Contracting and Innovation Quality

This table presents the results of OLS panel regressions that estimate the effect of CSR contracting on green innovation quality. In Panel A, innovation quality is measured as the number of forward citations received. The dependent variable in columns (1) and (2), *Log(1+Citation),* is the log of one plus raw forward citations received by the firm's green patents. The dependent variable in columns (3) and (4), *Log(1+Adjusted Citation),* is the log of one plus forward citations the firm's green patents received after adjusting for truncation bias. In Panel B, innovation quality is measured as *Log(1+Patent Value),* the log of one plus the sum of the economic values of a firm's green patents. CSR contracting is an indicator variable that equals one if senior executives' compensation is linked to CSR targets in the year and zero otherwise. Variable definitions are provided in Table A3.1 in the Appendix. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

Panel A. Patent Citations

	(1)	(2)	(3)	(4)
VARIABLES (Lagged)	Log(1+Citation)		Log(1+Adjusted Citation)	
CSR Contracting	0.069	0.118**	0.005*	0.005**
	[1.345]	[1.986]	[1.747]	[2.280]
ROA	-0.094	-0.387	-0.025**	-0.018**
	[-0.493]	[-1.468]	[-1.978]	[-2.284]
Log(Asset)	0.083	0.197***	0.001	0.002***
	[1.471]	[6.278]	[1.036]	[3.542]
R&D	2.802***	1.338**	0.012	0.011
	[2.744]	[2.418]	[1.006]	[1.491]
Leverage	0.145	-0.277	-0.011**	-0.005
	[0.749]	[-1.633]	[-2.038]	[-1.615]
PPEEM	-0.010	0.008	-0.001	0.000
	[-0.290]	[0.187]	[-1.349]	[0.152]
BTM	0.040	-0.273***	-0.003	-0.005***
	[0.572]	[-3.206]	[-1.009]	[-2.674]
Buy and Hold Return	0.005	-0.024	0.001*	0.001
	[0.244]	[-0.887]	[1.849]	[0.827]
HHI	-0.093	0.145	-0.005	-0.001
	[-0.883]	[1.085]	[-1.065]	[-0.462]
Institutional Ownership	0.532***	-0.527***	-0.006	-0.005
	[2.689]	[-3.131]	[-0.920]	[-1.383]
CEO Overconfidence	-0.059	0.013	-0.001	0.000
	[-0.931]	[0.202]	[-0.346]	[0.235]
Log(1+Delta)	0.023	0.003	-0.000	0.000
	[0.825]	[0.136]	[-0.086]	[0.769]
Log(1+Vega)	-0.007	0.007	0.001	0.001*
	[-0.447]	[0.483]	[1.303]	[1.912]
CEO Gender	-0.190	-0.103	0.000	-0.000
	[-1.531]	[-0.838]	[0.037]	[-0.048]
Log(CEO Age)	-0.093	0.128	0.005	0.006
	[-0.291]	[0.625]	[0.518]	[1.259]
Log(1+Tenure)	-0.014	-0.025	0.000	-0.001
	[-0.494]	[-0.917]	[0.178]	[-0.992]
Constant	-0.558	-1.277	-0.018	-0.032
	[-0.433]	[-1.549]	[-0.374]	[-1.490]
Observations	5,766	5,828	5,766	5,828
R-squared	0.675	0.403	0.320	0.208
Year FE	YES	YES	YES	YES
Firm FE	YES		YES	
Industry FE		YES		YES

Panel B. Patent Value

	(1)	(2)
VARIABLES (Lagged)	Log(1+Patent Value)	
CSR Contracting	0.078	0.159*
	[1.180]	[1.898]
ROA	-0.017	-0.380
	[-0.055]	[-0.971]
Log(Asset)	0.122	0.373***
	[1.543]	[7.954]
R&D	2.895**	2.466***
	[2.120]	[2.743]
Leverage	0.005	-0.706***
	[0.021]	[-3.107]
PPEEM	-0.076*	-0.032
	[-1.748]	[-0.331]
BTM	0.082	-0.413***
	[1.090]	[-3.227]
Buy and Hold Return	0.034	-0.015
	[1.070]	[-0.353]
HHI	-0.169	0.201
	[-1.401]	[1.004]
Institutional Ownership	0.410*	-1.034***
	[1.732]	[-4.301]
CEO Overconfidence	-0.002	0.015
	[-0.028]	[0.165]
Log(1+Delta)	0.002	-0.001
	[0.056]	[-0.037]
Log(1+Vega)	0.020	0.026
	[0.999]	[1.322]
CEO Gender	-0.160	-0.192
	[-1.216]	[-1.120]
Log(CEO Age)	0.239	0.203
	[0.745]	[0.698]
Log(1+Tenure)	-0.044	-0.036
	[-1.337]	[-0.862]
Constant	-1.721	-2.302*
	[-1.166]	[-1.880]
Observations	5,766	5,828
R-squared	0.725	0.440
Year FE	YES	YES
Firm FE	YES	
Industry FE		YES

Table 3.5 Innovation Style

This table presents the results of OLS panel regressions that estimate the effect of CSR contracting on green innovation style. In Panel A, we investigate the originality and generality of green innovation. The dependent variable in columns (1) and (2), *Log(1+Originality),* is the log of one plus the sum of originality scores of green patents applied by a firm. The dependent variable in columns (3) and (4), *Log(1+Generality),* is the log of one plus the sum of originality scores of green patents applied by a firm. In Panel B, we classify green patents into exploitative patents and exploratory patents. *Log(1+ExploitativePatent),* is the log of one plus the number of exploitative green patents. *Log(1+ExploratoryPatent),* is the log of one plus the number of exploratory green patents. CSR contracting is an indicator variable that equals one if senior executives' compensation is linked to CSR targets in the year and zero otherwise. Variable definitions are provided in Table A3.1 in the Appendix. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

Panel A. Originality and Generality

	(1)	(2)	(3)	(4)
VARIABLES	Log(1+Originality)		Log(1+Generality)	
(Lagged)	OLS-value		OLS-value	
CSR Contracting	0.052**	0.072*	-0.016	-0.001
	[2.058]	[1.829]	[-1.233]	[-0.204]
ROA	0.009	-0.183	-0.055	-0.114*
	[0.096]	[-1.214]	[-1.538]	[-1.734]
Log(Asset)	0.034	0.126***	0.024	0.011**
	[1.324]	[6.207]	[1.589]	[2.091]
R&D	1.085*	0.752**	-0.005	-0.031
	[1.933]	[2.404]	[-0.032]	[-0.400]
Leverage	-0.028	-0.139	0.115**	0.058*
	[-0.326]	[-1.279]	[2.414]	[1.743]
PPEEM	-0.013	0.008	0.011	0.003
	[-1.316]	[0.601]	[1.626]	[0.567]
BTM	0.044	-0.130***	-0.020	-0.027
	[1.417]	[-2.929]	[-0.587]	[-1.327]
Buy and Hold Return	0.004	-0.010	0.004	0.006
	[0.354]	[-0.650]	[1.093]	[1.429]
HHI	-0.100	0.029	-0.005	0.008
	[-1.591]	[0.359]	[-0.207]	[0.365]
Institutional	0.137	-0.391***	0.154***	-0.016
	[1.489]	[-3.590]	[3.234]	[-0.786]
CEO Overconfidence	-0.017	0.017	-0.043**	-0.019
	[-0.609]	[0.528]	[-2.047]	[-1.192]
Log(1+Delta)	0.012	-0.008	0.005	0.003
	[0.864]	[-0.696]	[0.665]	[0.785]
Log(1+Vega)	-0.005	0.005	-0.003	-0.001
	[-0.493]	[0.491]	[-1.417]	[-0.642]
CEO Gender	0.027	-0.022	-0.011	-0.018
	[0.333]	[-0.233]	[-0.457]	[-1.592]
Log(CEO Age)	-0.093	0.093	0.024	0.036
	[-0.763]	[0.845]	[0.418]	[1.100]
Log(1+Tenure)	-0.003	-0.010	-0.004	-0.003
	[-0.263]	[-0.766]	[-0.438]	[-0.586]
Constant	0.102	-0.834*	-0.399*	-0.187
	[0.211]	[-1.843]	[-1.668]	[-1.365]
Observations	5,766	5,828	5,766	5,828
R-squared	0.755	0.433	0.419	0.228
Year FE	YES	YES	YES	YES
Firm FE	YES		YES	
Industry FE		YES		YES

Panel B. Exploitative and Exploratory Innovations

VARIABLES (Lagged)	(1)	(2)	(3)	(4)
	Log(1+ExploitativePatent)		Log(1+ExploratoryPatent)	
CSR Contracting	0.069**	0.095**	0.050**	0.067**
	[2.444]	[2.121]	[1.977]	[2.017]
ROA	0.086	-0.113	0.043	-0.186
	[0.852]	[-0.698]	[0.431]	[-1.309]
Log(Asset)	0.028	0.133***	0.040	0.117***
	[1.016]	[6.094]	[1.405]	[6.017]
R&D	1.162**	0.878**	0.950	0.765**
	[2.039]	[2.568]	[1.436]	[2.561]
Leverage	-0.018	-0.216*	-0.017	-0.073
	[-0.187]	[-1.783]	[-0.174]	[-0.714]
PPEEM	-0.027*	0.012	-0.012	0.005
	[-1.907]	[0.829]	[-1.127]	[0.290]
BTM	0.058*	-0.145***	0.039	-0.122***
	[1.719]	[-3.004]	[1.172]	[-2.908]
Buy and Hold Return	0.009	-0.012	0.004	-0.008
	[0.733]	[-0.725]	[0.337]	[-0.586]
HHI	-0.110*	0.049	-0.087	-0.027
	[-1.704]	[0.592]	[-1.571]	[-0.395]
Institutional	0.096	-0.425***	0.150	-0.366***
	[0.968]	[-3.551]	[1.554]	[-3.617]
CEO Overconfidence	-0.007	0.023	-0.011	0.000
	[-0.221]	[0.682]	[-0.355]	[0.014]
Log(1+Delta)	0.023	-0.004	-0.002	-0.010
	[1.536]	[-0.292]	[-0.106]	[-0.918]
Log(1+Vega)	-0.008	0.004	-0.001	0.003
	[-0.733]	[0.406]	[-0.114]	[0.342]
CEO Gender	0.076	-0.017	-0.032	-0.015
	[0.746]	[-0.158]	[-0.396]	[-0.186]
Log(CEO Age)	-0.063	0.070	-0.222	0.064
	[-0.426]	[0.585]	[-1.621]	[0.579]
Log(1+Tenure)	-0.016	-0.015	0.009	-0.006
	[-1.101]	[-0.962]	[0.875]	[-0.491]
Constant	0.045	-0.776	0.550	-0.673
	[0.079]	[-1.611]	[1.177]	[-1.491]
Observations	5,766	5,828	5,766	5,828
R-squared	0.729	0.398	0.689	0.397
Year FE	YES	YES	YES	YES
Firm FE	YES		YES	
Industry FE		YES		YES

Table 3.6 Propensity Score Matching Analysis

This table presents the results from the tests of the association between CSR contracting and the firms' green innovation outcomes for the propensity score matching sample. Panel A reports the results for the diagnostic statistical difference in the means of the firm and CEO characteristics. Treatment denotes the CSR contracting, and Control refers to matching sample that does not implement CSR contracting. Panel B reports pre- and post-matching probit regressions. Panel C reports the results for CSR contracting and various green innovation outcomes in the matched sample. CSR contracting is an indicator variable that equals one if senior executives' compensation is linked to CSR targets in the year and zero otherwise. Variable definitions are provided in Table A3.1 in the Appendix. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

Panel A. Differences in Characteristics of Treatment and Control for Matched Sample

VARIABLES	Treated	Control	Diff	t-statistics
ROA	0.110	0.107	0.003	0.97
Log(Asset)	9.250	9.241	0.009	0.15
R&D	0.024	0.025	-0.001	-0.45
Leverage	0.288	0.284	0.004	0.44
PPEEM	0.361	0.370	-0.009	-0.20
BTM	0.396	0.394	0.002	0.14
Buy and Hold Return	0.160	0.163	-0.003	-0.17
HHI	0.294	0.285	0.009	0.78
Institutional Ownership	0.842	0.839	0.003	0.52
CEO Overconfidence	0.756	0.743	0.013	0.65
Log(1+Delta)	6.183	6.156	0.027	0.44
Log(1+Vega)	4.641	4.649	-0.008	-0.09
CEO Gender	0.048	0.053	-0.005	-0.51
Log(CEO Age)	4.037	4.041	-0.004	-0.89
Log(1+Tenure)	4.207	4.168	0.039	0.99

Panel B. Pre- and Post- Matching probit estimation

	(1)	(2)
	Pre-match	Post-match
VARIABLES	CSR Contracting	CSR Contracting
ROA	0.802	-0.316
	[1.507]	[-0.417]
Log(Asset)	0.356***	-0.010
	[8.238]	[-0.169]
R&D	0.596	-1.423
	[0.542]	[-0.852]
Leverage	-0.206	-0.122
	[-0.691]	[-0.294]
PPEEM	-0.242**	-0.015
	[-2.252]	[-0.121]
BTM	0.300**	-0.060
	[2.108]	[-0.308]
Buy and Hold Return	-0.013	0.032
	[-0.199]	[0.298]
HHI	0.067	-0.238
	[0.372]	[-0.872]
Institutional Ownership	0.668**	0.054
	[1.963]	[0.118]
CEO Overconfidence	-0.034	0.050
	[-0.391]	[0.399]

Log(1+Delta)	-0.035	0.017
	[-0.716]	[0.254]
Log(1+Vega)	-0.021	0.031
	[-0.754]	[0.768]
CEO Gender	0.085	-0.095
	[0.423]	[-0.344]
Log(CEO Age)	-0.158	-0.118
	[-0.369]	[-0.207]
Log(1+Tenure)	0.113**	-0.056
	[2.212]	[-0.770]
Constant	-3.773**	0.584
	[-2.223]	[0.246]
Observations	5,153	1,375
Pseudo R2	0.283	0.0259
Year FE	YES	YES
Industry FE	YES	YES

Panel C. CSR contracting and green innovation outcome for PSM sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES (Lagged)	Log(1+Patent)	Log(1+Citation)	Log(1+Adjusted Citation)	Log(1+Patent Value)	Log(1+Originality)	Log(1+Generality)	Log(1+ExploitativePatent)	Log(1+ExploratoryPatent)
CSR Contracting	0.090**	0.135*	0.005**	0.118	0.065**	-0.002	0.063*	0.089***
	[2.029]	[1.831]	[2.081]	[1.233]	[1.997]	[-0.084]	[1.758]	[2.626]
ROA	0.175	-0.118	-0.022	-0.102	0.102	-0.118	0.452*	0.126
	[0.650]	[-0.263]	[-1.140]	[-0.163]	[0.534]	[-1.581]	[1.812]	[0.690]
Log(Asset)	0.089	0.151	0.001	0.189	0.066	0.050*	0.059	0.087*
	[1.293]	[1.453]	[0.323]	[1.286]	[1.291]	[1.843]	[0.999]	[1.695]
R&D	0.925	2.554	0.048	2.137	0.539	-0.274	-0.179	0.496
	[0.647]	[1.256]	[0.778]	[0.713]	[0.562]	[-0.743]	[-0.154]	[0.441]
Leverage	-0.075	0.303	-0.015**	-0.263	-0.002	0.175	-0.061	0.048
	[-0.291]	[0.599]	[-1.978]	[-0.528]	[-0.010]	[1.612]	[-0.304]	[0.172]
PPEEM	0.010	0.126***	-0.000	0.047	0.007	0.043**	-0.012	0.025
	[0.406]	[2.734]	[-0.171]	[0.771]	[0.432]	[2.356]	[-0.532]	[1.401]
BTM	0.049	-0.248	-0.006	-0.105	0.063	-0.128	0.068	0.058
	[0.426]	[-1.372]	[-1.192]	[-0.511]	[0.625]	[-1.642]	[0.680]	[0.589]
Buy and Hold Return	-0.011	-0.047	0.001	0.022	-0.008	-0.003	-0.038	0.015
	[-0.328]	[-0.989]	[0.375]	[0.313]	[-0.298]	[-0.223]	[-1.214]	[0.515]
HHI	-0.271**	-0.312	0.002	-0.394*	-0.177**	-0.051	-0.241***	-0.171*
	[-2.501]	[-1.353]	[0.512]	[-1.700]	[-2.133]	[-0.799]	[-2.790]	[-1.666]
Institutional Ownership	0.248	0.910**	0.002	0.200	0.166	0.264*	0.310	0.146
	[0.976]	[2.034]	[0.147]	[0.388]	[0.842]	[1.905]	[1.337]	[0.757]
CEO Overconfidence	-0.015	-0.088	-0.003	-0.100	-0.023	-0.045**	0.018	-0.036
	[-0.243]	[-0.789]	[-0.700]	[-0.777]	[-0.537]	[-2.080]	[0.399]	[-0.827]
Log(1+Delta)	0.065	0.115	0.000	0.117	0.058	0.014	0.053	0.075
	[0.995]	[1.171]	[0.260]	[1.151]	[1.077]	[0.662]	[1.022]	[1.131]
Log(1+Vega)	0.022	0.033	0.001	0.062	0.015	0.001	0.013	0.014
	[0.819]	[1.078]	[1.006]	[1.404]	[0.704]	[0.183]	[0.572]	[0.651]
CEO Gender	0.041	-0.122	-0.000	-0.112	0.029	0.022	0.119	-0.002
	[0.146]	[-0.475]	[-0.072]	[-0.283]	[0.130]	[0.612]	[0.498]	[-0.013]

Log(CEO Age)	0.131	-0.055	-0.003	0.916	-0.046	0.089	0.100	-0.084
	[0.359]	[-0.087]	[-0.156]	[1.353]	[-0.177]	[0.733]	[0.312]	[-0.282]
Log(1+Tenure)	-0.062	-0.107	0.000	-0.179**	-0.041	-0.025	-0.070*	-0.037
	[-1.467]	[-1.432]	[0.142]	[-2.070]	[-1.372]	[-1.477]	[-1.814]	[-1.045]
Constant	-1.422	-1.878	0.007	-4.844*	-0.581	-0.952	-1.066	-0.773
	[-1.030]	[-0.794]	[0.091]	[-1.724]	[-0.578]	[-1.563]	[-0.875]	[-0.759]
Observations	1,266	1,266	1,266	1,266	1,266	1,266	1,266	1,266
R-squared	0.835	0.757	0.357	0.786	0.822	0.632	0.794	0.799
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES

Table 3.7 Further Analysis: Environmental Performance

This table presents the results from the tests of the association between CSR contracting, firms' green innovation, and firms' environmental performance. The dependent variable, *ENV*, is the environmental score. CSR contracting is an indicator variable that equals one if senior executives' compensation is linked to CSR targets in the year and zero otherwise. Variable definitions are provided in Table A3.1 in the Appendix. Robust t-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

	(1)	(2)	(3)	(4)
VARIABLES (Lagged)	ENV	ENV	ENV	ENV
CSR Contracting		-0.363		2.849***
		[-0.418]		[3.591]
Log(1+Patents)	2.146**	2.170**	5.113***	4.860***
	[2.250]	[2.281]	[4.096]	[3.876]
ROA	6.653	6.711	13.581**	14.010**
	[1.235]	[1.243]	[2.361]	[2.450]
Log(Asset)	4.387***	4.406***	13.969***	13.417***
	[3.713]	[3.729]	[26.218]	[23.609]
R&D	32.101	32.391	59.459***	56.620***
	[1.582]	[1.593]	[3.714]	[3.619]
Leverage	-3.424	-3.446	-14.465***	-13.910***
	[-0.786]	[-0.791]	[-3.802]	[-3.692]
PPEEM	-2.515***	-2.528***	-2.353**	-2.350***
	[-2.911]	[-2.928]	[-2.557]	[-2.596]
BTM	-0.559	-0.528	-6.480***	-5.969***
	[-0.285]	[-0.269]	[-2.894]	[-2.687]
Buy and Hold Return	-0.543	-0.544	-1.975***	-1.907***
	[-0.955]	[-0.956]	[-3.011]	[-2.919]
HHI	0.161	0.144	2.172	2.043
	[0.068]	[0.061]	[0.794]	[0.739]
Institutional Ownership	-7.008	-6.927	-16.528***	-15.093***
	[-1.453]	[-1.438]	[-3.810]	[-3.455]
CEO Overconfidence	-0.825	-0.833	-2.604**	-2.617**
	[-0.731]	[-0.739]	[-2.152]	[-2.178]
Log(1+Delta)	-0.297	-0.293	-0.485	-0.458
	[-0.505]	[-0.498]	[-0.737]	[-0.694]
Log(1+Vega)	0.204	0.202	0.036	0.013
	[0.727]	[0.719]	[0.111]	[0.041]
CEO Gender	2.853	2.894	3.215	3.325
	[1.133]	[1.155]	[1.041]	[1.077]
Log(CEO Age)	-6.289	-6.306	-0.195	-0.488
	[-1.113]	[-1.114]	[-0.037]	[-0.094]
Log(1+Tenure)	0.473	0.471	-0.242	-0.221
	[0.824]	[0.822]	[-0.356]	[-0.329]
Constant	24.747	24.673	-65.923***	-62.325***
	[1.015]	[1.010]	[-3.219]	[-3.094]
Observations	5,236	5,236	5,295	5,295
R-squared	0.829	0.830	0.627	0.630
Year FE	YES	YES	YES	YES
Firm FE	YES	YES		
Industry FE			YES	YES

Appendix

Table A3.1 Variable Definition

Variable	Description	Source
Log(1+Patent)	Natural log of one plus number of green patents.	PatentsView
Log(1+Citation)	Natural log of one plus raw forward citations received by the firm's green patents	PatentsView
Log(1+Adjusted Citation)	Natural log of one plus forward citations the firm's green patents received after adjusting for truncation bias. We address the truncation bias by re-scaling the raw citation count by the average number of citations received in the same industry during the same year.	PatentsView
Log(1+Patent Value)	Natural log of one plus the sum of the economic values of a firm's green patents.	KPSS
Log(1+Originality)	Natural log of one plus the sum of originality scores of green patents applied by a firm. Originality score equals to one minus the Herfindahl index of the citations made by the patent.	PatentsView
Log(1+Generality)	Natural log of one plus the sum of generality scores of green patents applied by a firm. Generality score equals to one minus the Herfindahl index of the citations received by the patent	PatentsView
Log(1+ExploitativePatent)	Natural log of one plus the number of exploitative green patents. A patent is categorized as exploitative if at least 60% of its citations are based on existing knowledge.	PatentsView
Log(1+ExploratoryPatent)	Natural log of one plus the number of exploratory green patents. A patent is categorized as exploratory if at least 60% of its citations are based on new knowledge, i.e., citations not included in the firm's existing knowledge base.	PatentsView
CSR Contracting	An indicator variable that equals one if senior executives' compensation is linked to CSR/Health and Safety/ Sustainability targets in the year and zero otherwise. According to ASSET4, this data item is derived using the underlying data item "Senior Executive CSR Sustainability Compensation Incentives" (this question is answered Yes/No for every executive in the company). If the answer is "Yes" for any executive, the Sustainability Compensation Incentives indicator is "Yes."	ASSET4

ROA	The ratio of earnings before interest and taxes to total assets.	Compustat
Log(Asset)	Firm size, measured as the natural log of total assets.	Compustat
R&D	Research and development expense scaled by total assets. If the item of R&D expense is missing, we set its value to zero.	Compustat
Leverage	Leverage measured as long-term debt divided by total asset.	Compustat
PPEEM	Property, plant, and equipment to number of employees.	Compustat
BTM	Book-to-market ratio.	Compustat
Buy and Hold Return	The one-year buy-and-hold stock return	CRSP
HHI	Herfindahl-Hirschman index, i.e., 10-K text-based network (TNIC) industry concentration.	Hoberg-Phillips Data Library
Institutional Ownership	The percentage of shares held by institutional investors.	FactSet Ownership Database
CEO Overconfidence	Dummy variable equals one if a CEO holds vested options with average moneyness greater than 67%, and zero otherwise. Starting in the first year when a CEO displays this behavior.	Self-calculated using data from ExecuComp
Log(1+Delta)	Natural log of the expected dollar changes in CEO wealth for a 1% change in stock price.	Self-calculated following Core and Guay (2002)
Log(1+Vega)	Natural log of the expected dollar changes in CEO wealth for a 1% change in stock return volatility.	Self-calculated following Core and Guay (2002)
CEO Gender	Dummy variable that equals to one if the CEO is a woman, and zero otherwise.	ExecuComp
Log(CEO Age)	Natural log of CEO age.	ExecuComp
Log(1+Tenure)	Natural log of the number of months for which the CEO has been in charge.	ExecuComp
ENV	The environmental score measures a company's impact on living and non-living natural systems, including the air, land, and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long-term shareholder value.	ASSET4

Chapter 4

CEO Ancestral Origins and Forced Turnovers: The Role of Political Animosity

4.1 Introduction

Are CEOs dismissals always the outcome of a board re-assessment of their individual performances and of business needs, or are they impacted by non-business-related factors which (knowingly or unknowingly) influence the views of the board? Past literature documents an impact of managers' personal characteristics, such as gender and race, on their performance evaluation and careers outcomes (Greenhaus et al., 1990; Gündemir et al., 2019; Park and Westphal, 2013; Sy et al., 2010). The current research on the impact of racial and ethnic minorities on career outcomes mostly highlights problems of racial discrimination and/or underrepresentation. The focus on CEO turnovers is crucial as turnovers can work as a threat that limits minorities from exerting influence on important decisions and deprive firms of valuable abilities that minorities might uniquely possess, while exacerbating the under-appointment problem.

This chapter analyses whether CEOs' forced turnovers are influenced by CEOs' *ethnic* origins. We use a more granular differentiation of CEOs' *ethnic* origins by relating them to their different *countries* of origin and incorporating the impact of a time-varying element: the changing *political* relations between CEOs' ancestral countries of origin and the U.S. To be specific, rather than looking at the generic polarization of racial and ethnic groups within wider categories, we base our measure of a CEO's ethnic background on the CEO's specific ancestral country of origin,

which includes categories of White and non-White U.S.-*born and raised* individuals. We then dynamically evaluate how the changing political relationship between the U.S., i.e. the CEO's *country of birth and work,* and his/her ancestral *country of origin* evolves over time and affects their likelihood of dismissal. To assess the changing political relationship between the U.S. and the CEO's ancestral country of origin, we employ a measure of *country-pair political animosity* based on the dyadic differences in countries' votes over United Nation resolutions. This a well-established measure of political relations between countries and it has been used in the political science and international strategy literature (e.g., Bertrand et al., 2016; Duanmu, 2014; Li et al., 2018; Knill, Lee, and Mauck, 2012).

We find that the worsening of the bilateral political relations between the U.S. and the CEO's country of origin increases the likelihood of CEO's replacement. Specifically, a one-unit increase in our key measure of political animosity towards the U.S. is linked to a 0.7% higher likelihood of a forced CEO turnover, which represents a 25% increase compared to the average unconditional probability of the CEO forced turnover events. Furthermore, we show that out results are statistically significant and quantitatively similar when we employ alternative model specifications including a probit model, linear probability model, and Cox proportional hazard model as advocated by Jenter and Kanaan (2015). The results also remain robust to additional firm-, CEO-, and board-level control variables, to alternative use of fixed effects and alternative classifications of forced turnover events. Moreover, we present a performance-sensitivity analysis of forced CEO turnovers which shows some mitigating effects of positive industry performance and firm-operating returns on how political animosity may heightened CEOs' likelihood of dismissal, but it does not invalidate the main result.

We employ a variety of additional tests to support our causal interpretation, including propensity score matching, entropy balancing, and an instrumental variable probit model. Moreover, we rule out a possible alternative explanation to our findings, which is the so-called 'glass-cliff' problem (Cook and Glass, 2014), i.e., a higher likelihood for these specific CEOs to be appointed to underperforming firms, followed by a higher likelihood of dismissal.

To support our result and their causal interpretation we also use treatment-control firms matching based on the entropy balancing approach of Hainmueller (2012), and we show an insignificant impact of political animosity on CEO turnovers in two placebo tests that assign a 'falsified' country of origin to each CEO and randomly reassign a CEO and his/her corresponding ancestral country of origin to a firm.

We next investigate what mechanisms drive the higher likelihood of dismissal of CEOs with ancestral origins in countries with higher political animosity with the U.S. From a 'business-related' perspective, it is plausible that in certain cases the worsening of the political relationship between the U.S and the CEO's ancestral country can affect the CEO performance (e.g., in conducting overseas business successfully) and/or damage the countries' bilateral economic relationship and affect the firm's operating strategy. These developments might push the firm's board to re-think strategies, resource allocation, and the strategic role of the CEO. In other words, a CEO with a specific ancestral origin could become a less 'fitting choice' when the bilateral political relation worsens, leading to a deterioration of the CEO-firm matching quality (Brochet et al., 2021; Eisfeldt and Kuhnen, 2013). However, our empirical results suggest that the relationship between political animosity and likelihood of CEO dismissal can neither be explained by the CEO's post-appointment performance, nor by the economic consequences of a worsening of the bilateral political relations.

Turning to a behavioral bias explanation, we conjecture that the dismissals of CEOs with more hostile countries of origins may be due to some 'taste-based' discrimination (Becker, 1957), as well as miscalibrated beliefs (Bordalo et al., 2016). We find that the impact of political animosity on forced turnovers is notably more pronounced when the CEO's country of origin is perceived less favorably by the U.S. public. The lower level of country-favorability is measured by looking at less-favorable responses to the U.S. Gallup poll-data for Country Ratings;[33] and by examining lower flows of U.S. tourism towards foreign countries. We further validate this 'behavioral bias channel' by examining two implications of the country's lower favorability: first, the mitigating role of the U.S. state ethnic diversity, and second, the mitigating monitoring role of institutional investors.

Our study provides novel insights into the U.S. CEO labor market by investigating the role of political animosity in shaping the board's view towards individuals (the CEOs) of different ethnic origins. As such, it contributes to three different strands of the literature. First, we provide novel insights for the CEO labor market literature. Specifically, prior literature on the determinants of CEO forced turnover mostly focuses on the firm's operating and financial performance, on misconducts, and CEO tenure (Beneish et al., 2017; Coughlan and Schmidt, 1985; Dikolli, Mayew, and Nanda, 2014; Huson et al. 2004; Lee et al. 2012; Warner et al.,1988).

[33] Country ratings based on U.S.-citizens' favorability compiled by Gallup are available at the website: https://news.gallup.com/poll/1624/perceptions-foreign-countries.aspx

Further research reveals the impact of external monitoring on CEO turnover. For example, public firms have higher turnover rates than private firms (Gao et al., 2017). Additionally, CEO turnover is more sensitive to performance in countries with strong investor protection laws (Defond and Hung, 2004). We add to this strand of literature by presenting the role of political animosity between the U.S. and the CEO's ancestral country of origin as one more explanation for CEO replacement decisions. Second, our study is related to the broad literature on managerial labor discriminations due to gender and racial identity (see, for example, Nosek et al., 2009; Parsons et al., 2011, and Ursel et al., 2023). However, we contend that discrimination can extend beyond gender and wider racial identities. Even though in our U.S. sample most of the CEOs are of European origins, they also appear to suffer an 'unfavorable' treatment when the political animosity between the U.S. and their ancestral country intensifies. Lastly, we contribute to the growing literature that examines the economic consequences of political tensions. While most of the studies focus on trades and investments (e.g., Aiyar et al., 2023; Li et al., 2018; Michaels and Zhi, 2010), we focus on the negative impact of political tensions on individuals, specifically looking at CEO forced turnovers.

This chapter is organized as follows. Section 4.2 provides the literature review and hypothesis development. Section 4.3 explains the data used and the empirical methodology. Section 4.4 presents the main empirical results, and several robustness checks. Section 4.5 includes all endogeneity checks (propensity score matching, instrumental variable approach, and glass-cliff test). Section 4.6 presents the 'channels' testing (business versus behavioral-based explanations for forced CEO turnovers). Section 4.7 concludes this chapter.

4.2 Related Literature and Hypothesis Development

4.2.1 CEO turnover and CEO-firm matching theory

CEOs play a pivotal role in corporate strategies and governance. Consequently, substantial research has been dedicated to understanding the factors affecting CEOs turnovers, with seminal works by Coughlan and Schmidt (1985) and Warner et al. (1988) examining the termination decisions based on stock performance. Among prior literature, Parrino (1997) is one of the first to differentiate between forced versus voluntary CEO turnovers and between inside and outside succession.

Under the framework of the rational CEO-firm matching theory, Eisfeldt and Kuhnen (2013) argue that a CEO turnover decision reflects a board's assessment of the CEO's ability from a long-term perspective. If the CEO labor market is efficient, CEOs are dismissed when the estimate of a CEO's ability falls below the expected ability of the replacement CEO, adjusted for any costs associated with this replacement. A large body of results from previous literature is consistent with this theory of firms making optimal CEO replacement decisions. For instance, some research has documented variations in CEO turnover decisions based on product-market competition (DeFond and Park, 1999), CEO tenure (Allgood and Farrell, 2003), as well as risk and precision of information (Engel et al., 2003; Bushman et al., 2010).

Additionally, this rational CEO-firm matching theory often emphasizes the concept of CEO's firm-specific ability. This refers to the unique set of skills, knowledge, and perspectives that a CEO introduces to a specific company, which may not be readily applicable in other contexts (Murphy and Zabojnik, 2004, 2007). Canella et al. (2012) note a trend of matching CEO skills with industry-specific requirements, such as - for example - selecting a CEO with marketing experience for companies aiming at product differentiation. Similarly, firms may also consider the psychological traits of CEOs, for instance, Graham, Harvey, and Puri (2013) demonstrate that CEOs with a higher risk tolerance often lead high-growth companies.

In our context, we look at CEOs who were born and raised in the U.S.; however, we conjecture that their mindsets and behaviors may still be influenced by their ancestral origins. This influence can manifest itself in providing a CEO with unique insights into and connections with a specific foreign country (of ancestral origin) for example for the purpose of acquisitions, expansions to new customers, and connections with new foreign suppliers, that could be part of a firm's strategic objectives. Following prior literature (Liu, 2016; Pan et al., 2020), we overcome the lack of direct information about the CEO's ancestry by employing a surname-based approach. We infer the ancestral origin of a CEO by examining the passenger records sharing the same surname who arrived at the Port of New York between 1820 and 1957. It is important to note that unlike other aspects of personal identity, such as political orientation, which an individual can choose or change, a CEO's ancestral origin is an identity devoid of choice. When the relationship between the U.S. and this country undergoes changes, this could trigger economic implications, such as a firm's repositioning towards other target markets. Such adjustments may make the CEO's country-specific connection or knowledge less valuable and thus lead to a deterioration in the CEO-firm matching quality. Therefore, we hypothesize that when political tensions arise between the U.S. and the CEO's country of ancestry, the quality of the CEO-firm

matching may deteriorate due to economic and strategic shifts, increasing the likelihood of the CEO's replacement.

However, the evaluation of a CEO's general managerial talent and company-specific skills, which are largely unobservable and potentially non-quantifiable, remains contentious (Bertrand and Schoar, 2003). This ambiguity may lead to both the retention of ill-suited CEOs and the dismissal of optimal ones. Early studies indicate that even capable CEOs can be wrongfully ousted, sometimes becoming scapegoats for factors beyond their control (Khanna and Poulson, 1995). Additionally, evidence suggests that boards sometimes misattribute success or failure to CEOs based on mere luck (Farrell and Whidbee, 2002; Jenter and Kanaan, 2015).

Moreover, the rational CEO-firm matching theory does not entirely account for psychological and social factors that can sway decisions at the board level. Indeed, some empirical evidence suggests that biases rooted in gender and ethnicity can significantly influence CEO turnover decisions. Prior research identifies a greater termination vulnerability of women CEOs (Klein et al., 2021). Furthermore, Cook and Glass (2014) highlight the existence of a glass cliff, i.e., occupational minorities, including women and ethnic minorities, are more likely to be promoted to leadership positions in organizations that are struggling. They also document the so-called savior effect, where these occupational minorities are replaced by White men should the firm performance struggle under their leadership. By contrast, Hill et al. (2015) find different effects of minority status on the likelihood of exit for women and ethnic minority CEOs: the former relationship is negative while the latter is positive. Finally, Ursel et al. (2023) show that in U.S. firms Asian and Hispanic CEOs experience lower risk of turnover than White CEOs, while Black CEOs suffer from a higher risk of forced dismissal. Overall, the existing anecdotal and literature-based evidence about CEO turnovers lead us to question whether and why CEOs with different ethnic origins are treated differently in terms of forced dismissals.

4.2.2 Identity and politics

Shifting our perspective from the conventional CEO-firm optimal matching paradigm, we delve into the behavioral aspects that can significantly influence CEO turnover decisions. The Social Identity Theory (SIT) posits that individuals often categorize others into social groups to simplify their understanding of the social environment (Tajfel and Turner, 1979; Turner et al., 1987). Such categorization tends to occur ‘‘automatically [and] with little intent or conscious awareness’’ (Ashburn-Nardo et al., 2001). Individuals often categorize one another based on a variety of observable characteristics, including but not limited to gender and race (Stangor et al.,

1992). This categorization can lead to out-group bias, where individuals show a preference for members of their own group while having biases against those from different groups (Brewer, 1999; Hewstone et al., 2002).

A compelling dimension to consider here is how politics can be a source of out-group bias. Political dynamics can accentuate the 'us' versus 'them' divide, especially during heightened tensions between countries. Tensions arising from political choices, global events, or diplomatic disagreements can unintentionally affect perceptions of individuals based on their ancestral origins (Brubaker and Laitin, 1998).

Furthermore, social identity theory also predicts the fluidity of identities (Huddy, 2001). Notably, these categorizations and biases are not static; they evolve in response to changing circumstances and perceptions.

One of the most significant events to shape people's views on other countries are bilateral political tensions. Prior literature documents that bilateral investments are adversely affected by military conflicts (e.g., Long, 2008, Hegre et al., 2010, Li and Vashchilko, 2010). However, in most cases, the worsening of political relations does not involve the extreme outcome of a war (Du et al., 2017), but instead varies along a continuum of positions (Davis and Meunier, 2011), ranging from "friendly", to "neutral" to "tense". Fouka and Voth (2016) study the political conflict between Germany and Greece created by the 2010-2014 sovereign debt crisis and observe a large effect of these shifting political relations on purchasing behaviors. Furthermore, Michaels and Zhi (2010) examine the deterioration of the political relation between France and the U.S. from 2002–2003, when the U.S. government tried to obtain a United Nations (UN) Security Council mandate to use military force against Iraq, and the French government opposed this move. France's favorability rating in the U.S. fell by 48 percentage points and this then led to reduced bilateral trade by about 9 percent.

While these studies primarily focus on bilateral investments and trade, they underscore the profound impact of political dynamics on economic decisions. However, there is a lack of evidence on their impact on individuals and behaviors within firms and organizations, especially with reference to the career outcomes of top managers. Extending this line of enquiry to the CEO labor market, we argue that board members' preferences towards a CEO are to some extent driven by the political relations between the U.S. and the CEO's country of origin and this can contribute towards biased judgements on CEO replacement decisions.

Given this discussion, we hypothesize that CEOs with ancestral ties to countries exhibiting higher political animosity towards the U.S. could inadvertently become targets of such out-group biases, leading to board decision-making that might not be purely based on objective measures of CEO ability, performance, and fit to the firm's strategy.

4.3 Data and Methodology

4.3.1 Measurement of CEO forced turnovers

We identify forced CEO turnovers as in the study by Peters and Wagner (2014). We use their extension to the original dataset that includes CEO turnover events up to 2019.[34] The database contains the dates of forced CEO turnovers for all firms recorded in the ExecuComp database between 1993 and 2019. The criteria for classifying a CEO turnover as forced are described in Peters and Wagner (2014). The classification uses press reports along with an age criterion and further refinements. An event is *not* considered a forced CEO turnover if the CEO assumes or remains as Chairman of the firm's board of directors. CEO departures that are caused by CEO death or poor health are also not considered as forced dismissal, because these events are beyond the board or the CEO's control. CEO departures for which the press reports state that the CEO was fired, forced out, or retires or resigns due to policy differences or pressure are classified as forced. Turnovers of CEOs below the age of 60 that have not been classified as forced by the press criterion are classified as forced if the articles do not report the reason to be death, poor health, or acceptance of another position, or if the articles report that the CEO is retiring but the company does not announce the retirement date at least six months before departure. The press-based classification can produce some false negatives (not all forced turnovers are identified as such in the available press sources), but it is unlikely to yield false positives (turnovers described as involuntary by the media typically are indeed involuntary). The press-based measure thus may understate the true incidence of forced CEO turnovers, but it unlikely overstates it. We create a Forced Turnover dummy which takes the value of one in the last fiscal year when a forcedly dismissed CEO is in office for the greater part of the year.

[34] Excluding the period before 2001, the correlation between the CEO forced turnover classification in this dataset and the one constructed by Jenter and Kanaan is 98%.

4.3.2 Measurement of political animosity and identification of CEO's country of origin

Our proxy for bilateral political relations is based on countries' voting affinity at the United Nations General Assembly (UNGA)[35]. The motivation for using this proxy is that countries voting similarly share similar views and understanding on world issues and are therefore expected to have a good relationship and act cooperatively (Gartzke, 1998). UN votes have become the standard data source for constructing measures of countries' preferences, as the votes are comparable and observable actions taken by many countries at set points in time (Strezhnev and Voeten, 2013). In the UN General Assembly, the public stance of each country on many issues covering military and security as well as economic, social, or political concerns, is highly visible (Voeten, 2000) and all countries have equal representation. The vote in the UN General Assembly may also be generally considered a more genuine reflection of a state's preferences than most other international venues, and in such a context, the costs countries may incur for revealing their preferences "are modest relative to the cost of engaging in disputes" (Gartzke, 1998). Thus, the affinity of UN votes has been frequently used to capture political relations between countries in political science and international strategy research (e.g., Bertrand et al., 2016; Duanmu, 2014; Li et al., 2018; Knill, Lee, and Mauck, 2012).

One widely used proxy for political affinity or animosity is the S-score, as defined by Signorino and Ritter (1999). The S-score is calculated as one minus the sum of the squared actual deviations between the votes of a pair of countries, scaled by the sum of the squared maximum possible deviations between their votes. A higher score signals higher political animosity. However, the S-score does not control for the heterogeneity in the resolutions being voted across the years. To address this concern, we use instead the ideal point methodology of Bailey et al. (2017). They estimate ideal points that consistently reflect the positions of countries in relation to the U.S.-led 'liberal' political ideology. We transform their estimated ideal points into a measure of political animosity by calculating the absolute distance between the ideal points of the CEO's ancestral country of origin and the U.S. Further details on the methodology to construct this variable are provided in Appendix A. Figure 1 illustrates our measure of political animosity between a selection of countries and the U.S. over the period from 2000 to 2020 and shows different levels

[35] The data on UN votes are sourced from Strezhnev and Voeten (2013). https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/LEJUQZ

of animosity (for instance, a higher level for U.S. and China and a lower level for U.S. and Israel), and also the time-changing nature of the dyadic measures.

Finally, in this study we adopt the method used by Pan et al. (2020) to determine the country of origin of the CEOs which is not publicly available information. We utilize the passenger lists from ships arriving at the port of New York between 1820 and 1957, available on the website Ancestry.com, which provides information on passengers' names, arrival dates, ethnicity, country of departure, and other demographic characteristics. By searching for each CEO's surname and examining the country of origin (which we use in this context as definition of ethnicity) of passengers with the same surname, we estimate the distribution of ethnicity for each surname. We then use the country of origin with the highest frequency of the specific surname occurring, to attribute each CEO to a country of origin. For women CEOs, we use their maiden names to infer their origins.[36] Table B4.1 of Appendix B reports the distribution of CEOs' countries of origin in our sample.

4.3.3 Empirical methodology

To test our main hypothesis, we estimate the probability of a forced CEO turnover using the following baseline logit model:

$$Prob(Forced\ CEO\ Turnover)_{i,t} = \alpha + \beta_1 \times Political\ Animosity_{i,t} + \beta_2 \boldsymbol{X}_{i,t} + \theta_j + \varphi_t + \epsilon_{i,t} \quad (4.1)$$

where i indexes the firm, t the year, $\boldsymbol{X}_{i,t}$ represents a vector of CEO and firm controls, θ_j refers to industry fixed effects and φ_t to time (yearly) fixed effects.

With reference to the incumbent CEO, we include in our empirical models the following control variables: retirement age, tenure, and role duality (CEO and Chairman). While individual retirement plans vary, labor economics research shows that a significant number of workers choose to retire at around 65. Hence, we include a dummy variable for CEOs between the age of 64 and 66 to account for retirement. CEO tenure is the number of years for which the CEO has been in charge in the given firm. CEO duality is a dummy variable taking the value of one if the

[36] We obtain maiden name information from sources such as Marquis Who's Who, NNDB.com, and Google searches. To enhance comparability across CEOs' experiences and backgrounds, the foreign-born CEOs are excluded from our sample. However, they represent only a very small percentage of all available CEOs' sample, i.e. only 4.2%, and majority of them are CEOs born in Great Britain (22.5%), Canada (13%), and Australia (8.6%). The latter two countries do not feature as ancestral countries of origin for U.S.-born CEOs.

CEO is also Chairman, and zero otherwise. CEO age and tenure are both obtained from ExecuComp whereas CEO duality is derived from the role title in BoardEx. We also control for the CEO Pay Slice – defined as the fraction of the aggregate compensation of the firm's top-five executives captured by the CEO from ExecuComp - as Bebchuk, Cremers, and Peyer (2011) find it negatively associated with CEO turnovers.

With reference to the firm's characteristics, we include the following control variables: size (i.e., natural log of total assets), capital expenditure (i.e., capital expenditure divided by total assets), financial leverage (i.e., long-term debt divided by total asset), firm age (i.e., natural log of the number of years the company is listed, proxied by the difference between the current fiscal year and the first year the firm year-end price appears in the Compustat database), volatility (i.e., the standard deviation of monthly stock returns over the past three years) and return on asset (i.e., the ratio of earnings before interest and taxes to total assets). Moreover, we follow Jenter and Kanaan (2015) and construct firm-specific and industry-overall stock returns. Firm-specific stock returns are obtained as residuals from a regression of the firm's monthly returns on the industry-peer average value-weighted returns (excluding the firm itself). Industry-overall stock returns are calculated as value-weighted average stock returns for all firms in the CRSP database that belong to the same industry as the firm (identified using the Fama-French 48 industries classification).

We further control for internal and external governance by including board size (i.e., the number of directors on the board), board independent ratio (i.e., the percentage of independent directors sitting on the board) from BoardEx, and the HHI (i.e., 10-K text-based network (TNIC) industry concentration)[37].

Definitions and data sources for all variables used in the analysis are summarized in Table B4.2 of Appendix B.

4.3.4 Summary statistics

Table 4.1 Panel A presents summary statistics for all variables used in the baseline analysis. Our sample criteria require that: (1) firms should be covered by the ExecuComp dataset, so they must be components of the S&P 1500 index; 2) firms must have director characteristics data available

[37] This proxy is firm-specific based on the similarity scores between the firm and its rivals based on the product description from the firm 10-K annual fillings (Hoberg and Phillips, 2016). The data is available on https://hobergphillips.tuck.dartmouth.edu/industryclass.htm

in BoardEx; and (3) the CEO's country of origin must be identifiable based on the surname inference approach. These criteria yield a final sample of 1,752 U.S. public firms and 16,373 firm-year observations between 2000 and 2019.

The unconditioned mean probability of a forced CEO dismissal is 2.8% per year in our sample. This value is close to the one reported by Jenter and Kanaan (2015) for all firms in ExecuComp for the 1993–2001 period. In their sample, forced CEO turnovers occur in about 2.3% of firms annually. There are 1,637 CEO turnovers in our sample, of which 461 are classified as forced and the other are classified as voluntary. This translates into a 28.2% rate of forced turnovers conditional on total turnover events.

The main variable of interest, political animosity, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. While the ideal point methodology permits some countries to score above the U.S., few do so, and none appear in our sample. Thus, all countries in our dataset 'lean left' of the U.S. on the ideal point scale and the political animosity measure for all countries has a positive value. The average political animosity in our sample is 1.359 with a standard deviation of 0.536. The maximum and minimum values are respectively 3.442 (recorded for Syria in 2010) and 0.150 (recorded for Israel in 2019) reflecting the highest and lowest recorded levels of political animosity with the U.S.

In Panel B of Table 4.1, we compare the mean political animosity between the U.S. and the ancestral countries of origin of the leaving-CEOs and successor-CEOs. By conducting a one-sided univariate t-test, we find that their difference is positive and statistically significant. In other words, on average the political animosity score of the ancestral countries of origin of the CEOs (forcedly) leaving the firms is significantly higher than the political animosity score of the upcoming successor CEOs. However, we observe this significant result for the t-test only for the sample of forced CEO turnovers: the difference in mean political animosity scores is instead statistically *insignificant* for voluntary turnovers. This result suggests that political animosity may be a triggering factor of CEOs' *forced* dismissals. Hence, we test this conjecture more formally in regression settings and discuss the results in section 4.

4.4 Estimation Results

4.4.1 Baseline results

Table 4.2 presents the results of the baseline models using logit regressions with industry and year fixed effects. The dependent variable is Forced Turnover that equals one if the CEO is forced out in a given year and equals zero in no-turnover or voluntary-turnover years. Columns (1) and (3) report the results of the logit regressions and columns (2) and (4) report the marginal effects of each covariate. There we can observe the change in the probability of a forced turnover for a one-unit change in each of the predictors. In columns (1) and (2), we focus on a parsimonious model where we use the smallest number of control variables, so we only include firm performance proxies and the CEO retirement age dummy as they are crucial in predicting a forced turnover. In the last two columns (3) and (4), we further control for a wider set of variables that relate to firm and CEO characteristics and the board monitoring intensity.

In all specifications, we find that the probability of a forced turnover rises when the CEO's country of origin is more politically hostile to the U.S. The estimated coefficient on Political Animosity is consistently positive and statistically significant. The marginal-impact estimate from column (4) suggests that a one-unit rise in Political Animosity towards the U.S. increases the probability of a forced CEO turnover by 0.7%, marking a 25% increase relative to its unconditional mean value. Given that the standard deviation of Political Animosity is 0.536 in our sample, a one standard deviation increase is associated with a 0.38% increase in the probability of CEO forced turnover. The results are unchanged if we remove all or each category of fixed effects.[38]

As expected, a better firm performance (captured by higher firm and industry returns, and higher ROA) significantly reduces the probability of a forced CEO turnover. If we replace the value-weighted (firm and industry) returns based on firms' market capitalization with equally-weighted returns the results remain similar. Firms with higher leverage levels also witness more often than others a forced dismissal of the CEO. While CEO tenure does not have any significant impact, the retirement dummy, and the CEO-power proxies (CEO duality and CEO pay slice) reduce the probability of a forced turnover. Instead, a larger and more independent board increases it.

[38] We also add a squared-term for *Political Animosity* first, and then replace the continuous variables with a dichotomic one (high/low political animosity) to explore non-linear effects, but the variables are insignificant.

4.4.2 Robustness checks

In this section, we report a set of robustness checks to evaluate the sensitivity of our main finding around the impact of Political Animosity on the probability of a forced CEO turnover. First, we re-estimate our model using alternative empirical specifications. Column (1) of Table 4.3 employs a probit model and the marginal impact is reported in column (2). Columns (3) and (4) report instead linear probability models with industry and firm fixed effects respectively. A linear probability model is typically preferred over logit regressions when the regression includes a high number of fixed effects. This choice helps to avoid the problem known as the incidental parameter problem (Neyman and Scott, 1948) and reduces the computational burden. The coefficients of Political Animosity remain positive and statistically significant, as in Table 4.2. Since there is little variation within firms, the significance of Political Animosity is reduced when using firm fixed effects. In column (5) of Table 4.3, we also estimate a Cox proportional hazard model. The coefficients are to be interpreted in the following way: compared with an ideal point distance of 0, when the CEO country of origin has an ideal point distance of 1 with the U.S. it is $\exp(0.254) \approx 1.29$ times more likely for the CEO to be 'forced out' of the firm. Overall, our main findings remain unchanged in all alternative empirical specifications.

Next, in Table 4.4, we consider a set of additional control variables that might affect the probability of CEO forced turnovers. First, we include a gender dummy variable, Woman CEO, as prior literature documents a higher turnover-performance sensitivity of women CEOs compared to men CEOs (Ma, 2022). Second, we include a set of country-pair variables to rule out the alternative explanation that the results are driven by cultural and institutional differences between a CEO's ancestral country of origin and the U.S. We include the countries' cultural distance proxied by the Kogut and Singh's (1988) index, which is based on Hofstede's (1980, 1984) dimensions of national culture. To account for institutional distance, we employ the longitudinal scores from Kaufmann, Kraay, and Mastruzzi's (2009) six governance infrastructure quality dimensions – voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. Geographic distance is controlled by including the natural log of the geographic distance between the CEO's country of origin and the U.S. capitals, and finally we consider the common language using a dummy variable that equals one if the CEO's ancestral country of origin shares the common English language with the U.S. Third, we control for Board Gender Ratio and Board Nationality Mix as higher gender and nationality diversity may affect board monitoring (see, for example, Adams and Ferreira, 2009) and board decision-making with respect to CEO turnovers. Fourth, as CEO

connections with board members are associated with reduced forced CEO turnover (Balsam et al., 2017), we control for three types of connections as in Duchin and Sosyura (2013): CEO-board members' connections via education, non-profit organizations (NFP) and previous employment. We define the CEO as connected to a director (board member) via an educational tie if they earned degrees from the same university. They are connected via non-profit organizations if they share membership in the same social clubs, religious organizations, philanthropic foundations, industry associations, and other non-profit institutions. The measurement of employment connections captures connections via previous employment in any listed and unlisted firms (i.e., the CEO and any board member are *not* considered connected if it is the first time they serve in the same firm). The CEO and the board member are considered connected once they form a tie in the same institution regardless of whether they have left the 'common' organization later. For example, a CEO and a director are considered as connected via an NFP organization for all years after the first year when they served together in the institution. Education, NFP and Employment Connections (%) measure the percentage of CEO-director connections to the number of directors for each connection type, respectively. CEO-Director Connections (%) is the percentage of CEO-director connections to the number of directors regardless of the connection type. Fifth, the impact of political animosity could be confounded by distance in political ideology between the governing party in the U.S. and in the CEO's ancestral country[39]. Following Kempf et al. 2023, we control for ideology distance by taking the absolute difference between the two countries' governing parties using the ideology scores from the Manifesto Project Database (MPD). Sixth, the impact of political animosity could be just a reflection of the general elections' outcomes in the U.S. (and of the foreign policy of the winning party): hence we control for a U.S. general elections dummy, that equals one in general election years. Finally, we add two more specifications where the baseline regression is estimated controlling first for State fixed effects (in addition to Industry and Year fixed effects), then for Industry-by-Year fixed effects (in lieu of Industry and Year fixed effects)[40]. Notably, our main result that Political Animosity positively impacts the probability of a forced CEO turnover survives all these robustness checks.

[39] Another concern is that there could be a change in the quality of CEO political connections following a change in the US governing party. However, we found that the main findings remain consistent in subsamples where the US governing party changes and in subsamples where it does not. Detailed results are available upon request.

[40] We also test the moderating impact of Board nationality mix and General elections on the relationship between political animosity and CEO forced turnovers. We add as regressors the interaction of each of these variables (Board nationality mix and General elections) with *Political Animosity* to explore heterogenous results. However, the interacted terms appear always statistically insignificant, while the impact of *Political Animosity* stays unchanged.

We perform a variety of different robustness tests using alternative measurements of our dependent variable, Forced Turnover, which we report in Table B4.3 of Appendix B, to preserve space. First, we only consider turnover years and hence we compare firms that experienced forced turnovers with firms that experienced voluntary CEO turnovers. We also define Forced Turnover using an age-based algorithm following Peters and Wagner (2014) and Fisman et al. (2014) that defines any turnover as forced if: 1) the turnover occurs when the CEO is less than 55 years of age, 2) the turnover is not due to CEO death, and/or 3) the CEO is not reported in ExecuComp as the CEO of another firm. Our findings remain consistent across alternative turnover specifications, though the level of statistical significance drops when employing the age-based algorithm definition for the forced turnover events, given its increased noise.

Lastly, in Table B4.4 of Appendix B we show that our findings do not change when we exclude the most dominant countries. The effect of political animosity on CEO forced turnover remains significant at the 5% level even after omitting the top three ancestral countries of origin (i.e., excluding Great Britain first, and then Great Britain, Germany, and Ireland) and after excluding all European origins, which comprise over 90% of the sample. In this latter case, as expected, the estimated coefficient for Political Animosity is much larger than in the baseline results using the whole sample of countries.

4.4.3 Performance-sensitivity analysis of the impact of higher political animosity on CEO forced turnovers

Next, we investigate the performance-sensitivity of our main result. To be specific, we look at whether the impact of political animosity on CEO forced turnovers is moderated by: the firm's and industry past stock returns; whether the firm has met its set earnings-target; the past industry-adjusted firm operating returns (ROA); the level of CEO-specific ability based on a measure of managers' efficiency, relative to their industry peers, in transforming corporate resources to revenues (the measure is taken from Demerjian, Lev, and McVay, 2012); whether a firm has committed an ESG-related incident detected by the RepRisk database in the previous year.

CEO turnovers are really costly for firms; hence, we test whether the impact of higher political animosity on CEO forced turnovers *only* materialises when CEO dismissals tend to occur anyways, such as during a period of firm and/or industry underperformance (which may be related or not to CEO-specific abilities) or after socially-irresponsible firms' behaviors that trigger wide media attention.

Table 4.5 reports the results of this analysis. In column (1) we observe that given a certain level of political animosity, positive industry returns mitigate its impact on CEO forced turnovers; in other words, CEOs associated to higher political animosity scores are more vulnerable when industry returns are lower. However, first, industry returns are unlikely related to CEO-specific abilities; second, if we take the mean-level of industry returns at 11.3% (see Table 4.1), the average net impact of a given level of political animosity on CEO forced turnovers remains positive (0.391 - (0.113 × 0.952) = 0.283). A similar mitigating role is played by the firm's operating returns (ROA, see column 2)[41] and by the dummy related to whether the firm has met the earnings-target, which are more likely connected to managerial abilities (see column 3). However, when in column (4) we use a managerial-specific measure of revenue-generating efficiency (CEO ability), we find that this does not have any statistically-significant mitigating impact on the relationship between political animosity and CEO forced turnovers. Finally, the incidents recorded by RepRisk do not have any statistically significant mitigating impact on the relationship between political animosity and CEO forced turnovers and also have no strong impact on forced CEO turnovers when used alone and not interacted.

4.5 Endogeneity

Concerns of reverse causality in our baseline regression analysis are limited as our proxy for bilateral political relations based on countries' UN voting decisions is extremely unlikely to be affected by CEO turnovers in U.S. firms. However, there may be concerns about unobservable factors which our regressions do not account for and that affect both the political disagreement between the CEO ancestral country of origin and the U.S., as well as the likelihood of a forced CEO turnover. A lower (higher) political animosity and a lower (higher) likelihood of CEO forced turnover could materialize simultaneously because of geographic, institutional, and cultural factors or other reasons we cannot fully account for. In addition, underperforming firms may systematically appoint CEOs with ancestral origins in more hostile countries and this may determine a systematically higher failure rate and dismissal for this category of CEOs (so-called glass cliff).

[41] ROA typically has a mean of 0.092 and a standard deviation of 0.098, with extreme cases of ROA nearing the maximum of 0.365 being rare. Therefore, the combined effect turning negative occurs only in exceptional circumstances. Moreover, the pattern observed is consistent with the broader theme that CEOs from politically hostile countries tend to be penalized more harshly, particularly during periods of poor firm performance.

To mitigate these potential endogeneity concerns and achieve better identification, we employ propensity score matching, entropy balancing, instrumental variables, and placebo tests. We also run tests to exclude the 'glass cliff' problem.

4.5.1 Propensity score matching

We define a Political Animosity Dummy which is equal to one if the political animosity (measured by the ideal point distance) between the CEO's ancestral country of origin and the U.S. is higher than the sample median value for the same year, and zero otherwise. In the treatment group we place firms whose CEO's country of origin has a Political Animosity Dummy equal to one; the control group comprises firms whose CEO's country of origin has Political Animosity Dummy equal to zero.

Next, we estimate a probit model for the Political Animosity Dummy (probability that a firm has a CEO with origin from an above-median politically-hostile country), obtain the 'propensity scores', and report the results of the probit in column (1) of Panel A, Table 4.6, where we include the same controls as in column (3) of Table 4.2, along with year and industry fixed effects. Then, we construct a matched sample of control firms using the nearest-neighbor method based on the propensity scores calculated from the probit model. To ensure that observations in the treatment and control groups are sufficiently indistinguishable and well-matched, we employ a one-to-one matching technique with replacement and establish a tight caliper (i.e., the maximum difference in propensity score) setting of 0.0001. We also perform two diagnostic tests to ensure the comparability of firms in the matched treatment and control groups. We re-estimate the probit model for the post-matching sample and present the result in column (2) of Panel A of Table 4.6: no regressor is now statistically significant. Then, in Panel B of Table 4.6 we show that the differences between the means for all main variables in the treated and control groups are small and statistically insignificant.

Next, we re-estimate the baseline specification used in column (3) of Table 4.2 using the matched sample of control firms. The logit regression results are reported in column (3) of Table 4.6 Panel A (the marginal impact in column (4)). Overall, the PSM results confirm our finding that the probability of forced turnover for CEOs with ancestral origins in a more hostile country is higher. The results of the logit regression on the matched sample remain qualitatively similar also if we match firms in treatment and control groups without replacement.

Finally, we use entropy balancing as alternative method to match treatment and control firms while balancing their discrepancies. The entropy balancing methodology directly determines the set of weights that optimizes the balance in the covariates' moments across the two groups, rather than estimating the propensity score. In particular, the first three distributional moments (mean, variance, and skewness) of all covariates are balanced across the treatment and control groups. By targeting these three moments, the entropy balancing methodology aims to create weighted samples in which the distribution of covariates in the treatment group resembles that in the control group, thereby reducing the bias in the estimation of causal effects (see, e.g., Hainmueller, 2012). We re-estimate the logit regressions using the entropy-balanced sample and report the unchanged results of the regression in Panel C of Table 4.6. The results of the covariates' balancing are reported in Table B4.5 of Appendix B.

4.5.2 Instrumental variables

To strengthen our identification strategy and further alleviate endogeneity concerns, we also employ an instrumental variable approach. To this aim we use an Instrumental Variable Probit (IV-Probit) with a Maximum Likelihood estimator (MLE). According to Wooldridge (2010), MLE appears to be more efficient compared with Newey's two-step estimator.

As instrumental variable for the dyadic political relationship between the U.S. and the CEO's ancestral country of origin, we first use the Total Weapon Transactions which is defined as the sum of all weapon transactions (both import and export) between the U.S. and the other country divided by the GDP of the latter over the period 1990-2021. Then we use the Weapon Import, defined as the sum of all weapon imports from the U.S. to the other country divided by the GDP of the latter over the period 1990-2021. Since there is large variation over time in weapon transactions, both variables are cumulative measures and do not vary over time for any given dyad. The rationale of this instrument is two-fold. On the one hand, military transactions, especially weapon sales, require a high degree of trust and alignment in political and strategic interests between countries. A higher volume of such transactions suggests closer ties and lower political animosity, while a lower volume might indicate distrust, distance, and hostility in political relations. The high statistical significance at the 1% level and the negative coefficients of the two instruments in the first stage regressions (see columns 1 and 3 of Table 4.7) suggest that bilateral weapon transactions is a strong instrument for Political Animosity and satisfies the relevance condition. On the other hand, a country's military transactions are a much less visible and advertised act of political friendship/hostility than the country's public vote to a UN

resolution contrasting with the dominant U.S. position. Hence, military transactions should neither have a strong direct impact on the U.S. public opinion nor influence the decision of a firm's board to dismiss a CEO with ancestral origins from a specific country, thereby satisfying the exclusion criterion. In the second stage regressions, the coefficients for the instrumented variables are 0.145 and 0.142 in columns (2) and (4), and they are significant at the 10% and 1% levels, respectively. The results of the positive impact of Political Animosity on CEO Forced Turnovers survive all these endogeneity checks.

4.5.3 Placebo tests

We perform two placebo tests to assess the validity and robustness of our findings. In the first test, we create a falsified measure of political animosity, by assigning a falsified country of origin to each CEO (thus, the corresponding country's political animosity is not related to the CEO). We then re-estimate the baseline logit regression and present the results in Table B4.6 of Appendix B. In the first column, we define the falsified country as the one that follows the actual country of origin of the CEO in an alphabetically-sorted list of 95 countries that feature in both the Ancestry.com passengers' records and the UN-voting ideal point estimates. For example, if the CEO's actual country of origin is Afghanistan, we replace it with Albania. In the second column, we define the falsified country as the one that precedes alphabetically the actual country of origin; for instance, Austria is replaced by Australia. We find that the coefficients on the falsified political animosity variables are not statistically significant. Since our baseline results cannot be replicated in this placebo analysis, they are unlikely the outcome of pure chance.

Second, we conduct a non-parametric permutation test, i.e., we randomly reassign a CEO to the firm. In other words, each unique CEO-firm combination is shuffled: so, CEO *A* that serves in firm *i* is replaced with another random CEO *B*. The falsified CEO *B* is not changed until the real CEO *A* is (voluntarily or involuntarily) replaced. We then use the falsified political animosity that pertains to the country of origin of the falsified CEO *B* and re-estimate our baseline regression model. In unreported analyses, we repeat this randomized placebo estimation 1,000 times, yielding 1,000 different coefficients for political animosity. Remarkably, only 2 out of the 1,000 placebo coefficients exceed the initially estimated coefficient of 0.268 for Political Animosity. This finding implies a non-parametric p-value of 0.2%. The outcome confirms that our findings remain statistically significant under the permutation test.

4.5.4 Glass cliff

Finally, we investigate the possibility of a glass cliff issue (Ryan and Haslam, 2007) applying to CEOs with origins from countries with higher political hostility with the U.S. In other words, we test whether such CEOs are more likely to be appointed in firms with bad performance. Hence, we include in the sample only observations related to the CEO *appointment* years and create a Political Animosity Dummy which is equal to one if the appointed CEO has ancestral origin in a country with above-median political animosity with the U.S. and is zero otherwise. We then regress the dummy on several measures of firm performance (based on lagged stock returns and lagged operating returns) to evaluate whether firms with worse past performance are more likely to appoint managers with origins from more 'unwelcome' countries to the CEO position, resulting in a higher likelihood of subsequent CEO failure and future dismissal. The results of this check are reported in Table 4.8. We do not observe any evidence of a 'glass cliff'. When we look at past operating returns as performance measure, we even find a positive impact, i.e., firms with higher past ROA tend to appoint CEOs with origins from countries with higher political animosity more often than others.

4.6 Channels: is the dismissal a business-related choice or a biased decision?

In this final section we investigate possible channels that may explain the higher likelihood for a U.S. CEO with ancestral origins in a more hostile country to be dismissed.

4.6.1 Deterioration of CEO-firm matching quality

We first investigate possible business-related explanations for our findings. While we have ruled out the existence of a glass-cliff problem, it is still possible that CEOs with ancestral origins from more hostile countries are more likely dismissed because they are more likely, on average, to fail in their job. For instance, political tensions can amplify communication frictions between the CEO and other executives or between the CEO and the board which can be detrimental to the decision-making process of the firm and can worsen the CEO performance. Consequently, such CEOs might be dismissed following a fair evaluation of their performance.

Hence, we first investigate whether the degree of political animosity of the CEOs' country of origin is related to specific corporate strategies and performance. We start by looking at the

firm's investments, as making optimal investment decisions is crucial in ensuring investors that the firm allocates its resources efficiently (Biddle et al., 2009). In column (1) of Table 4.9, we observe that the estimate coefficient of *Political Animosity* is statistically insignificant. This implies that the CEO ancestral origin in a country that is more hostile does not impact investment decisions of the firm in any significant way. Next, we examine whether *Political Animosity* has any meaningful impact on firm operating performance and stock market performance. To explore this possibility, we construct a variable, *Industry-Adj. Sales Growth*, that represents the percentage change in a firm's sales in year *t*, adjusted by subtracting the 2-digit SIC industry average sales growth in the same year. Similarly, we examine two other variables related to firm performance: *Tobin's Q* and *Adjusted ROA*. Lastly, we measure the firm's stock performance using a one-year buy-and-hold return. We employ these performance measures as dependent variables and include the same set of control variables as in column (3) of Table 4.2. Collectively, we find no evidence that having a CEO with origins from a more politically hostile country to the U.S. is related to poorer firm strategic choices or to poorer firm performance in absolute terms and in relative terms to peer performance. Hence, these results suggest that the link between *Political Animosity* and dismissal of the CEO is unlikely the result just of a business decision linked to CEOs' performance or capabilities.

In line with the business channel, we next investigate whether these CEOs are dismissed because of changes in bilateral economic interest and/or firm's business interests when the bilateral political relation worsens. Higher political animosity can damage the bilateral economic relation for various reasons. First, a subset of UN resolutions is explicitly linked to economic matters (for instance, economic sanctions). Second, empirical evidence suggests that worse bilateral political relations can lead to economic consequences, including a decline in bilateral trades (Michaels and Zhi, 2010) and foreign investments (Li et al., 2018; Aiyar et al., 2023). Therefore, in a scenario when bilateral political relations worsen, firms may decide to refocus on other countries, change resource allocation, and therefore potentially replace the CEO with ancestral origin from the affected country, who becomes a less fitting choice for the firm.

To test this channel, we compare the differential impact of *Political Animosity* on CEO forced turnovers first in firms with higher vs. lower sensitivity and exposure to foreign trades, and then in firms that offshore business activities in the CEO's ancestral country of origin. The firm's sensitivity to foreign trades is measured as the average beta coefficient or the average R^2 from regressing changes of firm's total sales to changes in overall U.S. foreign trade (export plus

import), taken at the 2-digit SIC industry level.[42] The off-shore activities data are sourced from the Hoberg-Moon Data Library.[43] The rationale of these tests is that if a business channel is in place, we should find stronger evidence of a link between *Political Animosity* and CEO dismissals in: i) firms operating in industries that rely more on exports or imports because these firms are more sensitive to changes in bilateral trade flows; and ii) firms that offshore activities in the CEO's ancestral country of origin because the worse relationship of this country with the U.S. can impact and disrupt directly the firm's offshored business operations.

However, Table 4.10 Panels A and B, show that we do not find such evidence. If we take Panel B of Table 4.10, which presents the baseline regression results separately for the subsample of firms that have offshoring activities in CEO's ancestral country and the subsample of firms that do not have them, we see no major differences across the two groups in the estimated coefficient of *Political Animosity*. The impact of political animosity on forced CEOs turnovers is slightly stronger for the firms that have offshoring activities as we would expect (column 1), but the evidence do not set these firms completely apart from the rest of the sample. We observe a statistically-significant positive impact of political animosity in both samples.

Taken together, these findings suggest that our documented political animosity-CEO dismissal link is unlikely a reflection of worsening trade or business relations between two countries.

4.6.2 Behavioral bias

In this section, we exploit possible *behavioral* explanations, grounded in biased views. The ancestral origin of a U.S. CEO, often an overlooked and dormient factor shaping their personal identity, can become a significant factor influencing his/her relationship with board members during periods of heightened political tension between the U.S. and the CEO ancestral country of origin, potentially leading to out-group biases in CEO replacement decisions.

Some studies in the field of psychology show that individuals tend to assign more positive evaluations to a subject with a favorable attribute, even if the attribute is irrelevant to their overall assessments (Klauer and Stern, 1992). The opposite behaviour, that is poorly evaluating subjects with unfavorable attribute, is therefore plausible. If the observed impact of political animosity on CEO dismissal likelihood is primarily driven by an unfavorability bias, we would expect this impact to be more prominent when the CEO's ancestral country of origin is viewed less favorably

[42] Firms that have fewer than 10 observations are dropped to ensure the reliability of each regression.
43 The offshoring data end in 2017; hence, the regressions run on samples with less observations.

by the wider U.S. public. To test this bias-channel, in Table 4.11 columns (1) and (2) we conduct a subsample test to assess the impact of public opinion on the relationship between *Political Animosity* and *Forced Turnover*. We generate a proxy for Americans' favorability toward different countries using the responses to a Gallup survey that asks respondents: "Is your overall opinion of the following country very favorable, mostly favorable, mostly unfavorable, or very unfavorable?". Following Jung et al. (2019, 2023), we use the percentage of respondents who answered "Very Favorable" or "Mostly Favorable" to this question to create a country-favorability score. Then, we define the favorability score for the CEO's country of origin in a specific year as the most recent favorability rating available for his/her inferred country of origin. We then divide the sample of firms based on the favorability scores of the ancestral countries of origin of their CEOs, above and below the median value of the scores' distribution. Consistent with our conjuncture, we find that the coefficient of *Political Animosity* is positive and statistically significant only in the latter subsample (low favorability) while it is not statistically significant in the former subsample (high favorability).

Next, we use the share of U.S. travelers visiting a specific country as another proxy for the country-level favorability. Prior literature shows that when deciding for a touristic destination, individuals consider their overall perception of the country, including both favorability and familiarity to fulfill social needs or to prevent the anxiety that can arise from planning (Chen et al., 2017; Leisen, 2001). Columns (3) and (4) of Table 4.11 show that the effect of *Political Animosity* on the likelihood of CEO forced turnovers is significant only for the subsample of firms led by a CEO whose ancestral origin is in a country of lower touristic flow from the U.S., hence a less favorable country.

We strengthen the evidence on this behavioral bias-channel by testing two possible implications. Specifically, we first look at the level of ethnic diversity of the state where firms are headquartered. Prior literature (e.g., Wagner et al., 2006) suggests that an increase in ethnic diversity promotes positive interactions among different groups and reduces inter-group biases. If so, we should observe that the impact of *Political Animosity* on the likelihood of CEO forced turnovers is lower for firms in states with higher ethnic diversity. We calculate the state ethnic diversity index (Blau, 1977; Meyer and McIntosh, 1992) as one minus the sum of the squared proportions of various ethnic groups in the state using the 2000, 2010, and 2020 US Census data, and filling in the missing years through interpolation. Table 4.12 columns (1) and (2) presents the results of a subsample analysis where we divide firms based on the ethnic diversity of the state (above and below the median value of the index) to examine the mitigating role of ethnic

diversity. Consistent with a bias-driven explanation, the impact of CEO political animosity is more pronounced in those states that exhibit lower ethnic diversity.

Finally, we explore a possible mitigating role of institutional ownership on the impact of *Political Animosity*. Extant literature (e.g., Aggarwal et al., 2011; Chung and Zhang, 2011; McCahery et al., 2016) documents that institutional investors can foster corporate governance both directly, through influencing the firm's management ("voice") and indirectly, through selling their shares ("exit"). Institutional investors can play a crucial external monitoring role that would advocate for a CEO turnover in the case of poor CEO performance (Parrino et al., 2003; Helwege et al., 2012), while simultaneously disciplining board governance to ensure CEO-turnover decisions align with shareholder interests and to prevent unwarranted CEO departures. In line with this reasoning, columns (3) and (4) of Table 4.12 demonstrate that the influence of *Political Animosity* on CEO *Forced Turnover* is less prominent in firms with higher levels of institutional ownership.

Overall, the evidence provided in this section supports the behavioral-bias channel for the impact of political animosity on CEO forced turnovers.

4.7 Conclusions

In this study we show that the probability of a CEO forced dismissal from a U.S. firm is higher when the CEO has ancestral origin in a country that displays higher political hostility towards the U.S. We capture political hostility by looking at the distance between the countries' voting choices in key UN resolutions in any given year. In this way, we capture the time-varying evolution of countries' political relationships with the U.S. Our results remain robust after controlling for the firm's (financial and operating) performance, the firm's indebtedness level and other key financials metrics, for other critical CEO characteristics (such as retirement age, gender, and dominance), for the board monitoring intensity and its level of gender and racial diversity, and for the level of personal connectedness of the CEO with board members.

We employ propensity score matching, entropy balancing, and instrumental variables approaches to achieve better identification, and our results hold consistently. We also test the 'glass cliff hypothesis' and show that CEOs with ancestral origins in more hostile countries are not more likely than others to be appointed in firms with worse performance: hence, they are not 'set to fail' from the start.

We then examine two possible explanations for why higher political hostility with the U.S. may cause higher likelihood of dismissal for CEOs whose origins are identified with that country. We demonstrate that this finding is not just related to poor firm performance or poor CEO performance, and it is not more likely to occur in firms that operate in industries which are highly sensitive to changes in bilateral trade decisions or that run offshore activities in the CEO ancestral country of origin. Rather, our main finding is consistent with a behavioral bias channel, as the link between political animosity and CEO dismissal is stronger for countries (of origin) that are viewed less favorably by the U.S. public, gathered by looking at responses to a dedicated national survey on countries' favorability and at U.S. touristic flows towards the country. The impact is also stronger for firms located in states with less ethnic diversity, and in firms under lower institutional investors' monitoring.

Our findings suggest that boards' decisions on CEO dismissals may be biased by the perceptions around the CEO personal ethnic identity when the U.S. and the CEO country of origin are more politically hostile and distant. As this behavior may lead to an unwarranted or undesired dismissal of a CEO from his/her firm, it becomes imperative for board members and outside investors to carefully evaluate those situations when a political and country bias may influence such key decisions and prevent their negative externalities.

4.8 Figures and Tables

Figure 4.1 Political Animosity Between the U.S. and a Sample of Countries (2000-2020)

This figure illustrates how the dyadic measure of political animosity between a selection of countries and the U.S. changes over the period 2000 and 2020.

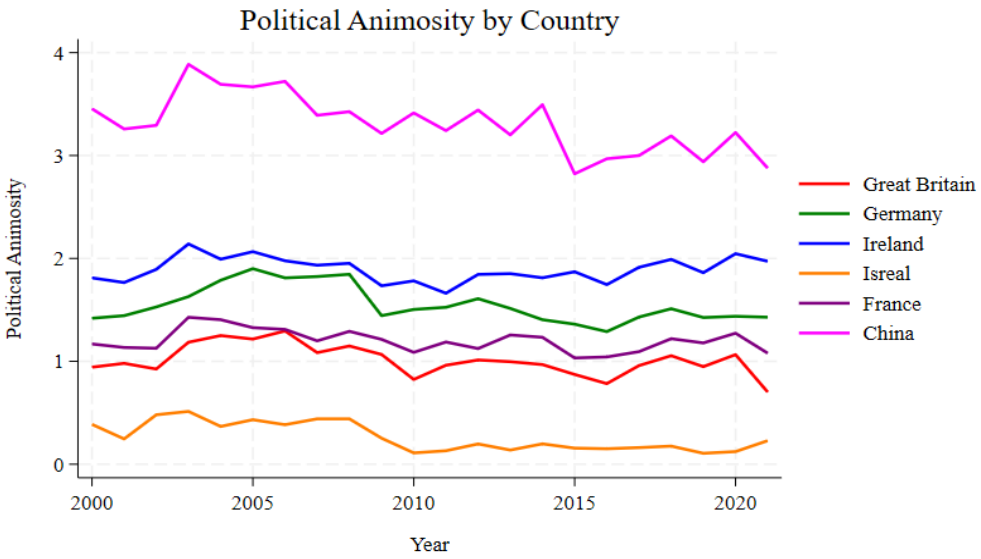

Table 4.1 Summary Statistics and Univariate T-Test

Panel A of this table presents the summary statistics for the set of firm, CEO and corporate governance controls in our sample. See Appendix B, Table B2, for a detailed description of all variables. Panel B presents a comparison between average (mean) political animosity scores of the country of ancestral origins of leaving and successor CEOs in forced and voluntary turnovers and performs a t-test on this difference.

Panel A. Summary Statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
Key Variables					
Forced Turnovers	16,373	0.028	0.165	0.000	1.000
Political Animosity	16,373	1.359	0.536	0.150	3.442
Firm Characteristics					
Firm Stock Returns (VW)	16,373	0.032	0.412	-0.940	1.991
Industry Stock Returns (VW)	16,373	0.113	0.185	-0.325	0.786
Firm Volatility	16,373	0.118	0.058	0.043	0.351
Log(Size)	16,373	7.568	1.546	3.603	11.496
Leverage	16,373	0.232	0.193	0.000	0.959
Capex	16,373	0.234	0.147	0.029	0.817
ROA	16,373	0.092	0.098	-0.425	0.365
Log(Firm Age)	16,373	2.989	0.759	0.000	4.025
CEO Characteristics					
CEO Retirement Age	16,373	0.066	0.249	0.000	1.000
CEO Duality	16,373	0.238	0.426	0.000	1.000
CEO Pay Slice	16,373	0.390	0.112	0.078	0.715
Log(CEO Tenure)	16,373	1.765	0.859	0.000	3.584
Corporate Governance					
Board Size	16,373	11.235	3.163	5.000	18.000
Board Independent Ratio	16,373	0.705	0.140	0.400	0.923
HHI Index	16,373	0.294	0.257	0.029	1.000

Panel B. Univariate T-Test

	Forced Turnover Events		Voluntary Turnover Events	
	Obs.	Mean	Obs.	Mean
Leaving CEO	452	1.415	1,213	1.341
Successor CEO	309	1.315	1,071	1.344
Mean-Difference Leaving Minus Successor		0.100		-0.003
t-stat for Difference		2.467		-0.137
One-sided p-value		0.007		0.5545

Table 4.2 Baseline Panel Logit Regression

This table presents the baseline panel logit regressions. Columns (1) and (3) report the results of logit regressions and columns (2) and (4) report the marginal effects of each covariate. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no turnover or a voluntary turnover. The variable of interest, *Political Animosity*, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2 for descriptions of all variables.

Variables:	(1) Forced Turnover	(2) Marginal Impact	(3) Forced Turnover	(4) Marginal Impact
Political Animosity	**0.224****	**0.006****	**0.268*****	**0.007*****
	(2.510)	**(2.490)**	**(2.946)**	**(2.924)**
Firm Stock Returns (VW)	-2.061***	-0.056***	-1.558***	-0.041***
	(-9.581)	(-9.316)	(-7.387)	(-7.256)
Industry Stock Returns (VW)	-1.312***	-0.0354***	-0.909*	-0.0241*
	(-2.877)	(-2.880)	(-1.939)	(-1.940)
CEO Retirement Age	-1.046***	-0.028***	-0.990***	-0.026***
	(-3.401)	(-3.372)	(-3.124)	(-3.101)
Firm Volatility			1.717	0.0455
			(1.576)	(1.568)
Log(Size)			-0.029	-0.001
			(-0.547)	(-0.548)
Leverage			0.835***	0.022***
			(3.362)	(3.365)
Capex			-0.218	-0.006
			(-0.618)	(-0.619)
ROA			-2.922***	-0.077***
			(-5.836)	(-5.702)
Log(Firm Age)			0.151*	0.004*
			(1.937)	(1.932)
CEO Duality			-0.499***	-0.013***
			(-3.548)	(-3.528)
CEO Pay Slice			-1.382***	-0.037***
			(-2.729)	(-2.706)
Log(CEO Tenure)			-0.070	-0.002
			(-1.310)	(-1.310)
Board Size			0.065**	0.002**
			(2.471)	(2.464)
Board Independent Ratio			0.966**	0.026**
			(2.062)	(2.058)
HHI			-0.243	-0.006
			(-1.061)	(-1.059)
Constant	-2.462***		-3.993***	
	(-7.140)		(-5.239)	
Observations	16,184	16,184	16,184	16,184
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Pseudo R2	0.075	0.075	0.103	0.103

Table 4.3 Alternative Estimation Methodologies for Baseline Regression

This table examines alternative estimation methodologies for the baseline regression. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no turnover or a voluntary turnover. The variable of interest, *Political Animosity*, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. Column (1) employs a probit model, and the marginal impact is reported in column (2). Columns (3) and (4) report linear probability models with industry and firm fixed effects respectively. Column (5) employs a Cox Proportional Hazard Model, in which the study time is CEO tenure (in years) and the hazard is the event of a forced turnover. Standard errors are clustered at the firm level. Robust t-stats for OLS and z-stats for Probit in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. LPM stands for Linear (OLS) Probability Model. See Appendix B, Table B4.2, for descriptions of all variables.

Dependent Variable: Forced Turnover					
	(1)	(2)	(3)	(4)	(5)
Variables	Probit	Marginal effects	LPM	LPM	Cox Hazard Model
Political Animosity	**0.114*** **	**0.007*** **	**0.007*** **	**0.0114***	**0.254** **
	(2.785)	**(2.771)**	**(2.580)**	**(1.681)**	**(2.499)**
Firm Stock Return (VW)	-0.649***	-0.039***	-0.035***	-0.027***	-1.466***
	(-7.832)	(-7.744)	(-9.849)	(-7.714)	(-7.246)
Industry Stock Return (VW)	-0.388*	-0.0231*	-0.017	-0.016	-0.972**
	(-1.942)	(-1.943)	(-1.580)	(-1.474)	(-2.087)
CEO Retirement Age	-0.396***	-0.024***	-0.015***	-0.017***	-1.394***
	(-3.230)	(-3.216)	(-4.298)	(-4.098)	(-4.476)
Firm Volatility	1.046**	0.062**	0.098***	0.042	2.881**
	(2.187)	(2.172)	(2.929)	(0.913)	(2.527)
Log(Size)	-0.014	-0.0008	-0.002	-0.014***	0.023
	(-0.608)	(-0.608)	(-1.522)	(-3.095)	(0.388)
Leverage	0.402***	0.024***	0.034***	0.048***	1.057***
	(3.508)	(3.510)	(3.797)	(3.451)	(3.520)
Capex	-0.090	-0.005	-0.001	0.009	-0.201
	(-0.563)	(-0.564)	(-0.103)	(0.629)	(-0.529)
ROA	-1.403***	-0.0834***	-0.116***	-0.155***	-2.906***
	(-5.954)	(-5.852)	(-5.895)	(-6.264)	(-5.142)
Log(Firm Age)	0.060*	0.004*	0.005**	0.016**	0.138
	(1.787)	(1.785)	(2.352)	(2.190)	(1.416)
CEO-Chairman Duality	-0.201***	-0.012***	-0.010***	-0.021***	-1.051***
	(-3.431)	(-3.420)	(-3.488)	(-4.290)	(-7.319)
CEO Pay Slice	-0.574***	-0.034***	-0.041***	-0.061***	-1.300**
	(-2.670)	(-2.658)	(-2.859)	(-3.061)	(-2.514)
Log(CEO Tenure)	-0.041*	-0.002*	-0.003*	0.023***	
	(-1.676)	(-1.675)	(-1.738)	(9.612)	
Board Size	0.029***	0.002***	0.002**	0.002	0.102***
	(2.607)	(2.600)	(2.246)	(1.583)	(3.799)
Board Independent Ratio	0.443**	0.026**	0.017	0.030	1.927***
	(2.177)	(2.173)	(1.440)	(1.500)	(3.919)
HHI	-0.105	-0.006	-0.005	-0.008	-0.214
	(-1.081)	(-1.079)	(-0.807)	(-0.827)	(-0.890)
Constant	-2.104***		0.037	0.015	
	(-6.265)		(1.516)	(0.373)	
Observations	16,184	16,184	16,373	16,268	16,373
Industry FE	Yes	Yes	Yes		Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE				Yes	
Pseudo R2	0.102	0.102			
R-squared			0.028	0.169	
Wald test (χ^2)					4008.62***

Table 4.4 Additional Control Variables

This table presents the results of robustness checks. We consider additional control variables: Woman CEO dummy, Cultural distance, Institutional distance, Geographic distance and Common language, Board gender ratio, Board nationality mix, CEO education connections (%), non-profit organization connections (%), and employment connections (%), CEO-director connections (%), General election dummy, and Governing parties ideological distance. The variable of interest, *Political Animosity*, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. Standard errors are clustered at the firm level. See Appendix B, Table B2, for descriptions of all variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(6)	(7)	(8)
Added Controls:	Woman CEO	Cultural-Distance Variables	Board Variables	CEO Connections	CEO-Director Connections	General Elections-Year Dummy	Governing Parties Distance	State FE	Industry-by-Year FE
Political Animosity	**0.269*** **	**0.330** **	**0.250*** **	**0.267*** **	**0.265*** **	**0.268*** **	**0.269** **	**0.249*** **	**0.256*** **
	(2.961)	**(2.384)**	**(2.734)**	**(2.933)**	**(2.910)**	**(2.946)**	**(2.378)**	**(2.776)**	**(2.660)**
Woman CEO	0.360*								
	(1.754)								
Cultural Distance		0.040							
		(0.452)							
Institutional Distance		-0.0881							
		(-0.921)							
Geographic Distance		-0.009							
		(-0.0292)							
Common Language		0.057							
		(0.416)							
Board Gender Ratio			-0.453						
			(-0.842)						
Board Nationality Mix			0.860***						
			(3.006)						
Education Connections (%)				-6.506***					
				(-2.619)					
NFP Connections (%)				1.235					
				(1.390)					
Employment Connections (%)				-0.494					
				(-1.235)					

CEO-Director Connections (%)					-0.523				
					(-1.377)				
General Election Dummy						0.118			
						(0.414)			
Governing Parties							-0.104		
Ideological Distance							(-1.082)		
Constant	-4.031***	-4.039	-3.708***	-3.457***	-3.886***	-3.993***	-3.567***	-3.766***	-1.801
	(-5.269)	(-1.329)	(-4.177)	(-4.429)	(-5.060)	(-5.239)	(-4.571)	(-4.179)	(-0.741)
Observations	16,184	16,039	15,905	16,184	16,184	16,184	15,801	15,968	9,306
All Previous Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
State FE	No	No	No	No	No	No	No	Yes	No
Industry-by-Year FE	No	No	No	No	No	No	No	No	Yes
Pseudo R2	0.104	0.102	0.106	0.106	0.104	0.103	0.101	0.110	0.124

Table 4.5 Performance-Sensitivity Analysis of the Impact of Political Animosity on CEO Forced Turnovers

This table presents the results of logit regression that examine whether the impact of *Political Animosity* on CEO forced turnovers is moderated by: the firm's and industry past (VW) stock returns (column 1); the past firm operating returns (ROA – column 2); whether the firm has met its set earnings-target (column 3); the level of CEO-specific ability based on a measure of managers' efficiency, relative to their industry peers, in transforming corporate resources to revenues taken from Demerjian, Lev, and McVay, 2012 (column 4); and whether a firm has committed an ESG-related incident detected by the RepRisk database in the previous year (column 5). The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no turnover or a voluntary turnover. The variable of interest, *Political Animosity*, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B2 for descriptions of all variables.

	(1)	(2)	(3)	(4)	(5)
Interacted Variables	Financial Performance	Firm Operating Performance (ROA)	Earnings Expectations Met	CEO Ability	RepRisk Incident
Political Animosity	**0.391*** **	**0.324*** **	**0.388** **	**0.258*** **	**0.339** **
	(3.434)	**(3.409)**	**(2.507)**	**(2.815)**	**(1.976)**
Firm Stock Returns (VW)	-1.804***	-1.564***	-1.850***	-1.522***	-1.584***
	(-4.101)	(-7.419)	(-7.131)	(-7.246)	(-5.382)
Political Animosity × Firm Stock Returns (VW)	0.178				
	(0.651)				
Industry Stock Returns (VW)	0.389	-0.904*	-1.085*	-0.867*	-1.191*
	(0.549)	(-1.930)	(-1.953)	(-1.822)	(-1.876)
Political Animosity × Industry Stock Returns (VW)	**-0.952** **				
	(-2.241)				
ROA	-2.917***	-1.149	-2.773***	-2.928***	-2.467***
	(-5.838)	(-1.147)	(-4.494)	(-5.728)	(-3.017)
Political Animosity × ROA		**-1.295** **			
		(-1.974)			
Dummy Earning Targets Met			0.199		
			(0.663)		
Political Animosity × Dummy Earning Targets Met			**-0.361***		
			(-1.804)		
CEO Ability				-0.493	
				(-0.585)	
Political Animosity × CEO Ability				0.370	
				(0.784)	
RepRisk Incidents					**0.0208***
					(1.683)
Political Animosity × RepRisk Incidents					-0.005
					(-0.681)
CEO & Firm Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	16,184	16,184	13,218	16,031	7,793
Adjusted R-squared	0.104	0.104	0.108	0.100	0.111

Table 4.6 Propensity Score Matching

This table shows the results of one-to-one nearest neighbor propensity score matching. *Political Animosity Dummy* is a dummy variable that equals one if the political animosity (measured by the ideal point distance) between the CEO's ancestral country of origin and the U.S. is higher than the sample median value for the same year and zero otherwise. Columns (1) and (2) of Panel A report pre- and post-matching probit regressions. Columns (3) and (4) report the baseline logit regression and marginal effects on the matched sample. In Panel B, we report comparison of means across treatment and control groups as a diagnostic test. A different method, entropy balancing, is performed in Panel C and the before-and-after-weighting covariates matrix is reported in Appendix Table B4.5. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

Panel A. Probit to estimate Propensity Scores and Logit on Matched Sample

Variables	(1) Political Animosity Dummy (Pre-Matching)	(2) Political Animosity Dummy (Post-Matching)	(3) Forced Turnover (Logit on Matched Sample)	(4) Marginal effects (From Logit)
Political Animosity			**0.371*** **	**0.011*** **
			(2.835)	**(2.785)**
Firm Stock Return (VW)	0.025	0.012	-1.470***	-0.042***
	(0.933)	(0.315)	(-5.202)	(-5.101)
Industry Stock Return (VW)	-0.092	-0.071	-1.766**	-0.050**
	(-0.959)	(-0.513)	(-2.425)	(-2.400)
CEO Retirement Age	-0.079*	0.077	-1.072**	-0.030**
	(-1.852)	(1.261)	(-2.102)	(-2.082)
Firm Volatility	-0.430*	0.291	2.808	0.079
	(-1.736)	(0.805)	(1.643)	(1.638)
Log(Size)	0.024**	0.007	0.038	0.001
	(2.182)	(0.421)	(0.494)	(0.494)
Leverage	0.026	-0.009	0.599	0.017
	(0.403)	(-0.101)	(1.528)	(1.535)
Capex	0.069	0.134	0.075	0.002
	(0.817)	(1.118)	(0.152)	(0.152)
ROA	0.046	0.012	-3.127***	-0.088***
	(0.388)	(0.072)	(-4.198)	(-4.086)
Log(Firm Age)	-0.107***	0.020	0.172	0.005
	(-6.520)	(0.869)	(1.451)	(1.449)
CEO Duality	0.018	-0.025	-0.537**	-0.015**
	(0.684)	(-0.649)	(-2.400)	(-2.377)
CEO Pay Slice	0.240**	0.040	-1.089	-0.031
	(2.481)	(0.288)	(-1.483)	(-1.477)
Log(CEO Tenure)	0.004	0.0006	-0.081	-0.002
	(0.276)	(0.0299)	(-1.068)	(-1.067)
Board Size	-0.004	-0.005	0.058	0.002
	(-0.683)	(-0.631)	(1.425)	(1.423)
Board Independent Ratio	0.363***	0.007	0.542	0.015
	(3.652)	(0.0482)	(0.776)	(0.775)
HHI	0.166***	-0.008	0.138	0.004
	(3.561)	(-0.118)	(0.460)	(0.460)
Constant	0.712	-0.138	-4.364***	
	(1.408)	(-0.237)	(-2.881)	

Observations	16,355	7,438	6,960	6,960
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Pseudo R2	0.109	0.00345	0.118	0.118

Panel B. Comparison of covariates' means across treatment and control groups

	Before Matching			**After Matching**		
	Mean			**Mean**		
	Treatment	**Control**	***p*-value**	**Treatment**	**Control**	***p*-value**
Firm Stock Return (VW)	0.037	0.026	0.100	0.034	0.033	0.861
Industry Stock Return (VW)	0.103	0.126	0.000	0.116	0.116	0.899
Firm Volatility	0.120	0.115	0.000	0.115	0.115	0.952
Log(Size)	7.516	7.632	0.000	7.528	7.539	0.664
Leverage	0.228	0.237	0.002	0.227	0.228	0.773
Capex	0.239	0.229	0.000	0.241	0.240	0.743
ROA	0.093	0.091	0.205	0.092	0.092	0.999
Log(Firm Age)	2.948	3.037	0.000	2.986	2.990	0.768
CEO Retirement Age	0.062	0.072	0.008	0.063	0.061	0.647
CEO Duality	0.251	0.222	0.000	0.232	0.233	0.872
CEO Pay Slice	0.392	0.389	0.131	0.392	0.391	0.626
Log(CEO Tenure)	1.763	1.768	0.665	1.775	1.750	0.099
Board Size	11.288	11.179	0.027	11.110	11.084	0.632
Board Independent Ratio	0.697	0.716	0.000	0.714	0.713	0.698
HHI	0.301	0.285	0.000	0.301	0.298	0.461

Panel C. Alternative Methodology: Entropy Balancing based on Mean, Variance and Skewness

	(1)	(2)
Variables	Forced Turnover	Marginal Effect
Political Animosity	**0.228****	**0.006****
	(2.441)	**(2.450)**
Firm Stock Return (VW)	-1.634***	-0.044***
	(-7.552)	(-7.375)
Industry Stock Return (VW)	-1.050**	-0.028**
	(-2.146)	(-2.137)
CEO Retirement Age	-1.185***	-0.032***
	(-3.542)	(-3.485)
Firm Volatility	1.465	0.039
	(1.332)	(1.325)
Log(Size)	-0.044	-0.001
	(-0.802)	(-0.801)
Leverage	0.668***	0.018***
	(2.584)	(2.590)
Capex	-0.345	-0.009
	(-0.943)	(-0.944)
ROA	-3.148***	-0.084***
	(-5.929)	(-5.796)
Log(Firm Age)	0.136*	0.004*
	(1.674)	(1.678)
CEO Duality	-0.525***	-0.014***
	(-3.516)	(-3.502)
CEO Pay Slice	-0.977*	-0.026*

	(-1.823)	(-1.823)
Log(CEO Tenure)	-0.074	-0.002
	(-1.357)	(-1.358)
Board Size	0.067***	0.002***
	(2.597)	(2.581)
Board Independent Ratio	0.836*	0.022*
	(1.774)	(1.779)
HHI	-0.194	-0.005
	(-0.768)	(-0.769)
Constant	-3.761***	
	(-4.891)	
Observations	16,184	16,184
Industry FE	Yes	Yes
Year FE	Yes	Yes
Pseudo R2	0.105	0.105

Table 4.7 Instrumental Variable Probit (IV-probit)

This table reports an Instrumental Variable Probit (IV-Probit) approach using a Maximum Likelihood estimator (MLE). The first instrument, *Total Weapon Transaction*, is defined as the sum of weapon transactions (including both import and export) between U.S. and the other country divided by the GDP of the focal country during the period 1990-2021. The second instrument, *Weapon Import*, is defined as the sum of weapon imports from the U.S. to the focal country divided by the GDP of the focal country during the period 1990-2021. Columns (1) and (3) show the first stage regression whereas columns (2) and (4) show the second stage of the IV-Probit estimation. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

Variables	(First Stage) Political	(Second Stage) Forced	(First Stage) Political	(Second Stage) Forced
Instrumented Political Animosity		**0.145***		**0.142***
		(1.734)		**(2.758)**
Total Weapon Transaction	**-15.68*** **			
	(-9.055)			
Weapon Import			**-241.3*** **	
			(-57.99)	
CEO Retirement Age	-0.0156	-0.393***	-0.008	-0.394***
	(-0.892)	(-3.204)	(-0.771)	(-3.215)
Firm Stock Return (VW)	0.011	-0.651***	0.004	-0.649***
	(1.244)	(-7.814)	(0.926)	(-7.831)
Industry Stock Return	0.002	-0.386*	0.008	-0.388*
	(0.0931)	(-1.936)	(0.503)	(-1.944)
Firm Volatility	-0.102	1.083**	-0.125	1.052**
	(-0.713)	(2.261)	(-1.361)	(2.198)
Log(Size)	0.007	-0.013	0.003	-0.014
	(0.858)	(-0.577)	(0.525)	(-0.605)
Leverage	-0.066	0.403***	-0.0657**	0.405***
	(-1.457)	(3.502)	(-2.440)	(3.533)
Capex	0.032	-0.102	-0.012	-0.090
	(0.580)	(-0.634)	(-0.330)	(-0.559)
ROA	-0.091	-1.391***	-0.061	-1.403***
	(-1.080)	(-5.887)	(-1.229)	(-5.955)
Log(Firm Age)	-0.034**	0.064*	-0.013	0.062*
	(-2.273)	(1.894)	(-1.374)	(1.831)
CEO Duality	0.004	-0.201***	-0.004	-0.200***
	(0.175)	(-3.424)	(-0.319)	(-3.421)
CEO Pay Slice	0.087	-0.580***	0.072	-0.578***
	(1.202)	(-2.680)	(1.551)	(-2.683)
Log(CEO Tenure)	0.010	-0.041*	0.005	-0.041*
	(0.934)	(-1.670)	(0.787)	(-1.670)
Board Size	-0.006*	0.028**	-0.006***	0.029***
	(-1.676)	(2.461)	(-3.016)	(2.614)
Board Independent Ratio	-0.108	0.424**	-0.173***	0.447**
	(-1.375)	(2.082)	(-3.337)	(2.200)
HHI Index	-0.010	-0.107	-0.045**	-0.105
	(-0.272)	(-1.096)	(-2.241)	(-1.082)
Constant	1.810***	-2.138***	1.996***	-2.162***
	(10.310)	(-6.054)	(24.15)	(-6.401)
Observations	16,120	16,120	16,184	16,184
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Chi Square		460.81		463.45
p-value		0.000***		0.000***

Table 4.8 Glass Cliff Test

This table presents the logit regression results of the probability of CEO appointments. The dependent variable, *Political Animosity Dummy*, is a dummy variable that equals one if the political animosity (measured by the ideal point distance) between the CEO's ancestral country of origin and the U.S. is higher than the sample median value for the same year, and zero otherwise. The variables of interest are lagged firm performance, including firm and industry stock returns (VW) as in the baseline specification, (2-digit SIC) industry-adjusted annual stock returns, 1-year Buy-and-Hold Stock Return, ROA, and (2-digit SIC) industry-adjusted ROA. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

Variables (All Lagged t-1)	(1) Political Animosity Dummy	(2) Political Animosity Dummy	(3) Political Animosity Dummy	(4) Political Animosity Dummy	(5) Political Animosity Dummy	(6) Political Animosity Dummy
Firm Stock Return (VW)	0.113		0.093			
	(0.709)		(0.575)			
Industry Stock Return (VW)		**0.628***	**0.613***			
		(1.845)	**(1.795)**			
Firm Stock Returns (Industry-Adjusted)				-0.166		
				(-1.118)		
Buy-and-Hold Stock Return					0.142	
					(1.019)	
ROA	**1.425****	**1.468****	**1.391***	**1.647****	**1.385***	
	(2.001)	**(2.099)**	**(1.945)**	**(2.303)**	**(1.953)**	
Industry-Adj. ROA						**1.929*****
						(2.593)
CEO Retirement Age	0.134	0.127	0.125	0.142	0.131	0.129
	(0.794)	(0.756)	(0.738)	(0.843)	(0.778)	(0.767)
Firm Volatility	1.910	2.019	1.932	2.096	1.858	2.033
	(1.463)	(1.555)	(1.476)	(1.617)	(1.425)	(1.596)
Log(Size)	-0.045	-0.048	-0.047	-0.045	-0.045	-0.052
	(-0.733)	(-0.769)	(-0.764)	(-0.734)	(-0.734)	(-0.844)
Leverage	0.245	0.266	0.269	0.253	0.248	0.234
	(0.743)	(0.801)	(0.807)	(0.770)	(0.748)	(0.709)
Capex	0.584	0.576	0.586	0.581	0.588	0.552
	(1.256)	(1.246)	(1.263)	(1.253)	(1.263)	(1.185)
Log(Firm Age)	-0.120	-0.121	-0.123	-0.117	-0.122	-0.117
	(-1.273)	(-1.284)	(-1.304)	(-1.236)	(-1.295)	(-1.238)
CEO Duality	0.143	0.155	0.150	0.156	0.142	0.141
	(1.049)	(1.140)	(1.099)	(1.147)	(1.043)	(1.039)
CEO Pay Slice	-1.006**	-1.032**	-1.029**	-1.019**	-1.011**	-0.987*
	(-1.979)	(-2.021)	(-2.018)	(-1.996)	(-1.988)	(-1.943)
Log(CEO Tenure)	0.006	0.005	0.004	0.009	0.006	0.004
	(0.0774)	(0.0554)	(0.0521)	(0.110)	(0.0657)	(0.0521)
Board Size	0.046	0.048	0.048	0.046	0.046	0.047
	(1.497)	(1.561)	(1.551)	(1.504)	(1.501)	(1.519)
Board Independent Ratio	-0.079	-0.078	-0.079	-0.051	-0.078	-0.029
	(-0.147)	(-0.145)	(-0.147)	(-0.0936)	(-0.146)	(-0.0544)
HHI	0.582**	0.573**	0.575**	0.567**	0.582**	0.579**
	(2.297)	(2.243)	(2.260)	(2.225)	(2.295)	(2.271)
Constant	-0.117	-0.191	-0.163	-0.207	-0.114	-0.003
	(-0.168)	(-0.273)	(-0.233)	(-0.295)	(-0.163)	(-0.005)
Observations	1,160	1,160	1,160	1,160	1,160	1,160
Industry FE	No	No	No	No	No	No
Year FE	No	No	No	No	No	No
Pseudo R2	0.0174	0.0192	0.0194	0.0179	0.0179	0.0185

Table 4.9 Business Channel (1): Relation between CEO Political Animosity and Firm Performance and Strategies

This table examines the first business channel that CEOs may be dismissed because of their poor strategic choices or poor performance. The dependent variables are firm strategy and performance proxies. *Investment*, is the sum of a firm's R&D expense, capital expenditure, and acquisition expenditure less cash receipts from the sale of PPE, scaled by its lagged total assets. *Industry-Adj. Sales Growth* is the sales growth of the firm subtracted by the average sales growth of firms in the same 2-digit SIC industry. *Tobin's Q*, is the ratio of the market value of equity plus total assets less book value of equity, divided by total assets. *Industry-Adj. ROA* is the ROA of the firm subtracted by the average ROA of firms in the same 2-digit SIC industry. *Buy-and-Hold Stock Return* is the 1-year buy-and-hold stock return. *Political Animosity* is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

Variables	(1) Investment	(2) Industry-Adj. Sales Growth	(3) Tobin's Q	(4) Industry-Adj. ROA	(5) Buy-and-Hold Stock Return
Political Animosity	**0.00006**	**-0.004**	**-0.057**	**-0.0006**	**0.007**
	(0.011)	**(-0.878)**	**(-0.906)**	**(-0.196)**	**(0.983)**
Firm Stock Returns (VW)	0.006	0.062***	0.842***	0.034***	
	(1.351)	(10.930)	(11.410)	(16.570)	
Industry Stock Returns	0.022	0.020	0.359**	-0.002	
(VW)	(1.487)	(1.322)	(2.136)	(-0.379)	
CEO Retirement Age	0.001	0.005	0.081	-0.002	-0.0004
	(0.157)	(0.690)	(0.825)	(-0.592)	(-0.028)
CEO & Firm Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	9,133	16,364	9,135	16,373	16,373
Adjusted R-squared	0.123	0.096	0.283	0.167	0.203

Table 4.10 Business Channel (2): Impact of Firm's Industry-Based Exposure to International Trade and Offshoring Activities on the Political Animosity Result.

This table examines the business channel that CEOs may be dismissed because of worsening bilateral economic relations. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no turnover or a voluntary turnover. *Political Animosity* is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. In Panel A, a firm is categorized into the high exposure subsample if the firm operates in an industry that has above-median foreign business exposure, measured by the beta and R-square from regressing changes in firm's sales on changes in foreign trade. In Panel B, firms are split in two subsample based on whether they have offshoring activities in the CEO's ancestral country of origin, or now. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B2, for descriptions of all variables.

Panel A. Impact of Firm's Industry-Based Exposure to International Trade

Sub-samples:	(1) High Exposure (Beta)	(2) Low Exposure (Beta)	(3) High Exposure (R2)	(4) Low Exposure (R2)
Dep. Variable:	Forced Turnover	Forced Turnover	Forced Turnover	Forced Turnover
Political Animosity	**0.353****	**0.225****	**0.260****	**0.269****
	(2.026)	**(2.112)**	**(2.013)**	**(2.077)**
Firm Stock Returns (VW)	-1.822***	-1.402***	-1.407***	-1.747***
	(-5.683)	(-5.197)	(-4.693)	(-5.834)
Industry Stock Returns (VW)	-0.843	-0.914	-0.383	-1.544**
	(-1.158)	(-1.470)	(-0.571)	(-2.180)
CEO Retirement Age	-0.775	-1.116***	-1.280**	-0.818**
	(-1.627)	(-2.607)	(-2.457)	(-2.002)
CEO & Firm Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	7,089	9,095	8,077	8,107
Pseudo R2	0.0976	0.121	0.119	0.109

Panel B. Impact of Firm's Offshoring Activities

Sub-samples:	(1) Firms with offshoring	(2) Firms without offshoring
Dep. Variable:	Forced Turnover	Forced Turnover
Political Animosity	0.317*	0.288**
	(1.772)	(2.493)
Firm Stock Returns (VW)	-1.886***	-1.280***
	(-3.639)	(-5.352)
Industry Stock Returns (VW)	0.805	-1.344**
	(0.714)	(-2.543)
CEO Retirement Age	-0.928	-1.782***
	(-1.599)	(-3.041)
CEO & Firm Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	4,513	9,312
Pseudo R2	0.150	0.0976

Table 4.11 Behavioral Channel (1): Impact of Foreign Country Perception in the U.S. on the Political Animosity Result.

This table reports the effect of the perception of the US public with regards to the CEO's ancestral country of origin. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is dismissed in a given year, and 0 if there is no turnover or a voluntary turnover. *Political Animosity* is the difference between the ideal point scores of the U.S. and that of the CEO's ancestral country of origin. *Favorability* is measured as the U.S. citizens' favorability ratings for foreign countries that are associated with a CEO's ancestral country of origin. *Tourism* is measured as the proportion of U.S. travelers visiting a specific foreign country (the CEO's ancestral country of origin) relative to the total number of U.S. travelers abroad in a specific year. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

	(1)	(2)	(3)	(4)
	High Favorability (Country)	Low Favorability (Country)	High Tourism (Country)	Low Tourism (Country)
Variables	Forced Turnover	Forced Turnover	Forced Turnover	Forced Turnover
Political Animosity	**-0.496**	**0.318*** **	**-0.364**	**0.258** **
	(-0.188)	**(2.759)**	**(-0.784)**	**(2.213)**
Firm Stock Returns (VW)	-2.139***	-1.583***	-2.435***	-1.029***
	(-5.253)	(-5.388)	(-6.672)	(-4.102)
Industry Stock Returns (VW)	0.088	-1.874**	-0.568	-1.674***
	(0.110)	(-2.561)	(-1.473)	(-2.766)
CEO Retirement Age	-0.349	-2.721***	-1.280**	-0.818**
	(-0.858)	(-2.659)	(-2.457)	(-2.002)
CEO & Firm Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	5,718	6,740	7,540	7,730
Pseudo R2	0.126	0.126	0.132	0.114

Table 4.12 Behavioral Channel (2): Impact of State Diversity and Institutional Investors on the Political Animosity Result.

This table reports the moderating impact of state ethnic diversity and institutional ownership. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is dismissed in a given year and 0 if there is no turnover or a voluntary turnover. *Political Animosity* is the difference between the ideal point score of the U.S. and that of the CEO's ancestral country of origin. A firm is categorized into the high diversity state subsample if it is in a state where the Ethnic Diversity is above the sample median. A firm is categorized into the high institutional ownership subsample if its percentage of institutional ownership is above the sample median. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B4.2, for descriptions of all variables.

	(1)	(2)	(3)	(4)
	High Diversity (State)	Low Diversity (State)	High Institutional Ownership	Low Institutional Ownership
Variables	Forced Turnover	Forced Turnover	Forced Turnover	Forced Turnover
Political Animosity	**0.189**	**0.393*** **	**0.209**	**0.309** **
	(1.589)	**(2.851)**	**(1.503)**	**(2.524)**
Firm Stock Returns (VW)	-1.386***	-1.740***	-1.753***	-1.468***
	(-4.935)	(-5.305)	(-5.819)	(-5.022)
Industry Stock Returns (VW)	-1.027	-1.044	-0.484	-1.475**
	(-1.580)	(-1.516)	(-0.589)	(-2.305)
CEO Retirement Age	-0.868**	-1.212**	-1.204**	-0.809**
	(-2.190)	(-2.296)	(-2.349)	(-1.989)
CEO & Firm Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	7,657	7,745	7,291	7,691
Pseudo R2	0.112	0.122	0.0904	0.137

Appendix A

A4.1: Methodology behind the Measurement of Political Animosity

We use data on observed voting patterns in the United Nations General Assembly to uncover the political animosity between US and other countries. Voting records are denoted by "no", abstain", or "yes".

Most existing UN-based preference measures of this kind are based on the dyadic similarity of vote choices. The most widely used measure is Signorino and Ritter's (1999) S score. S scores treat UN votes as interval-level measures of preference expression with abstentions halfway between a 'yea' and a 'nay' vote (they instead exclude absences). The S score is the Euclidean distance measure between every dyad in the UN. It is calculated as:

$$S_{a,b} = 1 - \frac{\sum |Y_{av} - Y_{bv}|}{V}$$

where υ = 1, ... , V indexes votes, a and b refer to two countries, and Y refers to votes, taking on one of three alternatives: {yea (Y = 1), abstain (Y = 2), and nay (Y = 3)}. Voting in the UN differs from some other voting bodies in that three explicit vote options are widely and deliberately used: yea, nay, or abstain. The informative abstentions are an important feature of voting and virtually all studies treat a nay vote as a stronger signal of disapproval than an abstention. Abstentions differ from absences. Absences typically do not reflect a country's views but instead are due to causes such as a temporary lack of government and are strongly correlated with the occurrence of civil wars and coups (Voeten, 2013), so they are not usually indications of discontent with a resolution and should thus not be equated with abstentions (Rosas, Shomer, and Haptonstahl, 2015). The S score equals 1 if two countries agree on all votes and -1 if two countries maximally disagree on all resolutions. Thus, a lower S score signals higher political animosity between two countries.

The core weakness of S scores is that they assume a straightforward relationship between how often two states vote together and preference similarity. Yet, voting coincidence is also affected by what resolutions states vote on. Suppose country A and country B vote identically on nine out of ten issues, and then there happen to be ten additional votes on the single issue that divided the two countries, the S score would decline significantly. Despite their preferences not changing, the similarity index of the two countries would drop from 90 percent on the first ten votes to 50 percent on all twenty votes.

Therefore, we use a different methodology based on Bailey, Strezhnev, and Voeten (2017). The methodology is explained in that paper, but we summarize it here. Let i = 1, ... ,N index states and υ = l, ...,V index votes. States have unidimensional "ideal points" in each year (θ_{it}). The vote by a country on a given resolution is a function of its ideal points, the characteristics of the vote, and some random error. Specifically, the spatial preference of each country on each vote is $Z_{it\upsilon} = \beta_\upsilon \theta_{it} + \varepsilon_{i\upsilon}$, with $\varepsilon_{i\upsilon}$~N(0,1), which is a latent variable. The sign of β_υ indicates the "polarity" of vote υ: on some resolutions, high θ_{it} countries are inclined to vote yea, and β_υ will be positive for these votes. β_υ will be negative when high θ_{it} countries are inclined to vote nay. The magnitude of β_υ indicates how well vote υ separates countries with high and low ideal points. A β_υ near zero indicates vote υ is poorly explained by ideal points and is associated with a muddle of yea, abstain, and nay voting across the ideological spectrum. Each vote has three alternatives: {yea (Y = 1), abstain (Y = 2), and nay (Y = 3)}.The observed choice, $Y_{it\upsilon}$, depends on $Z_{it\upsilon}$, the latent vote-specific preference of country *i*, and the cut points $y_{1\upsilon}$ and $y_{2\upsilon}$. Formally, the conditions that determine which alternative a country chooses on vote υ are: $Y_{it\upsilon}$ = 1 if $Z_{it\upsilon} < y_{1\upsilon}$; $Y_{it\upsilon}$=2 if $y_{1\upsilon} < Z_{it\upsilon} < y_{2\upsilon}$; $Y_{it\upsilon}$= 3 if $Z_{it\upsilon} > y_{2\upsilon}$. All ideal point models need to be identified with a normalization. Resolutions with the same content have the same outpoints, $y_{1\upsilon}$ and $y_{2\upsilon}$. The assumption is that a resolution at time *t* has the same resolution parameters as an identically phrased resolution at time *t + 1*. As context could change too with time, the resolution parameters are fixed only for five consecutive years. A Bayesian prior is implemented to estimate θ_{it} based on θ_{it-1}. The variance of this prior determines how much smoothing occurs. If the variance of the prior is set at a very large value, then almost no smoothing occurs, and preferences are estimated separately for each year for each country with the preference in the previous period providing no information about preferences in the next period. If the variance of the prior is set at a very small value, then preferences change very little from one period to the next, meaning a single ideal point is estimated for each country for the entire time-period. The value of this parameter is set at a point at which the estimates do move from period to period but not too dramatically. This allows for discrete shifts in ideal points, for example, responding to regime changes. The prior will soften these shifts but will not make them conform to a specific functional form over time. A hybrid Metropolis-Hasting/Gibbs sampler is then used to estimate the parameters of the model following the process. Finally, the estimated ideal points are transformed into dyadic measures by taking the absolute distance between the ideal points of two countries, i.e., the CEO's ancestral country of origin and the US. The greater the ideal point distance, the higher the political animosity captured by repeated contrasting votes in UN resolutions.

Appendix B

Table B4.1 Distribution of CEOs' Countries of Origin

Country of Origin	Freq.	Percent	Cum.
Great Britain	6,995	42.72	42.72
Germany	2,832	17.3	60.02
Ireland	1,651	10.08	70.1
Italy	1,166	7.12	77.22
Israel	915	5.59	82.81
France	426	2.6	85.42
Sweden	325	1.98	87.4
Netherlands	248	1.51	88.91
Poland	204	1.25	90.16
Spain	201	1.23	91.39
China	173	1.06	92.44
Greece	173	1.06	93.5
India	153	0.93	94.44
Norway	134	0.82	95.25
Russia	104	0.64	95.89
Hungary	103	0.63	96.52
Czech Rep	80	0.49	97.01
Switzerland	60	0.37	97.37
Austria	59	0.36	97.73
Armenia	57	0.35	98.08
Syria	40	0.24	98.33
Denmark	37	0.23	98.55
Canada	34	0.21	98.76
Portugal	30	0.18	98.94
Belgium	21	0.13	99.07
Finland	21	0.13	99.2
Japan	21	0.13	99.33
Croatia	18	0.11	99.44
Ukraine	18	0.11	99.55
Lithuania	12	0.07	99.62
Slovak Rep	11	0.07	99.69
Albania	10	0.06	99.75
Turkey	10	0.06	99.81
Egypt	8	0.05	99.86
Estonia	7	0.04	99.9
Cuba	6	0.04	99.94
Jordan	6	0.04	99.98
Macedonia Rep	2	0.01	99.99
Iran	1	0.01	99.99
Slovenia	1	0.01	100
Total	16,373	100	

Table B4.2 Variables' Description.

Variable	Description	Source
Forced Turnover	Dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no or voluntary turnover	ExecuComp, Peters and Wagner (2014)
Forced Turnover (v2)	Dummy variable that equals 1 if the CEO is fired in a given year and 0 if it is a voluntary turnover. Those firm-years in which there is no turnover is not included	ExecuComp, Peters and Wagner (2014)
Forced Turnover (v3)	Age-based forced turnover dummy that equals 1 if the CEO is below 55 when he/she leaves and does not appears as CEO in another firm in ExecuComp, and 0 otherwise	ExecuComp
Political Animosity	The difference between the ideal point score of the U.S. and that of the CEO's country of origin	Bailey et al. (2017)
Political Animosity Dummy	Dummy variable that equals 1 if the political animosity (measured by the ideal point distance) between the CEO's ancestral country of origin and the U.S. is higher than the sample median value for the same year and 0 otherwise	Bailey et al. (2017)
Firm Stock Returns (VW)	Firm stock returns are obtained as residual from a regression of firm's monthly returns on industry-peer performance, the latter is value-weighted average stock returns in the same Fama-French 48 industry.	CRSP
Industry Stock Returns (VW)	Industry stock returns are calculated as value-weighted average stock returns for all firms in the CRSP database that belong to the same Fama-French 48 industries classification	CRSP
Firm Volatility	Volatility, measured as the standard deviation of monthly stock return over three years	CRSP
Log(Size)	Firm size, measured as the natural log of total assets	Compustat
Leverage	Leverage measured as long-term debt divided by total asset. (DLT+DLTT/AT)	Compustat

Capex	Capital expenditure divided by total assets	Compustat
ROA	The ratio of earnings before interest and taxes to total assets.	Compustat
Industry-Adj. ROA	ROA of the firm subtracted by the average ROA of firms in the same 2-digit SIC industry.	Compustat
Log(Firm Age)	Natural log of the number of years the company is listed, proxied by the difference between the considered fiscal year and the first year that fiscal year-end price (PRCC_F) appears in Compustat database	Compustat
CEO Retirement Age	Dummy variable that equals 1 if the CEO is at retirement age (64-66) and 0 otherwise	ExecuComp
CEO Duality	Dummy variable that equals 1 if the CEO is also chairman and 0 otherwise	BoardEx
CEO Pay Slice	The fraction of the aggregate compensation of the firm's top-five executive team captured by the CEO	ExecuComp
Log(CEO Tenure)	Natural log of the number of years for which the CEO has been in charge	ExecuComp
Board Size	The number of directors on board	BoardEx
Board Independent Ratio	Percentage of independent directors on board	BoardEx
HHI	Herfindahl-Hirschman index, i.e., 10-K text-based network (TNIC) industry concentration	Hoberg-Phillips Data Library
Woman CEO	Dummy variable that equals 1 if the CEO is a woman and 0 otherwise	ExecuComp
Cultural Distance	Kogut and Singh index, i.e., the distance between the CEO ancestral country of origin and the U.S. based on Hofstede's cultural dimensions, which include Power Distance, Uncertainty Avoidance, Individualism, and Masculinity	Hofstede (1980)
Institutional Distance	The difference in governance quality between CEO ancestral country of origin and the U.S., based on the scores of six indicators: voice and accountability,	World Bank

	political stability, government effectiveness, regulatory quality, rule of law, and control of corruption.	
Geographic Distance	Natural log of geographic distance between capitals of the CEO ancestral country of origin and the U.S.	CEPII
General Election Dummy	Dummy variable that equals 1 for election years, and 0 otherwise.	United States Federal Election Commission (FEC)
Governing Parties Ideological Distance	Absolute difference in the governing parties' ideology (right-left positions) between the U.S. and the CEO ancestral country of origin	Manifesto Project Dataset (MPD)
Common Language	Dummy variable that equals 1 if the CEO ancestral country of origin share a common official language as the U.S. and 0 otherwise	CEPII
Board Gender Ratio	Number of female directors divided by the total number of directors	BoardEx
Board Nationality Mix	Number of directors from different countries divided by the total number of directors	BoardEx
Education Connections (%)	The percentage of directors connected to the CEO via education tie to the number of directors	BoardEx
NFP Connections (%)	The percentage of directors connected to the CEO via the same non-for-profit organizations to the number of directors	BoardEx
Employment Connections (%)	The percentage of directors connected to the CEO via prior employment to the number of directors	BoardEx
CEO-Director Connections (%)	The percentage of connected directors to the number of directors, regardless of the connection type	BoardEx
Total Weapon Transaction	The sum of weapon transactions (including both import and export) between US and the other country to the GDP of the focal country over the period 1990-2021	Stockholm International Peace Research Institute

Weapon Import	The sum of weapon imports from the US to the GDP of the focal country over the period 1990-2021	Stockholm International Peace Research Institute
Firm Stock Returns (Industry-Adjusted)	Industry-adjusted stock return, i.e., the firm 1-year buy-and-hold stock return minus the industry-year average return	CRSP
Buy-and-Hold Stock Return	The 1-year buy-and-hold stock return	CRSP
Investment	The sum of a firm's R&D expense, capital expenditure, and acquisition expenditure less cash receipts from the sale of PPE, scaled by its lagged total assets.	Compustat
Sales Growth	One-year percentage changes in sales	Compustat
Industry-Adj. Sales Growth	Sales growth of the firm subtracted by the average sales' growth of firms in the same 2-digit SIC industry.	Compustat
Tobin's Q	The ratio of the market value of equity plus total assets less book value of equity, divided by total assets.	Compustat
Dummy Industry High Exposure (Beta)	Dummy variable that equals 1 if the firm operates in an industry that has above median foreign business exposure, and 0 otherwise. To identify industries' exposure to foreign markets, we estimate the beta coefficients from regressing the percentage changes in firm's change in sales on the percentage changes in total U.S. trade for each firm in the entire Compustat universe and then take the industry-average beta using the 2-digit SIC industry classification.	Compustat, World Bank
Dummy Industry High Exposure (R2)	Dummy variable that equals 1 if the firm operates in an industry that has above median foreign business exposure, and 0 otherwise. To identify industries' exposure to foreign markets, we estimate the R square from regressing the percentage changes in firm's change in sales on the percentage changes in total U.S. trade for each firm in the entire Compustat universe and then take the industry-average R	Compustat, World Bank

	square using the 2-digit SIC industry classification.	
Favorability	The Americans' favorability ratings for countries that are associated with a CEO's country of origin. The favorability rating for a country is the percentage of survey respondents who answered "Very Favorable" or "Mostly Favorable" to the Gallup's survey questionnaire, "I'd like your overall opinion of some foreign countries. Is your overall opinion of the following country very favorable, mostly favorable, mostly unfavorable, or very unfavorable?". The favorability rating is time-variant but with gaps. We consider the last rating when there are repeated ratings in the same year, and the most recent year that has a favorability rating when there is no rating in a specific year.	Gallup 'Country Ratings'
Tourism	The proportion of U.S. travelers visiting a specific country relative to the total number of U.S. travelers going abroad in a specific year.	National Travel and Tourism Office (NTTO)
Ethnic Diversity	One minus the sum of the squared proportions of various ethnic and racial groups (i.e., Hispanic or Latino, White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races), in each state.	2000, 2010 and 2020 U.S. Census
Institutional Ownership	The percentage of shares held by institutional investors.	FactSet Ownership Database
Falsified Political Animosity	The difference between the ideal point score of the U.S. and that of the falsified CEO's country of origin. A falsified CEO's country of origin is the country that immediately follows (precedes) the actual country of origin on an alphabetically sorted list of 95 countries that are covered both in the passengers' records and the ideal point estimates.	Bailey et al. (2017)

Table B4.3 Alternative CEO Forced Turnover Classifications

This table reports the regression results obtained using alternative classifications of CEO turnovers. *Forced Turnover (v2)* has missing values for no turnover years, and it is equal to one (zero) for forced (voluntary) turnover. In other words, it only considers turnover years. *Forced Turnover (v3)* is an age-based algorithm that defines any turnover that happens when the CEO is under 55 years of age as forced turnover if not due to death and if the CEO is not subsequently reported in the ExecuComp as CEO of another firm. Columns (1) and (2) report logit regressions, and columns (3) and (4) linear probability models.

Variables	(1) Logit Forced Turnover (v2)	(2) Logit Forced Turnover (v3)	(3) LPM Forced Turnover (v2)	(4) LPM Forced Turnover (v3)
Political Animosity	**0.360*** **	**0.191** **	**0.060*** **	**0.005** **
	(2.827)	**(2.032)**	**(2.851)**	**(2.081)**
Firm Stock Return (VW)	-1.170***	-1.116***	-0.174***	-0.024***
	(-5.699)	(-5.924)	(-6.506)	(-7.339)
Industry Stock Return (VW)	-0.492	-0.479	-0.083	-0.008
	(-0.782)	(-0.908)	(-0.940)	(-0.810)
CEO Retirement Age	-2.378***		-0.198***	
	(-6.772)		(-9.968)	
CEO & Firm Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	1,688	14,243	1,706	16,373
Pseudo R2	0.230	0.104	-	-
Adjusted R-squared	-	-	0.234	0.026

Table B4.4 Robustness Checks on Sub-Samples of Countries of CEOs' Ancestral Origins

This table presents the baseline panel logit regressions results for different sub-sample of countries. In columns (1) and (2) we exclude respectively the most frequent and the three most frequent countries of CEO's ancestral origins (see Table B1: 1. Great Britain, 2. Germany, and 3. Ireland). In column (3) we exclude *all* European countries as CEOs' ancestral origins. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no turnover or a voluntary turnover. The variable of interest, *Political Animosity*, is the difference between the ideal point score of the U.S. and that of the CEO's country of origin. The regressions in columns (2) and (3) do not return estimates for the coefficient of *CEO Retirement Age*, because due to their smaller sample sizes there is no variation for this dummy (always equal to 0), conditional to forced turnovers events. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See Appendix B, Table B2 for descriptions of all variables.

	Excluding Dominant Country (Great Britain)	Excluding Top 3 Dominant Countries (Great Britain, Germany, Ireland)	Excluding All European Countries
	(1)	(2)	(3)
Variables:	Forced Turnover	Forced Turnover	Forced Turnover
Political Animosity	**0.284****	**0.252****	**0.623****
	(2.563)	**(2.063)**	**(2.514)**
Firm Stock Returns (VW)	-1.161***	-1.098***	-1.375
	(-4.741)	(-3.326)	(-1.501)
Industry Stock Returns (VW)	-1.595**	-2.113**	-5.128**
	(-2.499)	(-2.386)	(-2.181)
CEO Retirement Age	-1.783***	-	-
	(-2.965)		
Firm Volatility	1.912	-0.365	-4.434
	(1.280)	(-0.157)	(-0.550)
Log(Size)	-0.0471	0.0124	0.459*
	(-0.703)	(0.130)	(1.867)
Leverage	1.218***	1.046**	1.379
	(4.050)	(2.317)	(1.037)
Capex	-0.0954	0.0612	-0.502
	(-0.215)	(0.100)	(-0.340)
ROA	-3.000***	-4.867***	-9.160***
	(-4.516)	(-4.586)	(-3.042)
Log(Firm Age)	0.231**	0.207	0.378
	(2.366)	(1.383)	(1.003)
CEO Duality	-0.317*	-0.228	-0.291
	(-1.832)	(-0.982)	(-0.567)
CEO Pay Slice	-1.450**	-1.820**	-0.101
	(-2.284)	(-2.021)	(-0.0565)
Log(CEO Tenure)	-0.120*	-0.119	0.0947
	(-1.716)	(-1.181)	(0.337)
Board Size	0.0694**	0.0883*	0.195
	(1.977)	(1.796)	(1.346)
Board Independent Ratio	0.882	1.794*	5.030**
	(1.417)	(1.925)	(2.307)
HHI	-0.518*	-0.284	0.862
	(-1.743)	(-0.649)	(0.734)
Constant	-3.926***	-4.047***	-12.68***
	(-3.994)	(-2.847)	(-2.672)

Observations	8,964	4,137	873
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Pseudo R2	0.110	0.127	0.281

Table B4.5 Covariates Entropy Balancing

This table reports the results of the covariates' entropy balancing, used as alternative method to match treatment and control firms. This entropy balancing methodology directly determines the set of weights that optimizes the balance in the covariates' first three distributional moments (mean, variance, and skewness) across the two groups. By targeting these three moments, the entropy balancing methodology created weighted samples in which the distribution of covariates in the treatment group resembles that in the control group, thereby reducing the bias in the estimation of causal effects (see, e.g., Hainmueller, 2012). We re-estimate the logit regressions using the entropy-balanced matched sample and report the unchanged results of the regression in Panel C of Table 5. Panel A reports the covariates' mean, variance, and skewness before the entropy balancing weighting. Panel B reports the covariates' mean, variance, and skewness after the entropy balancing weighting.

Panel A. Before weighting						
	Treatment			**Control**		
	Mean	**Variance**	**Skewness**	**Mean**	**Variance**	**Skewness**
Firm Stock Return (VW)	0.037	0.169	1.436	0.024	0.170	1.542
Industry Stock Return (VW)	0.103	0.033	0.157	0.127	0.035	0.108
Firm Volatility	0.120	0.003	1.518	0.115	0.003	1.642
Log(Size)	7.516	2.296	0.303	7.639	2.501	0.302
Leverage	0.228	0.037	0.939	0.238	0.037	0.821
Capex	0.239	0.023	1.406	0.228	0.020	1.334
ROA	0.093	0.009	-0.955	0.091	0.010	-1.429
Log(Firm Age)	2.948	0.599	-0.740	3.041	0.546	-0.899
CEO Retirement Dummy	0.062	0.058	3.646	0.071	0.066	3.331
CEO Duality	0.251	0.188	1.147	0.221	0.172	1.343
CEO Pay Slice	0.392	0.013	-0.100	0.389	0.012	-0.105
Log(CEO Tenure)	1.763	0.716	-0.213	1.768	0.764	-0.194
Board Size	11.290	9.718	0.106	11.170	10.330	0.168
Board Independent Ratio	0.697	0.020	0.087	0.717	0.019	-0.091
HHI	0.301	0.069	1.372	0.287	0.063	1.456
Panel B. After weighting						
	Treatment			**Control**		
	Mean	**Variance**	**Skewness**	**Mean**	**Variance**	**Skewness**
Firm Stock Return (VW)	0.037	0.169	1.436	0.037	0.169	1.436
Industry Stock Return (VW)	0.103	0.033	0.157	0.103	0.033	0.157
Firm Volatility	0.120	0.003	1.518	0.120	0.003	1.518
Log(Size)	7.516	2.296	0.303	7.516	2.296	0.303
Leverage	0.228	0.037	0.939	0.228	0.037	0.939
Capex	0.239	0.023	1.406	0.239	0.023	1.406
ROA	0.093	0.009	-0.955	0.093	0.009	-0.956
Log(Firm Age)	2.948	0.599	-0.740	2.948	0.599	-0.740
CEO Retirement Dummy	0.062	0.058	3.646	0.062	0.058	3.646
CEO Duality	0.251	0.188	1.147	0.251	0.188	1.147
CEO Pay Slice	0.392	0.013	-0.100	0.392	0.013	-0.100
Log(CEO Tenure)	1.763	0.716	-0.213	1.763	0.716	-0.213
Board Size	11.290	9.718	0.106	11.290	9.718	0.106
Board Independent Ratio	0.697	0.020	0.087	0.697	0.020	0.087
HHI	0.301	0.069	1.372	0.301	0.069	1.372

Table B4.6 Placebo Tests: Falsification

This table presents the logit regression for the placebo tests. The dependent variable, *Forced Turnover*, is a dummy variable that equals 1 if the CEO is fired in a given year and 0 if there is no or voluntary turnover. *Falsified Political Animosity* is the difference between the ideal point score of the U.S. and that of a falsified CEO's country of origin. A falsified CEO's country of origin is the country that immediately follows (precedes) the actual country of origin on an alphabetically sorted list of 95 countries that are covered both in the passengers' records and the ideal point estimates. Standard errors are clustered at the firm level. Robust z-stats are reported in parenthesis. ***, **, * indicates respectively statistical significance at the 1%, 5%, and 10% level. See the Appendix Table B2 for descriptions of all variables.

Variables	(1) Forced Turnover	(2) Forced Turnover
Falsified Political Animosity (Following)	**0.039**	
	(0.613)	
Falsified Political Animosity (Preceding)		**0.041**
		(0.732)
Firm Stock Returns (VW)	-1.553***	-1.540***
	(-7.356)	(-7.249)
Industry Stock Returns (VW)	-0.915*	-0.883*
	(-1.947)	(-1.874)
CEO Retirement Age	-0.997***	-1.076***
	(-3.148)	(-3.259)
CEO & Firm Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Observations	16,173	15,959
Pseudo R2	0.101	0.102

Chapter 5 Conclusion

5.1 Summary of the Findings

The research presented in this thesis provides insights into how top executives' traits and incentives influence corporate outcomes and impact their career outcomes. This thesis explores three related topics: (1) the role of CEO inherited altruism in corporate social performance and shareholder returns; (2) the effects of CSR contracting on corporate green innovation; (3) how political animosity between the U.S. and a CEO's ancestral country affects the likelihood of forced turnover.

The first essay (Chapter 2) reveals that CEOs' inherited altruism, deeply rooted in the cultural heritage of the CEO's ancestral background, positively influences both CSR engagement and firm financial performance. Firms led by altruistic CEOs demonstrate stronger CSR performance, especially during stable economic periods. Furthermore, these CEOs appear to safeguard shareholder value during financial crises, indicating that altruistic values can enhance a firm's resilience in challenging times.

The second essay (Chapter 3) investigates the link between CSR contracting and green innovation. Our analysis shows that firms with CSR contracting produce more green patents and generate innovations of greater economic value. While CSR contracting fosters green patents with broader technological roots, it does not necessarily result in their application across a wider range of technological developments. Additionally, CSR contracting encourages both exploitative and exploratory innovations. However, further analysis suggests that while CSR contracting promotes both green innovation and environmental performance, green innovation alone may not fully mediate the relationship.

Lastly, the final essay (Chapter 4) on political animosity and CEO turnovers highlights the impact of non-business-related factors on corporate governance. The findings show that worsening political relations between the U.S. and a CEO’s ancestral country of origin

significantly increase the likelihood of forced turnover. Our further analysis suggests this is not driven by poor firm or CEO performance or industries sensitive to trade relations. Instead, it seems more likely to reflect behavioral bias, as the effect is stronger for CEOs from countries viewed less favorably by the U.S. public. These findings imply that board decisions may be influenced by biases related to a CEO's ethnic identity when political animosity between the U.S. and their ancestral country is high, underscoring the need for boards and investors to mitigate such biases in dismissal decisions.

5.2 Limitations of the Findings and Implications for Future Research

While this thesis contributes valuable insights to the literature, several limitations must be acknowledged, opening avenues for future research:

First, as with all empirical research, measurement error is a critical concern for the variables used. For instance, while the last-name approach is commonly employed in the literature to identify cultural origins, it may introduce some measurement error as some surnames may be used in multiple countries. Similarly, the choice of CSR ratings is debatable due to divergence among different providers. Although we selected the source offering the best coverage for our sample, the broader criticism of CSR ratings—particularly their limited agreement and convergence—remains a challenge (for a discussion, see Berg et al., 2022). This issue is common across most empirical CSR studies, arising from the lack of standardized and comparable CSR metrics.

While some measurement error is inevitable, future research could focus on refining tools to capture key variables more accurately. For instance, rather than relying solely on the dummy variable provided by Refinitiv, future studies could develop more precise databases on CSR contracting by utilizing proxy statements and corporate sustainability reports. Researchers could aim to identify which executives' compensation is directly tied to CSR performance, the specific types of CSR goals being pursued (e.g., environmental, social, or ethical), and whether the contracts establish clear, formulaic links between CSR outcomes and executive compensation.

Second, the generalizability of the findings may be limited, as the research primarily focuses on U.S. firms. The cultural, political, and corporate governance contexts in other countries may differ significantly, which could influence the applicability of these findings in different settings.

Future research could extend this work by assessing whether the findings hold beyond the U.S. and apply to regions with different cultural and economic practices. For example, given the current political divide in the U.S., which has seen the largest increase in affective polarization among twelve OECD countries over the past four decades (Boxell et al., 2024), it would also be insightful to examine whether political dynamics similarly influence corporate leadership decisions in other regions, such as Europe.

Third, establishing a causal relationship between executive compensation and firm outcomes remains challenging due to the endogenous nature of compensation structures. Executive pay is shaped by a complex interplay of factors involving top executives, boards, compensation consultants, and the managerial labor market. As a result, the correlation observed between CSR contracting and corporate green innovation outcomes in Chapter 3 may not imply causality, as both could be driven by unobservable firm, industry, or executive characteristics. Future research could aim to disentangle these complexities by utilizing more robust econometric techniques and natural experiments that can provide exogenous variation in compensation structures.

Fourth, while this thesis is primarily empirical, future research could explore theoretical perspectives. For example, researchers could model both the CEO's preference for CSR and their compensation as part of their overall utility. This would help explain how a CEO's personal interest in CSR affects their decisions and firm outcomes. By including these factors, we could better understand the relationship between CEO preferences, CSR, and firm performance, and how compensation structures balance financial and social goals.

Lastly, the findings of this thesis carry broader implications for corporate finance and corporate governance, particularly in how boards of directors select and evaluate CEOs. Our findings suggest that boards should consider not only a CEO's ability to deliver short-term financial results but also their capacity to build long-term social capital and trust, which can be invaluable during times of economic uncertainty. Additionally, the study highlights the importance of designing strategic compensation systems that align leadership efforts with broader company goals, such as innovation and responsible corporate behavior. Political and cultural factors can also influence CEO dismissal decisions, emphasizing the need for boards to be aware of such biases in their evaluations. Over all, the implications of this thesis extend to fostering leadership that prioritizes social welfare alongside corporate success. Future research could expand on this by exploring how CEOs can drive corporate efforts in sustainability, encourage diversity and

inclusion, enhance employee well-being, tackle environmental challenges, and advances corporate governance transparency

References

Adams, R.B., Almeida, H. and Ferreira, D., 2005. Powerful CEOs and their impact on corporate performance. *The Review of Financial Studies*, *18*(4), pp.1403-1432.

Adams, R.B. and Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), pp.291-309.

Aggarwal, R., Erel, I., Ferreira, M. and Matos, P., 2011. Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, 100(1), pp.154-181.

Aghion, P., Bloom, N., Blundell, R., Griffith, R. and Howitt, P., 2005. Competition and innovation: An inverted-U relationship. *The Quarterly Journal of Economics*, 120(2), pp.701-728.

Aghion, P., Van Reenen, J. and Zingales, L., 2013. Innovation and institutional ownership. *American Economic Review*, 103(1), pp.277-304.

Aiyar, S., Malacrino, D. and Presbitero, A., 2023. *Investing in Friends: The Role of Geopolitical Alignment in FDI Flows.* CEPR Press Discussion Paper 18434.

Albuquerque, A., Carter, M.E., Guo, Z.M. and Lynch, L.J., 2024. Complexity of CEO compensation packages. *Journal of Accounting and Economics*, p.101709.

Allgood, S. and Farrell, K.A., 2003. The match between CEO and firm. *The Journal of Business*, 76(2), pp.317-341.

Al-Shaer, H., Albitar, K. and Liu, J., 2023. CEO power and CSR-linked compensation for corporate environmental responsibility: UK evidence. *Review of Quantitative Finance and Accounting*, 60(3), pp.1025-1063.

Al-Shammari, M., Rasheed, A., and Al-Shammari, H. A., 2019. CEO narcissism and corporate social responsibility: does CEO narcissism affect CSR focus? *Journal of Business Research*, 104, 106-117.

Amore, M.D. and Bennedsen, M., 2016. Corporate governance and green innovation. *Journal of Environmental Economics and Management*, 75, pp.54-72.

Andreoni, J., 1990. Impure altruism and donations to public goods: A theory of warm-glow giving, *Economic Journal*, 100, 464-477.

Andreou, P., C. Louca, and A. Petrou, 2017. CEO age and stock price crash risk. *Review of Finance*, 21, 1287–1325.

Antonakis, J., Day, D. V., and Schyns, B., 2012. Leadership and individual differences: At the cusp of a renaissance, *The Leadership Quarterly*, 23(4), 643-650.

Aresu, S., Hooghiemstra, R. and Melis, A., 2023. Integration of CSR criteria into executive compensation contracts: A cross-country analysis. *Journal of Management*, 49(8), pp.2766-2804.

Arouri, M., Gomes, M. and Pukthuanthong, K., 2019. Corporate social responsibility and M&A uncertainty. *Journal of Corporate Finance*, 56, pp.176-198.

Ashburn-Nardo, L., Voils, C.I., and Monteith, M.J., 2001. Implicit associations as the seeds of intergroup bias: How easily do they take root? *Journal of Personality and Social Psychology*, 81(5), pp. 789-799.

Avolio, B. J. and Locke, E. E., 2002. Contrasting different philosophies of leader motivation: Altruism versus egoism, *The Leadership Quarterly*, 13(2), 169-191.

Azoulay, P., Graff Zivin, J.S. and Manso, G., 2011. Incentives and creativity: evidence from the academic life sciences. *The RAND Journal of Economics*, 42(3), pp.527-554.

Bailey, M.A., Strezhnev, A. and Voeten, E., 2017. Estimating dynamic state preferences from United Nations voting data. *Journal of Conflict Resolution*, 61(2), pp.430-456.

Balakrishnan, R., Sprinkle, G.B., and Williamson, M.G., 2011. Contracting benefits of corporate giving: An experimental investigation. *The Accounting Review*, 86 (6), 1887–1907.

Balsam, S., Kwack, S. Y., and Lee, J. Y., 2017. Network connections, CEO compensation and involuntary turnover: The impact of a friend of a friend. *Journal of Corporate Finance*, 45, pp.220-244.

Bandura, A., 1977. Social Learning Theory. Englewood Cliffs, NJ: Prentice-Hall

Barbieri, N., Marzucchi, A. and Rizzo, U., 2020. Knowledge sources and impacts on subsequent inventions: Do green technologies differ from non-green ones?. *Research Policy*, 49(2), p.103901.

Bar-Tal, D., 1976. Prosocial behavior: Theory and research. Hemisphere Publishing Corp.

Bass, B. M., 1998. Transformational Leadership: Industrial, Military, and Educational Impact. Mahwah, NJ: Lawrence Erlbaum Associates.

Bass, B. M., and Riggio, R. E., 2006. Transformational leadership (2nd ed.). Lawrence Erlbaum Associates Publishers.

Bebchuk, L.A., Cremers, K.M., and Peyer, U.C., 2011. The CEO pay slice. *Journal of Financial Economics*, 102(1), pp.199-221.

Bebchuk, L.A. and Tallarita, R., 2022. The perils and questionable promise of ESG-based compensation. *Journal of Corporation Law*, 48, p.37.

Bebchuk, L., Cohen, A., and Ferrell, A., 2009. What matters in corporate governance?. *The Review of Financial Studies*, 22(2), 783-827.

Becchetti, L., Ciciretti, R., and Hasan, I., 2015. Corporate social responsibility, stakeholder risk, and idiosyncratic volatility. *Journal of Corporate Finance*, 35, 297-309.

Beck, T., and Demirguc-Kunt, A., 2006. Small and medium-size enterprises: Access to finance as a growth constraint, *Journal of Banking and Finance*, 30(11), 2931-2943.

Becker, G. S., 1957. The economics of discrimination. University of Chicago Press.

Beladi, H., Deng, J., and Hu, M., 2021. Cash flow uncertainty, financial constraints and R&D investment, *International Review of Financial Analysis*, 76, 101785.

Bénabou, R., and Tirole, J., 2010. Individual and corporate social responsibility, *Economica*, 77, 1-19.

Beneish, M.D., Marshall, C.D., and Yang, J., 2017. Explaining CEO retention in misreporting firms. *Journal of Financial Economics*, 123(3), pp.512-535.

Bennedsen, M., Nielsen, K.M., Pérez-González, F. and Wolfenzon, D., 2007. Inside the family firm: The role of families in succession decisions and performance. *The Quarterly Journal of Economics*, *122*(2), pp.647-691.

Bennedsen, M., Pérez‐González, F. and Wolfenzon, D., 2020. Do CEOs matter? Evidence from hospitalization events. *The Journal of Finance*, *75*(4), pp.1877-1911.

Benner, M.J. and Tushman, M.L., 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review*, 28(2), pp.238-256.

Berg, F., Fabisik, K. and Sautner, Z., 2021. Is history repeating itself? The (un) predictable past of ESG ratings. *SSRN Electronic Journal*, pp.1-59.

Berg, F., Koelbel, J.F. and Rigobon, R., 2022. Aggregate confusion: The divergence of ESG ratings. Review of Finance, 26(6), pp.1315-1344.

Berman, S. L., A. C. Wicks, S. Kotha, and T. M. Jones, 1999. Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Academy of Management Journal*, 42, 488-506.

Berson, Y., Oreg, S., and Dvir, T., 2008. CEO values, organizational culture and firm outcomes, *Journal of Organizational Behavior*, 29, 615-633.

Bertrand, M. and Schoar, A., 2003. Managing with style: The effect of managers on firm policies. *The Quarterly Journal of Economics*, 118(4), pp.1169-1208.

Bertrand, O., Betschinger, M.A., and Settles, A., 2016. The relevance of political affinity for the initial acquisition premium in cross-border acquisitions. *Strategic Management Journal*, 37(10), pp.2071-2091.

Bhattacharya, C.B., Sen, S. and Korschun, D., 2008. Using corporate social responsibility to win the war for talent. *MIT Sloan Management Review*, 49(2).

Biddle, G.C., Hilary, G., and Verdi, R.S., 2009. How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48(2-3), pp.112-131.

Bisin, A., and Verdier, T., 2000. “Beyond the melting pot”: cultural transmission, marriage, and the evolution of ethnic and religious traits, *The Quarterly Journal of Economics*, *115*(3), 955-988.

Bisin, A., and Verdier, T., 2001. The economics of cultural transmission and the dynamics of preferences, *Journal of Economic Theory*, *97*(2), 298-319.

Blau, P.M., 1977. Inequality and heterogeneity: A primitive theory of social structure (Vol. 7, pp.677-683). New York: Free Press.

Boone, C., Buyl, T., Declerck, C. H., and Sajko, M., 2022. A neuroscience-based model of why and when CEO social values affect investments in corporate social responsibility, *The Leadership Quarterly*, 33(3), 101386.

Bordalo, P., Coffman, K., Gennaioli, N., and Shleifer, A., 2016. Stereotypes. *The Quarterly Journal of Economics*, 131(4), pp.1753-1794.

Borghesi, R., Houston, J. F., and Naranjo, A., 2014. Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests, *Journal of Corporate Finance*, 26, 164-181.

Boubakri, N., Guedhami, O., Kwok, C.C. and Wang, H.H., 2019. Is privatization a socially responsible reform?. *Journal of Corporate Finance*, 56, pp.129-151.

Boxell, L., Gentzkow, M. and Shapiro, J.M., 2024. Cross-country trends in affective polarization. *Review of Economics and Statistics*, 106(2), pp.557-565.

Brewer, M.B., 1999. The psychology of prejudice: Ingroup love and outgroup hate? *Journal of Social Issues*, 55(3), pp.429-444.

Brochet, F., Limbach, P., Schmid, M., and Scholz-Daneshgari, M., 2021. CEO tenure and firm value. *The Accounting Review*, 96(6), pp.47-71.

Bromiley, P., and Rau, D., 2016. Social, behavioral, and cognitive influences on upper echelons during strategy process: A literature review, *Journal of Management*, 42(1), 174–202.

Brubaker, R. and Laitin, D.D., 1998. Ethnic and nationalist violence. *Annual Review of Sociology*, 24(1), pp.423-452.

Bushman, R., Dai, Z., and Wang, X., 2010. Risk and CEO turnover. *Journal of Financial Economics*, 96(3), pp.381-398.

Canella, V., Parrino, R., and Srinivasan, R., 2012. A strategic leadership perspective on the appointment of CEOs with marketing backgrounds at firms with differentiation emphasis. Unpublished Working Paper University of Texas at Austin.

Chen, C.C., Chung, J.Y., Gao, J., and Lin, Y.H., 2017. Destination familiarity and favorability in a country-image context: Examining Taiwanese travelers' perceptions of China. *Journal of Travel and Tourism Marketing*, 34(9), pp.1211-1223.

Chen, T., Dong, H., and Lin, C., 2020. Institutional shareholders and corporate social responsibility, *Journal of Financial Economics*, 135(2), 483-504.

Chen, W. T., Zhou, G. S., and Zhu, X. K., 2019. CEO tenure and corporate social responsibility performance, *Journal of Business Research*, 95, 292-302.

Cheng, I.H., Hong, H. and Shue, K., 2023. Do managers do good with other people's money?. *The Review of Corporate Finance Studies*, 12(3), pp.443-487.

Cheng, S., 2004. R&D expenditures and CEO compensation. *The Accounting Review*, 79(2), pp.305-328.

Chin, M. K., Hambrick, D. C., and Treviño, L. K., 2013. Political ideologies of CEOs: The influence of executives' values on corporate social responsibility, *Administrative Science Quarterly*, 58(2), 197-232.

Chiu, S.C.S., and Walls, J.L., 2019. Leadership change and corporate social performance: The context of financial distress makes all the difference. *The Leadership Quarterly*, 30(5), p.101307.

Chung, K.H. and Zhang, H., 2011. Corporate governance and institutional ownership. *Journal of Financial and Quantitative Analysis*, 46(1), pp.247-273.

Clark, C. F., Kotchen, M. J., and Moore, M. R., 2003. Internal and external influences on pro-environmental behavior: Participation in a green electricity program, *Journal of Environmental Psychology*, 23, 237-246.

Cohen, L., Gurun, U.G. and Nguyen, Q.H., 2024. *The ESG-innovation disconnect: Evidence from green patenting* (No. w27990). National Bureau of Economic Research.

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

Cook, A. and Glass, C., 2014. Above the glass ceiling: When are women and racial/ethnic minorities promoted to CEO? *Strategic Management Journal*, 35(7), pp.1080-1089.

Core, J. and Guay, W., 2002. Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research*, 40(3), pp.613-630.

Coughlan, A.T. and Schmidt, R.M., 1985. Executive compensation, management turnover, and firm performance: An empirical investigation. *Journal of Accounting and Economics*, 7(1-3), pp.43-66.

Cronqvist, H., and Yu, F., 2017. Shaped by their daughters: Executives, female socialization, and corporate social responsibility, *Journal of Financial Economics*, 126(3), 543-562.

Davidson R. H., Dey, A., and Smith, A. J., 2019. CEO Materialism and Corporate Social Responsibility, *The Accounting Review*, 94(1), 101–126.

Davis, C.L. and Meunier, S., 2011. Business as usual? Economic responses to political tensions. *American Journal of Political Science*, 55(3), pp.628-646.

De Neve, J., Mikhaylov, S., Dawes, C. T., Christakis, N. A., and Fowler, J. H., 2013. Born to lead? A twin design and genetic association study of leadership role occupancy, *The Leadership Quarterly*, 24, 45–60.

Defond, M.L. and Hung, M., 2004. Investor protection and corporate governance: Evidence from worldwide CEO turnover. *Journal of Accounting Research*, 42(2), pp.269-312.

Demirel, P. and Kesidou, E., 2011. Stimulating different types of eco-innovation in the UK: Government policies and firm motivations. *Ecological Economics*, 70(8), pp.1546-1557.

Deng, X., Kang, J. K., and Low, B. S. (2013). Corporate social responsibility and stakeholder value maximization: Evidence from mergers, *Journal of Financial Economics*, 110(1), 87-109.

DesJardine, M., Bansal, P., and Yang, Y. (2019). Bouncing back: Building resilience through social and environmental practices in the context of the 2008 global financial crisis. *Journal of Management*, 45, 1434–1460.

Di Giuli, A. and Kostovetsky, L. (2014). Are red or blue companies more likely to go green? Politics and corporate social responsibility, *Journal of Financial Economics*, 111(1), 158-180.

Dikolli, S.S., Mayew, W.J., and Nanda, D., 2014. CEO tenure and the performance-turnover relation. *Review of Accounting Studies*, 19, pp.281-327.

Dittmar, A. and Duchin, R., 2016. Looking in the rearview mirror: The effect of managers' professional experience on corporate financial policy. *The Review of Financial Studies*, *29*(3), pp.565-602.

Dohmen, T., Falk, A., Huffman, D., and Sunde, U., 2012. The Intergenerational Transmission of Risk and Trust Attitudes, *Review of Economic Studies*, 79(2), 645–677.

Dovidio, J.F. and Penner, L.A, 2004. Helping and Altruism. In: Brewer MB, Hewstone M, editors. Emotion and motivation. Malden: Blackwell Publishing. 2004; 247-80.

Du, S., Bhattacharya, C.B. and Sen, S., 2011. Corporate social responsibility and competitive advantage: Overcoming the trust barrier. *Management Science*, 57(9), pp.1528-1545.

Du, Y., Ju, J., Ramirez, C.D., and Yao, X., 2017. Bilateral trade and shocks in political relations: Evidence from China and some of its major trading partners, 1990–2013. *Journal of International Economics*, 108, pp.211-225.

Duanmu, J.L., 2014. State-owned MNCs and host country expropriation risk: The role of home state soft power and economic gunboat diplomacy. *Journal of International Business Studies*, 45, pp.1044-1060.

Duchin, R. and Sosyura, D., 2013. Divisional managers and internal capital markets. *The Journal of Finance*, 68(2), pp.387-429.

Edmans, A., 2011. Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics*, 101(3), pp.621-640.

Edmans, A., 2012. The link between job satisfaction and firm value, with implications for corporate social responsibility. *Academy of Management Perspectives*, 26(4), pp.1-19.

Eisfeldt, A.L. and Kuhnen, C.M., 2013. CEO turnover in a competitive assignment framework. *Journal of Financial Economics*, 109(2), pp.351-372.

Elfenbein, D.W., Fisman, R. and McManus, B., 2012. Charity as a substitute for reputation: Evidence from an online marketplace. *Review of Economic Studies*, 79(4), pp.1441-1468.

Engel, E., Hayes, R.M. and Wang, X., 2003. CEO turnover and properties of accounting information. *Journal of Accounting and Economics*, 36(1-3), pp.197-226.

Fabrizi, M., Mallin, C., and Michelon, G., 2014. The role of CEO's personal incentives in driving corporate social responsibility, *Journal of Business Ethics*, 124(2), 311-326.

Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., and Sunde, U. (2018). Global evidence on economic preferences, *The Quarterly Journal of Economics*, 133(4), 1645-1692.

Farrell, K.A. and Whidbee, D.A., 2002. Monitoring by the financial press and forced CEO turnover. *Journal of Banking and Finance*, 26(12), pp.2249-2276.

Fee, C.E., Hadlock, C.J. and Pierce, J.R., 2013. Managers with and without style: Evidence using exogenous variation. *The Review of Financial Studies*, *26*(3), pp.567-601.

Feigin, S., Owens, G., and Goodyear-Smith, F., 2014. Theories of human altruism: A systematic review. *Annals of Neuroscience and Psychology*, 1(1), 1-9.

Fernández, R., 2011. Does culture matter?, in J. Benhabib, A. Bisin, M.O. Jackson (Eds.), Handbook of Social Economics, Elsevier, 481-510.

Fernández, R., and Fogli, A., 2009. Culture: An empirical investigation of beliefs, work, and fertility, *American Economic Journal: Macroeconomics*, 1(1), 146–177.

Ferrell, A., Liang, H., and Renneboog, L., 2016. Socially responsible firms, *Journal of Financial Economics*, 122, 585-606.

Fiordelisi, F., Galloppo, G. and Lattanzio, L., 2022. Where does corporate social capital matter the most? Evidence From the COVID-19 crisis, *Finance Research Letters*, 47(A), 102538.

Fischer, T., Dietz, J., and Antonakis, J., 2024. A fatal flaw: Positive leadership style research creates causal illusions, *The Leadership Quarterly*, 35 (3), 101771.

Fisman, R.J., Khurana, R., Rhodes-Kropf, M., and Yim, S., 2014. Governance and CEO turnover: Do something or do the right thing? *Management Science*, 60(2), pp.319-337.

Flammer, C. and Bansal, P., 2017. Does a long-term orientation create value? Evidence from a regression discontinuity. *Strategic Management Journal*, 38(9), pp.1827-1847.

Flammer, C., Hong, B. and Minor, D., 2019. Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes. *Strategic Management Journal*, 40(7), pp.1097-1122.

Fornell C, Mithas S, Morgeson FV III, and Krishnan MS, 2006. Customer satisfaction and stock prices: High returns, low risk. *Journal of Marketing*, 70(1), 3-14.

Fouka, V. and Voth, H.J., 2016. Reprisals Remembered: German-Greek Conflict and Car Sales During the Euro Crisis. SSRN Working Paper 2340625.

Freeman, R. E., 1984. Strategic Management: A Stakeholder Approach, Cambridge University Press: Cambridge.

Friedman, M., 1962. Capitalism and Freedom, University of Chicago Press: Chicago.

Gabaix, X. and Landier, A., 2008. Why has CEO pay increased so much?. *The Quarterly Journal of Economics*, *123*(1), pp.49-100.

Gao, H., Harford, J., and Li, K., 2017. CEO turnover–performance sensitivity in private firms. *Journal of Financial and Quantitative Analysis*, 52(2), pp.583-611.

Gardner, W. L., Cogliser, C. C., Davis, K. M., and Dickens, M. P., 2011. Authentic leadership: A review of the literature and research agenda. *The Leadership Quarterly, 22*(6), 1120–1145.

Gartzke, Erik. 1998. Kant We All Just Get along? Opportunity, Willingness, and the Origins of the Democratic Peace. *American Journal of Political Science*, 42(1), pp. 1-27.

Gentry, R. J., Harrison, J. S., Quigley, T. J., and Boivie, S., 2021. A database of CEO turnover and dismissal in S&P 1500 firms, 2000–2018, *Strategic Management Journal*, 42(5), 968-991.

Giannetti, M., and Zhao, M., 2018. Board ancestral diversity and firm-performance volatility. *Journal of Financial and Quantitative Analysis*, 54(3), 1117-1155.

Graen, G. B., and Uhl-Bien, M., 1995. Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, *6*(2), 219–247.

Graham, J. W., 1991. Servant leadership in organizations: Inspirational and moral. *The Leadership Quarterly*, 2, 105-119.

Graham, J.R., Harvey, C.R. and Puri, M., 2013. Managerial attitudes and corporate actions. *Journal of Financial Economics*, 109(1), pp.103-121.

Graham, J.R., Harvey, C.R. and Rajgopal, S., 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1-3), pp.3-73.

Griliches, Z., Pakes, A. and Hall, B.H., 1986. The value of patents as indicators of inventive activity. National Bureau of Economic Research Cambridge, Mass., USA.

Griliches, Z., 1998. Patent statistics as economic indicators: a survey. In *R&D and productivity: the econometric evidence* (pp. 287-343). University of Chicago Press.

Grusec, J.E., 1981. Socialization Processes and the Development of Altruism. In: Rushton JP, Sorrentino RM, editors. Altruism and Helping Behaviour: Social, Personality, and Developmental Perspectives. Hillsdale, New Jersey: Lawrence Erlbaum Associates. 1981; 65-90.

Guiso, L., Sapienza, P., and Zingales, L., 2004. The role of social capital in financial development, *American Economic Review*, 94, 526–556.

Guiso, L., Sapienza, P., and Zingales, L., 2006. Does culture affect economic outcomes? *Journal of Economic Perspectives*, *20*(2), 23-48.

Guo, L., Kong, L., and Zhang, W., 2018. CEO personal donating behavior and corporate social responsibility. Unpublished working paper.

Greenhaus, J.H., Parasuraman, S., and Wormley, W.M., 1990. Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal*, 33(1), pp.64-86.

Greenhaus, J.H. and Parasuraman, S., 1993. Job performance attributions and career advancement prospects: An examination of gender and race effects. *Organizational Behavior and Human Decision Processes*, 55(2), pp.273-297.

Gündemir, S., Carton, A.M., and Homan, A.C., 2019. The impact of organizational performance on the emergence of Asian American leaders. *Journal of Applied Psychology*, 104(1), p.107.

Hainmueller, J., 2012. Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis*, 20(1), pp.25-46.

Hall, B.H., Jaffe, A.B. and Trajtenberg, M., 2001. The NBER patent citation data file: Lessons, insights and methodological tools. National Bureau of Economic Research Cambridge, Mass., USA.

Hall, B.H., Jaffe, A.B. and Trajtenberg, M., 2005. Market Value and Patent Citations. RAND Journal of Economics, pp.16-38.

Hambrick, D., and Mason, P., 1984. Upper echelons: The organization as a reflection of its top managers, *Academy of Management Review*, 9(2), 193–206.

Hambrick, D. C., 2007. Upper echelons theory: An update, *Academy of Management Review*, 32(2), 334-343.

Han, Y., Chi, W., and Zhou, J., 2022. Prosocial imprint: CEO childhood famine experience and corporate philanthropic donation, *Journal of Business Research*, 139, 1604-1618.

Haque, F., 2017. The effects of board characteristics and sustainable compensation policy on carbon performance of UK firms. *The British Accounting Review*, 49(3), pp.347-364.

Harrison, J. S., and Freeman, R. E., 1999. Stakeholders, social responsibility, and performance: Empirical evidence and theoretical perspective, *Academy of Management Journal*, 42, 479-485.

Haščič, I. and Migotto, M., 2015. Measuring environmental innovation using patent data.

Hayes, A.F., 2015. An index and test of linear moderated mediation. *Multivariate behavioral research*, 50(1), pp.1-22.

Haynes, K. T., Campbell, J. T., and Hitt, M. A., 2017. When more is not enough: Executive greed and its influence on shareholder wealth, *Journal of Management*, 43(2), 555–584.

Haynes, K. T., Josefy, M., and Hitt, M. A., 2015. Tipping point: Managers' self-interest, greed, and altruism, *Journal of Leadership and Organisational Behaviour*, 22(3), 265-279.

Hegde, P., Liao, S., Ma, R., and Nguyen, N. H. , 2023. CEO marital status and insider trading, *British Journal of Management*, 34, 1974–1991.

Hegre, H., Oneal, J.R. and Russett, B., 2010. Trade does promote peace: New simultaneous estimates of the reciprocal effects of trade and conflict. *Journal of Peace Research*, 47(6), pp.763-774.

Helwege, J., Intintoli, V.J. and Zhang, A., 2012. Voting with their feet or activism? Institutional investors' impact on CEO turnover. *Journal of Corporate Finance*, 18(1), pp.22-37.

Hewstone, M., Rubin, M. and Willis, H., 2002. Intergroup bias. *Annual Review of Psychology*, 53(1), pp.575-604.

Higgins, M., 2006. Career Imprints: Creating Leaders across an Industry. San Francisco: Jossey-Bass.

Hill, A.D., Upadhyay, A.D. and Beekun, R.I., 2015. Do female and ethnically diverse executives endure inequity in the CEO position or do they benefit from their minority status? An empirical examination. *Strategic Management Journal*, 36(8), pp.1115-1134.

Hirshleifer, D., Low, A. and Teoh, S.H., 2012. Are overconfident CEOs better innovators?. *The Journal of Finance*, 67(4), pp.1457-1498.

Hoberg, G. and Phillips, G., 2016. Text-based network industries and endogenous product differentiation. *Journal of Political Economy*, 124(5), pp.1423-1465.

Hoffman, M.L., 1981. Is altruism part of human nature? *Journal of Personality and Social Psychology*, 40, 121-37.

Hofstede, G., 1980. Culture and organizations, *International Studies of Management and Organization*, 10(4), 15-41

Hofstede, G., 1984. Culture's consequences: International differences in work-related values. Beverly Hills: Sage Publications.

Hogg, M. A., van Knippenberg, D. and Rast, D. E. III, 2012. The social identity theory of leadership: Theoretical origins, research findings, and conceptual developments, *European Review of Social Psychology*, 23(1), 258-304.

Holmstrom, B., 1989. Agency costs and innovation. *Journal of Economic Behavior and Organization*, 12(3), pp.305-327.

Homroy, S., Mavruk, T., and Nguyen, V. D., 2023. ESG-Linked Compensation, CEO Skills, and Shareholder Welfare, *Review of Corporate Finance Studies*, 12(4), 939–985.

Hong, B., Li, Z. and Minor, D., 2016. Corporate governance and executive compensation for corporate social responsibility. *Journal of Business Ethics*, 136, pp.199-213.

Howell, J. M. and Avolio, B. J., 1993. Transformational leadership, transactional leadership, locus of control and support for innovation: key predictors of consolidated business-unit performance. *Journal of Applied Psychology*,78, 891-902.

Huddy, L., 2001. From social to political identity: A critical examination of social identity theory. *Political Psychology*, 22(1), pp.127-156.

Huson, M.R., Malatesta, P.H., and Parrino, R., 2004. Managerial succession and firm performance. *Journal of Financial Economics*, *74*(2), pp.237-275.

Jansen, J.J., Van Den Bosch, F.A. and Volberda, H.W., 2006. Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), pp.1661-1674.

Javed, M., Wang, F., Usman, M., Gull, A.A. and Zaman, Q.U., 2023. Female CEOs and green innovation. *Journal of Business Research*, 157, p.113515.

Jia, J. and Li, Z., 2020. Does external uncertainty matter in corporate sustainability performance?. *Journal of Corporate Finance*, 65, p.101743.

Jiao, Y., 2010. Stakeholder welfare and firm value, *Journal of Banking and Finance*, 34(10), 2549-2561.

Jenter, D. and Kanaan, F., 2015. CEO turnover and relative performance evaluation. *The Journal of Finance*, 70(5), pp.2155-2184.

Jenter, D. and Lewellen, K., 2015. CEO preferences and acquisitions. *The Journal of Finance*, 70(6), pp.2813-2852.

Jo, H., and Harjoto, M. A., 2012. The causal effect of corporate governance on corporate social responsibility. *Journal of Business Ethics*, 106(1), 53-72.

Jung, J. H., Kumar, A., Lim, S. S., and Yoo, C. Y., 2019. An analyst by any other surname: Surname favorability and market reaction to analyst forecasts. *Journal of Accounting and Economics*, 67(2-3), pp.306-335.

Jung, J. H., Lim, S. S., and Park, J., 2023. Is your surname remunerative? Surname favorability and CEO compensation. *Journal of Corporate Finance*, 83.

Kalmijn, M., 1998. Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology*, 24(1), 395-421.

Kaplan, S.N., Klebanov, M.M. and Sorensen, M., 2012. Which CEO characteristics and abilities matter?. *The Journal of Finance*, 67(3), pp.973-1007.

Kaufmann, D., Kraay, A., and Mastruzzi, M., 2009. Governance matters VIII: aggregate and individual governance indicators, 1996-2008. World Bank Policy Research Working Paper 4978.

Kempf, E., Luo, M., Schäfer, L., and Tsoutsoura, M., 2023. Political ideology and international capital allocation. *Journal of Financial Economics*, 148(2), pp.150-173.

Khanna, N., and Poulsen, A. B. 1995. Managers of financially distressed firms: Villains or scapegoats? *The Journal of Finance*, 50(3), pp.919-940.

Kimball, A., Palmer, D., and Marquis, C., 2012. The impact of women top managers and directors on corporate environmental performance, *Harvard Business School*, Unpublished working paper.

Kish-Gephart, J. J., and Campbell, J. T., 2015. You don't forget your roots: The influence of CEO social class background on strategic risk taking. *Academy of Management Journal*, 58(6), 1614–1636.

Klassen, R.D. and McLaughlin, C.P., 1996. The impact of environmental management on firm performance. *Management Science*, 42(8), pp.1199-1214.

Klauer, K.C. and Stern, E., 1992. How attitudes guide memory-based judgments: A two-process model. *Journal of Experimental Social Psychology*, 28(2), pp.186-206.

Klein, F.B., Chaigneau, P., and Devers, C.E., 2021. CEO gender-based termination concerns: Evidence from initial severance agreements. *Journal of Management*, 47(3), pp.567-596.

Kleinhempel, J., Klasing, M. J., and Beugelsdijk, S., 2023. Cultural roots of entrepreneurship: Evidence from second-generation immigrants, *Organization Science*, 34(5), 1800-1819.

Knill, A., Lee, B.S., and Mauck, N., 2012. Bilateral political relations and sovereign wealth fund investment. *Journal of Corporate Finance*, 18(1), pp.108-123.

Kogan, L., Papanikolaou, D., Seru, A. and Stoffman, N., 2017. Technological innovation, resource allocation, and growth. *The Quarterly Journal of Economics*, 132(2), pp.665-712.

Kogut, B. and Singh, H., 1988. The effect of national culture on the choice of entry mode. *Journal of International Business Studies,* 19(3), pp.411-432.

Konar, S. and Cohen, M.A., 2001. Does the market value environmental performance?. *Review of Economics and Statistics*, 83(2), pp.281-289.

Kotchen, M., and Moon, J. J., 2012. Corporate Social Responsibility for irresponsibility, *The B.E. Journal of Economic Analysis and Policy,* 12(1), 1-23.

Lee, S., Matsunaga, S.R., and Park, C.W., 2012. Management forecast accuracy and CEO turnover. *The Accounting Review*, *87*(6), pp.2095-2122.

Leisen, B., 2001. Image segmentation: the case of a tourism destination. *Journal of Services Marketing*, 15(1), pp.49-66.

Leong, C. K., and Yang, Y. C., 2021. Constraints on "Doing Good": Financial constraints and corporate social responsibility. *Finance Research Letters*, 40, 101694.

Li, J., Meyer, K.E., Zhang, H., and Ding, Y., 2018. Diplomatic and corporate networks: Bridges to foreign locations. *Journal of International Business Studies*, 49, pp.659-683.

Li, Q. and Vashchilko, T., 2010. Dyadic military conflict, security alliances, and bilateral FDI flows. *Journal of International Business Studies*, 41, pp.765-782.

Li, Z. and Thibodeau, C., 2019. CSR-contingent executive compensation incentive and earnings management. *Sustainability*, 11(12), p.3421.

Lins, K. V., Servaes, H., and Tamayo, A., 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis, *The Journal of Finance*, 72(4), 1785-1824.

Lipscomb, T. J., Larrieu, J. A., McAllister, H. A., and Bregman, N. J, 1982. Modeling and children's generosity: A developmental perspective. *Merrill-Palmer Quarterly*, 28, 275-82.

Liu, F., He, X., and Wang, T., 2023. In the name of the family: The effect of CEO clan culture background on firm internationalization. *Journal of Business Research*, 161, 113837.

Liu, S., Wang, K.T., Walpola, S. and Zhu, N.Z., 2024. CSR contracting and stock price crash risk: International evidence. *Journal of International Financial Markets, Institutions and Money*, 93, p.101999.

Liu, X., 2016. Corruption culture and corporate misconduct. *Journal of Financial Economics*, 122(2), pp.307-327.

Long, A.G., 2008. Bilateral trade in the shadow of armed conflict. *International Studies Quarterly*, 52(1), pp.81-101.

Luthans, F., and Avolio, B., 2003. Authentic leadership development. In K. S. Cameron and J. E. Dutton (Eds.), Positive organizational scholarship (pp. 241–254). Berrett-Koehler.

Lys, T., Naughton, J. P., and Wang, C., 2015. Signaling through corporate accountability reporting, *Journal of Accounting and Economics*, 60(1), 56–72.

Ma, M., 2022. Gendered performance evaluation in CEO turnover. *Journal of Corporate Finance*, 77.

Maas, K., 2018. Do corporate social performance targets in executive compensation contribute to corporate social performance?. *Journal of Business Ethics*, 148, pp.573-585.

Malmendier, U., and Tate, G., 2005. CEO overconfidence and corporate investment. *Journal of Finance*, 60(6), 2661-2700.

Manner, M. H., 2010. The impact of CEO characteristics on corporate social performance, *Journal of Business Ethics*, 93(1), 53-72.

Mannor, M. J., Wowak, A. J., Bartkus, V. O., and Gomez-Mejia, L. R., 2016. Heavy lies the crown? How job anxiety affects top executive decision making in gain and loss contexts, *Strategic Management Journal*, 37, 1968–1989.

Manso, G., 2011. Motivating innovation. *The Journal of Finance*, 66(5), pp.1823-1860.

Mao, C.X. and Zhang, C., 2018. Managerial risk-taking incentive and firm innovation: Evidence from FAS 123R. *Journal of Financial and Quantitative Analysis*, 53(2), pp.867-898.

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

McCahery, J.A., Sautner, Z., and Starks, L.T., 2016. Behind the scenes: The corporate governance preferences of institutional investors. *The Journal of Finance*, 71(6), pp.2905-2932.

McCarthy, S., Oliver, B., and Song, S., 2017. Corporate social responsibility and CEO confidence, *Journal of Banking and Finance*, 75, 280-291.

McWilliams, A., and Siegel, D., 2000. Corporate social responsibility and financial performance: correlation or misspecification? *Strategic Management Journal*, 21(5), 603-609.

McWilliams, A., and Siegel, D., 2001. Corporate social responsibility: A theory of the firm perspective, *Academy of Management Review*, 26(1), 117-127

Meyer, P. and McIntosh, S., 1992. The USA Today index of ethnic diversity. *International Journal of Public Opinion Research*, 4(1), pp.51-58.

Michaels, G. and Zhi, X., 2010. Freedom fries. *American Economic Journal: Applied Economics*, 2(3), pp.256-281.

Miles, A., 2015. The (re)genesis of values: Examining the importance of values for action. *American Sociological Review*, 80(4), 680–704.

Moore, C., and Richardson, J. J., 1988. The politics and practice of corporate responsibility in Great Britain. Preston, 267-90.

Murphy, K.J., and Zabojnik, J. 2004. CEO pay and appointments: A market-based explanation for recent trends. *American Economic Review*, 94(2), pp.192-196.

Murphy, K.J., and Zabojnik, J., 2007. Managerial capital and the market for CEOs. Unpublished working paper. *University of Southern California and Queen's University*.

Neyman, J. and Scott, E. L., 1948. Consistent estimates based on partially consistent observations. *Econometrica: Journal of the Econometric Society*, 16(1), pp.1-32.

Nguyen, D. D., Hagendorff, J., and Eshraghi, A., 2018. Does a CEO's cultural heritage affect performance under competitive pressure? *The Review of Financial Studies*, 31(1), 97-141.

Nosek, B.A., Smyth, F.L., Sriram, N., Lindner, N.M., Devos, T., Ayala, A., Bar-Anan, Y., Bergh, R., Cai, H., Gonsalkorale, K. and Kesebir, S., 2009. National differences in gender–science stereotypes predict national sex differences in science and math achievement. *Proceedings of the National Academy of Sciences*, 106(26), pp.10593-10597.

Oikonomou, I., Brooks, C., and Pavelin, S., 2012. The impact of corporate social performance on financial risk and utility: A longitudinal analysis, *Financial Management*, 41(2), 483-515.

Oikonomou, I., Yin, C., and Zhao, L., 2020. Investment horizon and corporate social performance: the virtuous circle of long-term institutional ownership and responsible firm conduct, *The European Journal of Finance*, 26(1), 14-40.

Pan, Y., Wang, T.Y. and Weisbach, M.S., 2016. CEO investment cycles. *The Review of Financial Studies*, *29*(11), pp.2955-2999.

Pan, Y., Siegel, S., and Wang, Y. T., 2020. The cultural origin of CEOs' attitudes toward uncertainty: Evidence from corporate acquisitions, *The Review of Financial Studies*, 33(7), 2977-3030.

Park, S.H. and Westphal, J.D., 2013. Social discrimination in the corporate elite: How status affects the propensity for minority CEOs to receive blame for low firm performance. *Administrative Science Quarterly*, 58(4), pp.542-586.

Parrino, R., 1997. CEO turnover and outside succession a cross-sectional analysis. *Journal of Financial Economics*, 46(2), pp.165-197.

Parrino, R., Sias, R.W. and Starks, L.T., 2003. Voting with their feet: Institutional ownership changes around forced CEO turnover. *Journal of Financial Economics*, 68(1), pp.3-46.

Parsons, C.A., Sulaeman, J., Yates, M.C., and Hamermesh, D.S., 2011. Strike three: Discrimination, incentives, and evaluation. *American Economic Review*, 101(4), pp.1410-1435.

Peters, F. and Wagner, A. ,2014. The Executive Turnover Risk Premium. *The Journal of Finance*, 69(4), pp.1529-1563.

Piliavin, J. A., and Charng, H. W., 1990. Altruism: A review of recent theory and research. *Annual Review of Sociology*, 16(1), 27-65.

Qin, B. and Yang, L., 2022. CSR contracting and performance-induced CEO turnover. *Journal of Corporate Finance*, 73, p.102173.

Quan, X., Ke, Y., Qian, Y. and Zhang, Y., 2023. CEO foreign experience and green innovation: Evidence from China. *Journal of Business Ethics*, 182, 535–557.

Ren, S., Sun, H., and Tang, Y., 2023. CEO's Hometown Identity and Corporate Social Responsibility. *Journal of Management*, 49(7), 2455-2489.

Ren, S., Wang, Y., Hu, Y. and Yan, J., 2021. CEO hometown identity and firm green innovation. *Business Strategy and the Environment*, 30(2), pp.756-774.

Rindova, V. P., and Martins, L. L., 2018. From values to value: Value rationality and the creation of great strategies. *Strategy Science*, 3(1), 323–337.

Rosas, G., Shomer, Y., and Haptonstahl, S.R., 2015. No news is news: nonignorable nonresponse in roll-call data analysis. *American Journal of Political Science*, 59(2), pp.511-528.

Rosen, S., 1981. The economics of superstars. *American Economic Review, 71*(5), pp.845-858.

Rosenbaum, P. R., and Rubin, D. B., 1983. The central role of the propensity score in observational studies for causal effects, *Biometrika*, 70(1), 41-55.

Rupasingha, A., Goetz, S. J., and Freshwater, D., 2006. The production of social capital in US counties, *Journal of Socio-Economics*, 35, 83-101.

Rushton, J.P., 1981. Altruism and society: A social learning perspective. *Ethics*, 92, 425-46.

Ryan, M.K. and Haslam, S.A., 2007. The glass cliff: Exploring the dynamics surrounding the appointment of women to precarious leadership positions. *Academy of Management Review*, 32(2), pp.549-572.

Sadri, G., Weber, T. J., and Gentry, W. A., 2011. Empathic emotion and leadership performance: An empirical analysis across 38 countries, *The Leadership Quarterly*, 22(5), 818-830.

Scalzo, G., Akrivou, K., and Fernandez Gonzalez, M. J., 2023. A personalist approach to business ethics: New perspectives for virtue ethics and servant leadership. *Business Ethics, the Environment and Responsibility*, 32, 145-158.

Schoar, A. and Zuo, L., 2016. Does the market value CEO styles?. *American Economic Review*, *106*(5), pp.262-266.

Schoar, A. and Zuo, L., 2017. Shaped by booms and busts: How the economy impacts CEO careers and management styles. *The Review of Financial Studies*, *30*(5), pp.1425-1456.

Schwartz, S.H., 1977. Normative influences on altruism. In: Berkowitz L, editor. Advances in experimental social psychology. 1977; 12: 222-75.

Schwartz, S., 2006. A theory of cultural value orientations: Explication and applications. *Comparative Sociology*, 5(2-3), 137-182.

Scrivens, K., and Smith, C., 2013. Four interpretations of social capital: an agenda for measurement. OECD Statistics. Working Paper.

Serfling, M. A. 2014. CEO age and the riskiness of corporate policies. *Journal of Corporate Finance*, 25, 251–273.

Servaes, H. and Tamayo, A., 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. *Management science*, 59(5), pp.1045-1061.

Shipman, J. E., Winquist, Q. T., and Whited, R. L., 2017. Propensity score matching in accounting research, *The Accounting Review*, 92(1), 213-244.

Signorino, C.S. and Ritter, J.M., 1999. Tau-b or not tau-b: Measuring the similarity of foreign policy positions. *International Studies Quarterly*, 43(1), pp.115-144.

Simsek, Z., 2007. CEO tenure and organizational performance: An intervening model. *Stretegic Management Journal*, 28, 653–662.

Slater, D. J., and Dixon-Fowler, H. R., 2009. CEO International Assignment Experience and Corporate Social Performance., *Journal of Business Ethics*, 89, 473–489.

Stinchcombe, A. L., 1965. Social structure and organizations. In J. G. March (Ed.), Handbook of organizations (pp. 142–193). Chicago, IL: Rand-McNally.

Sutcliffe, K. M., and Vogus, T. J., 2003. Organizing for resilience. In K. S. Cameron, J. E. Dutton, and R. E. Quinn (Eds.), Positive organizational scholarship: Foundations of a new discipline (pp. 94–110). San Francisco, CA: Berrett-Koehler.

Stangor, C., Lynch, L., Duan, C., and Glas, B., 1992. Categorization of individuals on the basis of multiple social features. *Journal of Personality and Social Psychology*, 62(2), pp.207-218.

Strezhnev, A. and Voeten, E., 2013. United Nations General Assembly Voting Data.

Sy, T., Shore, L.M., Strauss, J., Shore, T.H., Tram, S., Whiteley, P., and Ikeda-Muromachi, K., 2010. Leadership perceptions as a function of race–occupation fit: The case of Asian Americans. *Journal of Applied Psychology*, 95(5), p.902-919.

Tabellini, G., 2008a. Institutions and culture, *Journal of the European Economic Association*, 6(2-3), 255-294.

Tabellini, G., 2008b. The scope of cooperation: Values and incentives. *The Quarterly Journal of Economics*, 123(3), 905-950.

Tang Y., Mack, D. Z., and Chen, G. 2018. The differential effects of CEO narcissism and hubris on corporate social responsibility, *Strategic Management Journal*, 39, 1370–1387.

Tajfel, H., and Turner, J. C. 1979. An integrative theory of intergroup conflict. In W. G. Austin and S. Worchel (Eds.), *The social psychology of intergroup relations*. Monterey, CA: Brooks/Cole.

Taylor, N., 2023. You Gotta Serve Somebody - Shareholders vs Stakeholders vs Stakeholders and the Corporate Enterprise View of Corporate Governance, *Hastings Business Law Journal*, 19(2),149-198.

Trivers, R.L., 1971. The evolution of reciprocal altruism. *Quarterly Review of Biology*, 46, 35-57.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., and Wetherell, M. S. 1987. *Rediscovering the social group: A self-categorization theory*. Oxford: Blackwell.

Trajtenberg, M., Henderson, R. and Jaffe, A., 1997. University versus corporate patents: A window on the basicness of invention. *Economics of Innovation and New Technology*, 5(1), pp.19-50.

Tsang, A., Wang, K.T., Liu, S. and Yu, L., 2021. Integrating corporate social responsibility criteria into executive compensation and firm innovation: International evidence. *Journal of Corporate Finance*, 70, p.102070.

Udayasankar, K., 2008. Corporate social responsibility and firm size, *Journal of Business Ethics*, 83:167-175.

Ursel, N., Durante, A., and Elsaid, E., 2023. Ethnic minority CEO turnover: Resource-based and leadership categorization perspectives. *Journal of Organizational Behavior*, 44(4), pp.682-699.

Voeten, E., 2000. Clashes in the Assembly. *International Organization*, 54(2), pp.185-215.

Voeten, E., 2013. Data and analyses of voting in the United Nations: General Assembly. *Routledge Handbook of International Organization*, pp.54-66.

Waddock, S. A., and Graves, S. B., 1997. The corporate social performance–financial

performance link. *Strategic Management Journal*, 18(4), 303-319.

Wagner, U., Christ, O., Pettigrew, T.F., Stellmacher, J., and Wolf, C., 2006. Prejudice and minority proportion: Contact instead of threat effects. *Social Psychology Quarterly*, 69(4), pp.380-390.

Waldman, D. A., Siegel, D. S., and Javidan, M. (2006). Components of CEO transformational leadership and corporate social responsibility, *Journal of Management Studies*, 43, 1703-1725.

Wang, Q., Dou, J., and Jia, S., 2016. A meta-analytic review of corporate social responsibility and corporate financial performance, *Business and Society*, 55(8), 1083–1121.

Warner, J.B., Watts, R.L., and Wruck, K.H., 1988. Stock prices and top management changes. *Journal of Financial Economics*, 20, pp.461-492.

Weisbach, M.S., 1988. Outside directors and CEO turnover. *Journal of Financial Economics*, *20*, pp.431-460.

Weisbach, M.S., 1995. CEO turnover and the firm's investment decisions. *Journal of Financial Economics*, 37(2), pp.159-188.

Wernicke, G., Sajko, M. and Boone, C., 2022. How much influence do CEOs have on company actions and outcomes? The example of corporate social responsibility. *Academy of Management Discoveries*, 8(1), 36-55.

Wood, D. J., 1991. Corporate social performance revisited. *Academy of Management Review*, 16(4): 691-718.

Wooldridge, J.M., 2010. Econometric Analysis of Cross Section and Panel Data. MIT press.

Xu, N., Li, M., Xie, R. and Chan, K.C., 2024. Double standards? The adverse impact of chairperson hometown ties on corporate green innovation. *Journal of Corporate Finance*, 88, p.102640.

Yermack, D., 2009. Deductio' *ad absurdum*: CEOs donating their own stock to their own family foundations, *Journal of Financial Economics*, 94(1), 107-123.

Yuan, Y., Tian, G., Lu, L. Y., and Yu, Y., 2019. CEO ability and corporate social responsibility, *Journal of Business Ethics*, 157(2), 391-411.

Zajac, E. J., and Westphal, J. D., 1995. Accounting for the explanations of CEO compensation: Substance and symbolism, *Administrative Science Quarterly*, 40, 283-308.

Zhang, Z., Zhang, B., and Jia, M., 2022. The military imprint: The effect of executives' military experience on firm pollution and environmental innovation, *The Leadership Quarterly*, 33, 101562.