Essays on Corporate Social Responsibility

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Finance

School of Accountancy, Economics and Finance, Massey University

Xiaochi Zhang

2025

Abstract

This thesis comprises three essays advancing the literature on workplace safety, an important component of corporate social responsibility. The first essay examines how generalist CEOs with transferable managerial skills enhance workplace safety. These executives improve safety by optimizing labor investments, reducing employee workloads, and ensuring higher information quality. The relation is more pronounced among firms facing financing constraints or intense market competition. The study also shows that workplace injuries and illnesses reduce innovation, productivity, and firm value.

The second essay explores the impact of shareholder distraction on workplace safety. Distracted shareholders are linked to higher rates of work-related injuries, especially in firms with weak governance and high competition risks. Our findings suggest that reduced monitoring by distracted shareholders leads to lower safety investments, increased workloads, and greater earnings management, resulting in a poorer safety environment.

The third essay investigates how the inclusion of general counsel in top management improves employee safety. Firms with general counsel in senior leadership are associated with lower injury and illness rates. The relation is more pronounced for firms with better information quality, more efficient labor investment, leadership by lawyer CEOs, weaker governance structures, and heightened agency problems.

Overall, these essays provide new insights into how corporate leadership and governance influence workplace safety. The thesis offers contributions to the literature on workplace safety by addressing critical gaps in existing research. This work extends

theoretical frameworks such as upper echelon theory by applying it to the domain of workplace safety. It also underscores the practical implications of aligning leadership capabilities and governance mechanisms to safeguard human capital, ultimately driving sustainable firm performance.

Acknowledgment

I wish to express my greatest gratitude to my supervisors, Associate Professor Harvey Nguyen, Associate Professor Mia Pham, and Professor Sasha Molchanov for their support and guidance throughout my research. Their expertise and constructive feedback have been instrumental in shaping this research. I am also deeply grateful for the opportunities they provided me to gain teaching experience through tutorial classes and work experience in the trading room. In addition, I am thankful to Professor Hung Do for entrusting me with a tutor role and to Associate Professor Russell Gregory-Allen for allowing me to assist in his classes. I also wish to acknowledge the opportunity to present my papers at the New Zealand Finance Colloquium (NZFC), where I was honored to receive the 2024 Best PhD Paper Award. Furthermore, I am pleased to note that the first chapter of this thesis has been published in the *Journal of Behavioral and Experimental Finance*. Finally, I am immensely grateful for the doctoral scholarship from Massey University, which provided essential financial support throughout this journey.

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Chapter One - Introduction

This section provides a summary of the content covered in this thesis. It discusses the motivations for researching workplace safety determinants and highlights the contributions of the three essays. The chapter concludes by outlining the structure of the thesis.

1.1 Introduction

Corporate Social Responsibility (CSR hereafter) is essential for promoting sustainable business practices that align with societal well-being. CSR is predominantly being viewed as a strategic issue to gain competitive advantage (Porter & Kramer, 2006; Zerbini, 2017). By addressing the interests of stakeholders, including employees and communities, CSR initiatives enhance corporate image and contribute to long-term growth and profitability (Ghanbarpour & Gustafsson, 2022; Mochales & Blanch, 2022). Furthermore, CSR benefits shareholders by lowering cash flow risks and protecting against negative events (Godfrey, Merrill, & Hansen, 2009; Nguyen, Kecskés, & Mansi, 2020). Given the crucial implications, CSR has unsurprisingly received numerous research attention.

Within the broader framework of CSR, workplace safety is a core aspect, highlighting the ethical obligation of firms to protect the well-being of their employees. Providing a safe working environment reflects an organization's commitment to valuing human capital and fostering sustainable business operations. Workplace injuries and illnesses not only affect workers' physical well-being but also result in substantial economic costs (EU-OSHA, 2017). These negative impacts include diminished employee motivation, lower retention rates, and productivity losses (e.g., Dai, Tong, & Wang, 2022; Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2009; Kim & Park, 2021; McCaughey, DelliFraine, McGhan, & Bruning, 2013). Conversely, fostering a safer workplace can drive long-term value creation (Cohn & Wardlaw, 2016) and long-run stock return outperformance (Faleye & Trahan, 2011). Addressing workplace safety is not just a regulatory requirement but carries significant financial and social consequences. Thus, identifying factors that influence workplace safety levels would not only contribute to the growing literature in this field, but also provides practical implications.

1.2 Essay one

The upper echelon theory, developed by Hambrick and Mason (1984), argues that the characteristics and experiences of top executives play a crucial role in shaping organizational outcomes. Although research on the influence of CEOs on workplace safety is growing, it remains relatively limited. For example, Qian, Balaji, Crilly, and Liu (2024) find that CEOs with a regulatory focus tend to improve employee safety, while Haga, Huhtamäki, and Sundvik (2022) discover that structurally powerful CEOs are associated with better safety outcomes. Building on this emerging literature, this essay explores a previously overlooked dimension: the impact of executives' general managerial skills on workplace safety.

General managerial skills are developed through exposure to diverse industries and organizations, and such skills are highly valued in the executive market, often commanding a compensation premium (Custódio, Ferreira, & Matos, 2013). CEOs with generalist backgrounds have been shown to influence a wide range of firm outcomes. For example, they promote innovation (Custódio, Ferreira, & Matos, 2019), drive organizational change (Kwak, 2002), improve access to external financing (Hu & Liu, 2015), and effectively address complex and varied challenges (Campbell, Coff, & Kryscynski, 2012; Lazear, 2012).

In this essay, our empirical results indicate that firms with CEOs possessing general managerial skills experience fewer workplace injuries and illnesses, along with fewer safety-related and healthcare-related violation penalties. Generalist CEOs enhance workplace safety by making more efficient labor investments, allocating lighter employee workloads, and demonstrating better firm information quality. The benefit of having a generalist CEO on workplace safety is particularly significant for firms facing tougher market competition or financial constraints.

Our research contributes to the literature in several ways. First, we extend the literature on managerial human capital and its impact on firm performance, which highlights the significant influence of corporate leaders on firm policies and outcomes (e.g., Bertrand & Schoar, 2003; Cronqvist & Yu, 2017). We empirically demonstrate the importance of executives' general managerial skills in the ethical context of employee well-being. Specifically, our study provides new insights into the generalist versus specialist CEO debate, aligning with Custódio *et al.* (2019), who emphasize the role of generalist CEOs in fostering corporate innovation. Additionally, we identify a pathway through which generalist CEOs enhance innovative outcomes: by reducing employee injuries and illnesses.

Second, we contribute to the growing body of research on the factors influencing workplace safety, specifically to the strand of literature examining CEO-related factors (Chen, Ofosu, Veeraraghavan, & Zolotoy, 2023; Qian *et al.*, 2024). While prior literature has explored workplace safety from CEOs' financial incentive perspectives (Chircop, Tarsalewska, & Trzeciakiewicz, 2025; Wu, Li, & Yu, 2023) and psychological perspectives (Chen *et al.*, 2023; O'Sullivan, Zolotoy, Veeraraghavan, & Overbeck, 2024), our study makes a significant contribution by examining it from the perspective of CEOs' career experiences and skillsets. In doing so, we extend the understanding of how senior executives impact workplace outcomes and respond to the call by Babalola *et al.* (2022) for further empirical research on business leadership.

1.3 Essay two

As owners and equity investors, institutional shareholders play important roles in corporate governance and monitoring (e.g., Chen, Harford, & Li, 2007; Kempf, Manconi, & Spalt, 2017). However, their attention is finite and arguably they cannot maintain continuous, high-intensity scrutiny across all their portfolio companies (Fich, Harford, & Tran, 2015; Schmidt, 2019). When institutional shareholders are distracted, there would be lower levels of governance and monitoring.

This diminished monitoring by distracted shareholders can create opportunities for corporate executives to engage in actions that are only beneficial for their personal interests (Kempf, Manconi, & Spalt, 2017) and also give rise to managerial short-termism (Li, Wang, & Wu, 2019). In particular, the over emphasis on short-term financial results can leave employee well-being vulnerable, since maintaining workplace safety requires devoting financial resources.

Our empirical analysis reveals that distracted shareholders are associated with more workplace injuries and illnesses. We observe that when facing looser shareholder monitoring, corporate management tends to cut discretionary safety-related expenditures, allocate heavier employee workloads, and conduct more real earnings management. In addition, we explore CEO-chairperson duality and market competition as moderating factors that influence the magnitude of the relationship.

This study offers two contributions to the literature. First, our paper contributes to the cross-disciplinary studies on various consequences of attention-misallocation (e.g., El Ghoul, Guedhami, Mansi, & Yoon, 2023; Hirshleifer, Lim, & Teoh, 2009; Israeli, Kasznik, & Sridharan, 2022; Maćkowiak, Matějka, & Wiederholt, 2023; Peress & Schmidt, 2020). Our paper is the first to examine the implications of shareholder distraction on workplace safety and employee well-being.

Second, we contribute to the growing body of research on the factors influencing workplace misconduct and employee well-being. While previous studies have identified several firm-level attributes and external factors influencing corporate safety outcomes (e.g., Bradley, Mao, & Zhang, 2022; Caskey & Ozel, 2017; Cohn & Wardlaw, 2016; Cohn, Nestoriak, & Wardlaw, 2021), far less is known about the implications of corporate governance and monitoring perspective on workplace conditions.

1.4 Essay three

The influence of corporate top management on organizational outcomes extends beyond the role of the CEO. Other senior executives also exert meaningful impact. In particular, corporate general counsels have assumed increasingly prominent managerial roles since the enactment of the Sarbanes-Oxley Act (Heineman, 2012; Hsu & Liu, 2024). When general counsels are part of the top management team, firms are more likely to provide improved management earnings forecast disclosures (Kwak, Ro, & Suk, 2012) and engage less in the concealment of negative corporate news (Al Mamun, Balachandran, Duong, & Gul, 2021). However, some scholars have raised concerns that elevating general counsels to top management positions may compromise their traditional role as independent gatekeepers (Ham & Koharki, 2016; Hopkins, Maydew, & Venkatachalam, 2015). In this essay, we investigate how the inclusion of general counsels in top management affects workplace safety outcomes, which is an area of regulatory compliance and carries significant legal implications.

The findings reveal a significant relationship: top management general counsels reduce work-related injury and illness rates. The effect is stronger in firms characterized by better information quality, more efficient labor investment, leadership by lawyer CEOs, weaker governance structures, and heightened agency problems.

The research extends the understanding of general counsels by demonstrating their impact on operational outcomes such as workplace safety, thus adding to the growing body of literature on the strategic roles of general counsels beyond legal compliance. By exploring how general counsels integrate legal expertise with senior executive responsibilities, this research contributes to the ongoing debate about whether such dual roles compromise their governance function or enhance their capacity to positively influence organizational outcomes.

By identifying the presence of legal expertise in top management as a significant determinant of lower workplace injury rates, the study introduces a novel factor influencing workplace safety, which has previously received limited attention in safety literature. While previous studies predominantly focus on the roles of CEOs (e.g., Haga *et al.*, 2022; Qian *et al.*, 2024; Wu *et al.*, 2023), this research is among the first to examine the impact of other senior executive members, specifically general counsels, on workplace safety.

Prior research has documented that GCs in top management play a vital governance role within organizations (e.g., Al Mamun *et al.*, 2021; Hsu & Liu, 2024; Kwak *et al.*, 2012). This paper contributes to that literature by providing additional quantitative evidence to support the governance impact of GCs. These findings have practical implications for corporate policies on structuring executive teams to achieve better governance outcomes. Specifically, the study highlights the importance of leveraging GCs' legal expertise in senior management to foster safer work environments, which can yield both economic and social benefits.

1.5 Research outputs from the thesis

Essay One, *Generalist CEOs and Workplace Safety*

This paper is published in the *Journal of Behavioral and Experimental Finance* (2025).

It has been presented at the following conferences and seminars:

- New Zealand Finance Colloquium (2023)
- School of Economics and Finance Seminar at Massey University (2023)
- New Zealand Finance Colloquium (2024) – *Recipient of the Best PhD Paper Award*

Essay Two, *Shareholder Distraction and Workplace Safety*

This paper is currently undergoing a revise-and-resubmit process at the *Journal of Contemporary Accounting and Economics*. It has been presented at:

- School of Economics and Finance Seminar at Massey University (2023)
- New Zealand Finance Colloquium (2024)

Essay Three, *Top Management General Counsel and Workplace Safety*

This paper is currently under review at the *Corporate Governance: An International Review* journal and has not yet been presented at any academic conferences.

1.6 Structure of the thesis

The remainder of the thesis proceeds as follows. Chapter Two examines the impact of generalist CEOs on workplace safety. Chapter Three investigates the impact of shareholder distraction on safety outcomes. Chapter Four explores how including a general counsel in top management teams impacts workplace safety. Chapter Five concludes the thesis by presenting the major findings and practical implications of each of the three essays.

Chapter Two - Essay One "Generalist CEOs and Workplace Safety"

This chapter introduces the first essay, which examines the influence of generalist CEOs on workplace safety. Section 2.1 presents the essay's introduction. Section 2.2 discusses relevant literature and hypothesis development. Section 2.3 describes the data and methodology. Section 2.4 reports the empirical results. Section 2.5 offers discussions. Section 2.6 concludes this chapter.

Statement of Contribution Form – Essay One

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Student name:	Xiaochi Zhang
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In which chapter is the manuscript/published work?	Essay One in Chapter Two

Describe the contribution that the student and members of the supervisory team have made to the manuscript/published work:[1]

Tony discussed the research ideas with his supervisors and they mutually agreed on the topic of Essay One in Chapter Two. Tony gathered and cleaned the datasets. He conducted all the empirical analyses and produced results. In weekly meetings, Tony's supervisors reviewed his findings and answered to his questions. He wrote the draft working paper. The whole team discussed and revised the paper for journal submission.

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[1] Refer to the Massey University Publishing and Authorship guidelines (OneMassey for staff, Stream for students) and/ or Contributor Roles Taxonomy (CRediT) guidelines for guidance.

Abstract of Essay One

Businesses are expected to operate as responsible corporate entities, with employee safety serving as a cornerstone of this responsibility. Executives, as corporate leaders, bear moral and ethical obligations to ensure the well-being of their workforce. Drawing on human capital and upper echelons theories, we examine the influence of executives' transferable skills on workplace safety outcomes. We find that chief executive officers (CEOs) with general managerial human capital, as opposed to those possessing highly specialized skills tailored to a specific firm, significantly contribute to the creation of safer work environments. The relation is more pronounced in firms facing financing constraints or intense market competition. These CEOs improve safety outcomes by making more prudent labor investment decisions, reducing employee workloads, and maintaining high information quality. We further document that work-related injuries and illnesses lead to reduced innovation outputs, lower productivity, and diminished firm value. Overall, our study underscores the pivotal role of CEOs' general managerial human capital in promoting employee well-being and mitigating the potential adverse consequences of occupational hazards on firm performance.

2.1 Introduction

Businesses are expected to act responsibly, with ensuring employee safety being a fundamental aspect of this responsibility. CEOs, as strategic leaders, have both ethical obligations to safeguard their workforce and a strategic role in aligning safety practices with long-term business goals. Prioritizing employee safety yields direct benefits for shareholder returns and firm value (Cohn & Wardlaw, 2016; Edmans, 2011). However, the extent to which CEOs prioritize safety may vary depending on their individual managerial skills and experiences.

Company executives accumulate human capital through their professional experiences, which play a critical role in the success and performance of business operations (Hambrick, 2007; Helfat & Martin, 2015; Nasirov, Li, & Kor, 2021). According to upper echelons theory, the characteristics and experiences of top executives shape their decision-making and organizational outcomes. In today's ever-changing business landscape, there is an increasing demand for generalist executives with broad experiences, as they possess the adaptability to thrive in diverse environments and tackle complex challenges (Custódio *et al.*, 2013). Generalist executives are better equipped to approach problems from multiple perspectives and draw on a wide range of skills to make informed decisions across various functional areas (Custódio *et al.*, 2013). However, how these attributes influence workplace safety remains underexplored. Our research aims to address this gap by investigating the impact of CEOs' general managerial skills on workplace safety outcomes.

Workplace safety has substantial ethical and social implications since it is directly linked to human physical suffering. According to the International Labor Organization (ILO), each year, over 2.9 million fatalities are attributed to work-related diseases and injuries globally, with more than 395 million workers sustaining non-fatal work injuries (International Labor Organization, 2023). Additionally, failing to maintain a safe working environment can have significant financial consequences.[1] The importance of workplace safety has been further magnified by the COVID-19 pandemic, which has underscored health and safety concerns.[2] From a firm's perspective, workplace safety not only reflects how employees are treated but also indicates the effectiveness of the company's operational risk management and corporate ethical culture. This, in turn, can influence employee morale and directly impact operational outcomes.

Anecdotal evidence suggests that some generalist CEOs have successfully led companies with outstanding safety records. A notable example is David Cote, who served as CEO of Honeywell from 2002 to 2017. As a generalist with a diverse background, Cote held various prior roles at General Electric, TRW Inc., and AlliedSignal, gaining experience across multiple industries. Under his leadership, Honeywell consistently ranked among the top companies for safety performance,

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[1] According to the European occupational safety and health administration, workplace accidents' economic costs amount to 3.3% of GDP (EU-OSHA, 2017).

[2] A recent survey conducted by Deloitte reported that 75% of employees prioritized well-being, underscoring the growing importance of workplace safety. The Deloitte's survey detail is available at: https://www2.deloitte.com/employee-wellness-in-the-corporate-workplace.html (retrieved on August 20, 2024).

earning recognition from several reputable sources such as the National Safety Council and Occupational Safety and Health Administration (Honeywell, n.d.). However, the relation between generalist CEOs and workplace safety is not necessarily positive. For instance, SpaceX, under the leadership of the renowned generalist Elon Musk, has faced scrutiny over its safety record (Taylor, 2023). This contrast highlights the need for further empirical investigation into the impact of generalist CEOs on workplace safety.

In this study, we analyze the impact of CEOs' general managerial skills on workplace safety. Our empirical analyses reveal that generalist CEOs are associated with lower injury and illness rates. This effect is both statistically and economically significant. Specifically, firms led by generalist CEOs exhibit 12.72% lower rates of work-related injuries and illnesses compared to those led by non-generalist executives, based on the sample mean. We employ several methods to address potential endogeneity concerns and ensure the robustness of our findings. Furthermore, the effect is more pronounced for firms facing intense market competition or stricter financial constraints.

To investigate how generalist CEOs improve workplace safety, we examine three potential mechanisms: (i) optimizing labor investments, (ii) alleviating employee workloads, and (iii) maintaining high information quality. Generalist CEOs' diverse skills and experiences enable effective hiring practices, decreasing injuries by reducing the number of inexperienced new hires. Efficient labor investment strategies also alleviate workloads, lowering physical stress and injury rates. Additionally, their broad career experiences help mitigate information asymmetry through extensive social networks (Hu & Liu, 2015). This enhances the flow of information within the organization, allowing managers to better assess the costs and benefits of workplace safety, access valuable data for work planning, and improve investment efficiency (Hope, Wang, Yue, & Zhao, 2022). Collectively, these factors contribute to safer workplaces. Our findings support these channels, highlighting the importance of generalist CEOs' skills in promoting safety.

We further examine the economic implications of workplace safety, particularly the adverse effects of injuries and illnesses on innovation, productivity, and firm value. We find that generalist CEOs mitigate the value-destructive impact of such injuries and incur fewer penalties related to safety and healthcare violations.

The remainder of the paper is structured as follows. Section 2.2 reviews the related theories and develops the hypotheses. Section 2.3 describes the data, sample selection, and variable construction. Section 2.4 presents the empirical findings. Section 2.5 provides a discussion of the results. Finally, Section 2.6 concludes the paper.

2.2 Literature and hypothesis

2.2.1 Workplace safety

Research on workplace safety suggests that improving safety is not only a moral imperative but also carries significant economic costs and benefits. Wu *et al.* (2023) find that safer workplaces reduce employees' psychological burnout, whereas unsafe workplaces are associated with job dissatisfaction and higher turnover intentions (Danna

& Griffin, 1999; McCaughey *et al.*, 2013). While the existing literature has primarily examined the negative financial implications of workplace safety on firm value (Amin, Kim, & Lee, 2021; Cohn & Wardlaw, 2016), other potential economic consequences remain underexplored. In Section 2.4.7, we provide further insights into the broader implications of workplace safety, particularly its relationship with innovation output and productivity.

Due to the substantial ramifications, researchers have a keen interest in investigating the factors that impact workplace safety. For instance, Caskey and Ozel (2017) highlight that the pressure to meet earnings expectations can result in increased workloads, leading to a higher incidence of workplace injuries and illnesses. Similarly, Cohn and Wardlaw (2016) emphasize that financing constraints may compromise workplace safety, as maintaining safety often requires substantial financial resources. External monitoring mechanisms, such as analysts, have also been shown to enhance workplace safety, particularly in firms with weak internal governance and low union representation (Bradley *et al.*, 2022). Additionally, Heese, Pérez-Cavazos, and Pérez-Silva (2023) introduce an unconventional factor, suggesting that regulators' mood, as influenced by sunny weather, can affect their assessments of workplace safety violations. Other factors such as local religiosity (Amin *et al.*, 2021), private equity buyouts (Cohn *et al.*, 2021), and higher shareholder litigation threats (Gong, Guo, & Wang, 2023) have been identified as contributors to improved worksite safety. However, certain executive equity incentives may encourage safety-related violations (Chircop *et al.*, 2025), while CEOs with inside debt are more financially aligned to prioritize safety (Wu *et al.*, 2023). Furthermore, companies with strong organizational cultures tend to exhibit better safety levels (Haga, Huhtamäki, Sundvik, & Thor, 2024). Collectively, these studies underscore the multifaceted nature of financial and non-financial factors that shape workplace safety outcomes.

2.2.2 Theoretical framework

The human capital and upper echelons theories can serve as potential theoretical frameworks for our study. Human capital theory, initially proposed by Becker (1962), posits that individuals' knowledge, skills, and experiences function as investments akin to physical capital, enhancing their productivity and economic value. Managers possess a distinct combination of human capital essential for navigating complex organizational environments. Research demonstrates that variations in managerial human capital can lead to significant differences in firm performance and outcomes (e.g., Finkelstein, 2009; Gruber, MacMillan, & Thompson, 2013). As Helfat and Martin (2015) emphasize, managerial capabilities, deeply rooted in human capital, are critical in shaping corporate strategies and driving organizational success.

General managerial skills are a crucial component of managerial human capital, encompassing a wide range of competencies that extend beyond firm-specific knowledge. As Campbell *et al.* (2012) and Lazear (2012) emphasize, the versatility of these skills enables leaders to address diverse challenges effectively. The value of this breadth of expertise is reflected in the market, with generalist CEOs often receiving higher compensation than their specialist counterparts (Custódio *et al.*, 2013). Empirical evidence further supports this, showing a positive association between general managerial ability and corporate performance (Kaplan, Klebanov, & Sorensen, 2012). Additionally, generalist CEOs are more likely to drive innovation (Custódio *et al.*, 2019) and implement significant organizational changes due to their diverse industry perspectives (Kwak, 2002). Therefore, general managerial skills represent a vital component of managerial human capital, contributing to enhanced organizational performance.

Hambrick and Mason (1984) developed the upper echelons theory, which posits that the characteristics and experiences of top executives play a crucial role in shaping organizational outcomes. According to this theory, senior leaders' strategic decisions are influenced by their individual backgrounds, such as career experiences and personal histories, that act as cognitive filters through which they interpret information and make choices (Hambrick, 2007). These attributes ultimately shape organizational strategies and performance, suggesting that organizations are, in many ways, a reflection of their top managers. For instance, companies led by CEOs with early-life disaster experiences tend to exhibit enhanced socially responsible corporate behavior, as these CEOs often undergo psychological growth through trauma, developing a stronger sense of responsibility toward others and a greater desire to maintain strong relationships (O'Sullivan, Zolotoy, & Fan, 2021). This aligns with the upper echelons theory, illustrating how personal experiences shape executive decision-making and organizational outcomes.

In line with the upper echelons theory, managerial characteristics play a crucial role in influencing workplace safety (e.g., Haga *et al.*, 2022). The attitudes managers hold toward safety (Rundmo & Hale, 2003) and the safety policies they implement (Sawacha, Naoum, & Fong, 1999) are pivotal in shaping safety outcomes. Furthermore, management's actions regarding safety are identified as a key factor in shaping workers' commitment to a safety culture (Cox & Tomas, 1998). Recent literature suggests that regulatory-focused CEOs contribute to safer workplaces (Qian *et al.*, 2024), and CEOs who are perceived as greedy tend to uphold better workplace safety standards to mitigate potential reputational and financial risks associated with safety failures (O'Sullivan *et al.*, 2024).

Moreover, executives influence the behavior of others within the company, which can solidify a strong safety culture (Tucker, Ogunfowora, & Ehr, 2016). Research indicates that CEOs' structural power and leadership style can significantly enhance the effectiveness of safety policies (Haga *et al*., 2022). For instance, CEO humility is associated with a leadership style that promotes ethical practices, potentially leading to better safety outcomes (Cortes-Mejia, Cortes, & Herrmann, 2022; Parboteeah & Kapp, 2008). Conversely, traits like CEO overconfidence have been linked to diminished workplace safety due to increased employee workload and a weaker safety culture (Chen *et al.*, 2023).

In the context of our study, the upper echelons theory and human capital theory offer insights into how general managerial skills might influence workplace safety. According to upper echelons theory, the broad range of managerial skills and experiences that generalist CEOs bring from various industries can shape their strategic decisions and leadership style. Human capital theory further reinforces this by highlighting that these diverse skills and experiences represent a form of valuable managerial human capital, enhancing the CEO's ability to address complex challenges. A generalist CEO's comprehensive and versatile approach to management, grounded in their rich human capital, may enable more capable safety management.

2.2.3 Hypothesis development

Considering the relevant literature on executives' general managerial skills, we expect that generalist CEOs can better safeguard employees for several reasons. First, CEOs with broader career experiences are likely to have better access to external financing (Hu & Liu, 2015). Since financing plays a critical role in improving workplace safety (Cohn & Wardlaw, 2016), these CEOs can leverage their networks to secure funding for safety initiatives. This enables them to invest in advanced safety measures, training programs, and audits, ultimately fostering a safer work environment for employees.

Second, generalist executives' diverse career experiences contribute to improved cognitive flexibility, which allows them to consider a wider range of perspectives when making decisions (Furr, Cavarretta, & Garg, 2012). This adaptability is particularly relevant in safety-related contexts where risk assessment is crucial. Overconfidence is a common cognitive bias that can lead to risky decisions (Lee, Park, & Chen, 2023). By being more open to alternative perspectives and adaptable in their decision-making, generalist CEOs are more likely to approach safety-related decisions with caution, carefully assess risks, and consider input from various stakeholders. This reduces the likelihood of overconfident behavior that could compromise workplace safety, as documented by (Chen *et al.*, 2023).

Lastly, effective communication and coordination result in safer workplaces (Gittell, 2002; Pagell, Klassen, Johnston, Shevchenko, & Sharma, 2015), and generalist CEOs are likely to have developed better interpersonal skills through exposure to different professional settings (McCall, 2004). These skills enable them to foster collaboration and open communication, leading to the swift implementation of safety protocols and improved workplace safety standards. Thus, we present the first hypothesis:

H2.1: CEOs with general managerial skills significantly improve workplace safety levels.

Next, we delve deeper into factors that can influence this relationship. Ensuring safe working environments necessitates management's focus and sufficient financial resources. Market competition is a factor that can lead to corporate unethical behavior (Shleifer, 2004). When companies face competition risks, worker productivity is prioritized at the sacrifice of worker well-being (McManus & Schaur, 2016). In addition, Aghion, Van Reenen, and Zingales (2013) propose that heightened market competition can raise executives' career concerns, as increased competition reduces the probability of success. Consequently, intense market competition may cause executives to shift their focus away from workplace well-being. However, generalist CEOs have a broader range of career options (Custódio *et al*., 2019) and may be less affected by market competition compared to non-generalists.

Furthermore, financing constraints are crucial factors impacting safety levels at workplaces (Cohn & Wardlaw, 2016). The easing of financial constraints contributes to higher levels of corporate social responsibility (Attig, 2024), and can potentially enable executives to enhance safety-related investments. As indicated by Hu and Liu (2015), generalist CEOs tend to have superior access to external financing. Consequently, when non-generalist executives encounter limitations in financial resources, generalists are better positioned to secure financing and make essential safety-related investments. Therefore, we develop the second hypothesis:

H2.2: The relationship between generalist CEOs and workplace safety is moderated by market competition and financing constraints.

2.3. Data and methodology

2.3.1. Workplace injury and illness measures

We obtain work-related injuries and illness data from the U.S. Occupational Safety and Health Administration (OSHA). OSHA established an annual OSHA Data Initiative (ODI) program, which collected reportable injury data from workplace establishments in the U.S. from 1996 to 2011.[3] The program was discontinued in 2012 due to federal funding

[3] The data from OSHA are available on the agency's official website: https://www.osha.gov/ords/odi/establishment_search.html.

cuts. Additionally, OSHA significantly changed its injury reporting standards in 2002, making data from prior years incomparable. As a result, our sample period covers the years 2002 to 2011. Notably, this sample source and period align with those used in many recently published influential studies, such as Amin *et al.* (2021), Bradley *et al.* (2022), Chen *et al.* (2023), and O'Sullivan *et al.* (2024).

OSHA's injury data is collected at the establishment level. An establishment refers to a specific physical operational site of a company, such as a factory or a warehouse. A single company may operate multiple establishments. Each year, OSHA collects injury reports from approximately 80,000 private sector establishments. The data includes relevant information about each establishment, such as its name, location, number of employees, total hours worked, and indicator variables for employee strikes, production shutdowns, seasonal businesses, and natural disasters.

Our main dependent variable of interest, the total case rate (TCR), is calculated as the sum of injury and illness incidents divided by the total hours worked by all employees in a given establishment per year, multiplied by 200,000.[4] Thus, the TCR represents the injury and illness rate per 100 full-time workers. This measure is officially recognized and used by OSHA.

We also consider an alternative measure of workplace injuries, the DART rate, which captures the rate of severe injury cases that result in days away from work, restricted duty, or job transfer.[5] We use injury rates rather than the total number of injury cases as dependent variables because the total number heavily depends on establishment size and may not accurately reflect injury trends (Amin *et al.*, 2021; Bradley *et al.*, 2022).

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[4] TCR's sum of injuries and illnesses incidents is the sum of columns G, H, I, and J in the OSHA ODI's data spreadsheet. The rationale for multiplying by 200,000 is that an average worker works approximately 40 hours per week and 50 weeks per year, totaling 2,000 hours annually.

[5] DART (Days Away, Restricted, or Transferred) is calculated similarly to TCR, except that the injury incidents consist only of columns H and I in the OSHA's data.

Furthermore, to conduct a comprehensive analysis, we examine workplace injury measures (i.e., TCR and DART) at both the establishment level and the firm level, with firm-level measures representing the average values across all establishments within a firm.

2.3.2. Generalist CEO measures

The general scope of the CEO's human capital is measured based on the breadth and transferability of their prior work experiences (Custódio *et al*., 2013). Following Custódio *et al*. (2013), we construct the General Ability Index (GAI) using five independent variables: (i) the number of positions, (ii) firms, and (iii) industries the CEO has worked in, (iv) a CEO experience dummy, which equals one if the executive has worked as a CEO previously at another company, and (v) a conglomerate experience dummy, which equals one if the CEO has worked for a conglomerate firm. The GAI is calculated using the following equation:

$$GAI_{i,t} = 0.268 \times X1_{i,t} + 0.312 \times X2_{i,t} + 0.309 \times X3_{i,t} + 0.218 \times X4_{i,t} + 0.153 \times X5_{i,t} \qquad (2.1)$$

Each of the five independent variables serves as a proxy for general managerial skills. CEOs with broader experiences develop more general and transferable skills through exposure to different business environments and by dealing with diverse challenges. Custódio *et al*. (2013) derive the beta weights using principal component analysis and employ the regression scoring coefficients as betas. A higher general ability index (GAI) indicates a higher level of generalist skills.[6] Following Custódio *et al*. (2013), we classify CEOs with a GAI above the annual median as generalists and the remaining as non-generalists. This GAI median dummy serves as the primary explanatory variable. Unlike the raw GAI index, the median dummy measures generalists on a relative scale.

[6] Their measure has been intensively verified in several subsequent studies (e.g., Betzer, Lee, Limbach, & Salas, 2020; Chen, Liu, Song, & Zhou, 2020; Ma, Ruan, Wang, & Zhang, 2021).

In addition, we use the industry-adjusted GAI as an alternative explanatory variable. The adjusted value is calculated as the difference between the GAI and the annual industry mean, scaled by the annual industry standard deviation. Since injury levels can vary across industries, the industry-adjusted measure facilitates cross-industry comparisons.

2.3.3. Firm-level control variables

We first link the establishment name in the OSHA injury data to its parent firm using the linking file provided by Caskey and Ozel (2017).[7] We then merge the financial data from Compustat with the injury dataset based on firm identifier and year. We include relevant control variables following the workplace safety literature to isolate the effect of the primary independent variable. Specifically, as Cohn and Wardlaw (2016) suggest, financing constraints significantly impact workplace safety as financial resources are essential for making safety-related expenditures and investments. We, therefore, include several variables that represent financing constraints, such as firm size, leverage ratio, cash holdings, dividends, and free cash flows. In addition, employees in production involving physical assets may be more susceptible to injuries than those in service industries (e.g., Cohn & Wardlaw, 2016). Thus, asset tangibility and capital expenditures are included as additional control variables. The market-to-book ratio reflects the firm's growth rate, and faster growth may be associated with employee inexperience and worker shortages, potentially increasing injury rates. The asset turnover measures asset utility, which reflects potential employee workload and work pressure, can be associated with workplace safety, and hence serves as another control variable (Amin *et al*., 2021; Bradley *et al*., 2022).

[7] We thank Bugra Ozel for sharing the data. The establishment name and gvkey linking file is available at: https://sites.google.com/view/bugraozel/data.

These variables are scaled by total assets, consistent with the literature (e.g., Liang, Qi, Zhang, & Zhu, 2023). In addition, as Bradley *et al*. (2022) note, the number of analysts following a firm has a meaningful impact on workplace safety. Therefore, we add the analyst coverage variable into the regressions as a relevant control variable. We source analyst coverage data from the IBES Institutional Brokers' Estimate System database. Overall, our control variables align with prior literature (e.g., Amin *et al.*, 2021; Cohn & Wardlaw, 2016).

2.3.4. Sample selection and descriptive statistics

Our sample period spans from 2002 to 2011, determined by the availability of OSHA's workplace survey data. The sample comprises companies from the Standard & Poor's 1,500 index, which represents over 90% of the U.S. equity market. To reduce the influence of micro-cap firms, we exclude observations with fiscal year-end closing stock prices below $1, consistent with the approach used by Pham (2020). Following prior literature (e.g., Cohn & Wardlaw, 2016; Caskey & Ozel, 2017), we also exclude firms in the utility and financial industries.[8] This exclusion is further justified by the fact that OSHA's injury survey does not cover financial firms, as they are classified as low-hazard workplaces. In line with common practice, we winsorize all continuous variables at the 1% and 99% levels to minimize the potential impact of outliers. After applying these filters, the final sample consists of 64,530 establishment-year observations and 4,969 firm-year observations with sufficient data on general ability measures.

Table 2.1 presents the summary statistics. Detailed explanations of the variables are available in the Appendix.[9] The TCR, which measures the injury rate per 100 full-time

[8] Utility firms have the standard industry classifications (SIC) between 4900 and 4999; financial firms have SIC codes between 6000 and 6999.
[9] OSHA's injury data and establishment information are at the establishment level, while the Compustat

employees, has a mean of 7.7 cases at the establishment level. When aggregated to the firm level, the mean TCR for parent firms is 5.6 cases. The DART injury rate, which accounts for severe injuries, has a mean of 5.2 at the establishment level and 3.5 at the firm level. On average, an establishment in our sample has approximately 280 employees and 1,927 annual working hours per employee. These statistics align with those reported in prior studies (Amin *et al.*, 2021; Haga *et al.*, 2022). The GAI index in our sample has a mean value of 0.055 and a standard deviation of 0.892.

Appendix A2 provides industry-level sample information based on the Fama-French 12 industry classification. We observe that the wholesale and retail sector has the highest number of establishment-year observations. The table also reports the TCR injury and illness rate, along with the general ability index for each industry. Notably, the healthcare sector has the highest TCR injury and illness rate while exhibiting a very low CEO general ability index. If we exclude observations from healthcare sector, the baseline regression results remain robust.

financial variables, generalist CEO measures, and the transformed firm injury data are at the firm level. For a comprehensive investigation, we consider the workplace injury measures at both the establishment level and firm level, where the firm-level measures are the average values across establishments in a firm.

Table 2.1: Summary statistics

	N	Mean	Std. Dev.	P25	Median	P75
Establishment-level safety variables						
TCR (Establishment)	64,502	7.713	6.637	2.671	6.164	11.01
DART (Establishment)	64,503	5.150	5.112	1.185	3.735	7.606
Firm-level safety variables						
TCR (Firm)	4,969	5.649	4.812	1.985	4.435	8.345
DART (Firm)	4,969	3.514	3.494	0.882	2.471	5.138
Firm-level generalist variables						
GAI General Ability Index	4,969	0.055	0.892	-0.603	-0.106	0.612
GAI Median Dummy	4,969	0.491	0.500	0	0	1
GAI Industry Adjusted	4,900	0.000	0.970	-0.728	-0.186	0.614
Firm-level control variables						
Ln(Assets)	4,843	7.959	1.609	6.796	7.797	8.999
Leverage	4,782	0.222	0.161	0.103	0.209	0.315
Tangibility	4,842	0.273	0.177	0.134	0.230	0.377
Sales/Assets	4,843	1.184	0.686	0.739	1.021	1.441
CAPEX/Assets	4,838	0.044	0.033	0.021	0.034	0.057
Market to Book	4,213	1.640	0.724	1.125	1.431	1.937
FCF/Assets	4,602	0.074	0.071	0.037	0.072	0.117
Cash/Assets	4,843	0.112	0.112	0.028	0.073	0.158
Dividends/Assets	4,837	0.013	0.0174	0	0.007	0.019
Ln(Analyst)	4,903	2.134	0.770	1.609	2.197	2.708
Ln(Delta)	4,165	5.512	1.499	4.617	5.557	6.449
Other firm-level variables						
Inv_Eff	4,089	-0.107	0.157	-0.120	-0.068	-0.035
Inv_Eff Ind. Adj.	4,089	0.183	0.732	0.101	0.370	0.542
Ln(Production per Employee)	4,317	5.171	0.751	4.690	5.080	5.533
Ln(Revenue per Employee)	4,703	5.611	0.681	5.196	5.552	5.956
High-Low Spread	4,306	0.009	0.004	0.006	0.008	0.010
FSD Score	4,963	0.026	0.008	0.021	0.026	0.031

This table presents descriptive statistics. The establishment-level sample has 64,530 observations, while the firm-level sample has 4,969 observations. Detailed descriptions of the variables are available in the Appendix.

2.3.5. Baseline regression model

We employ the following equation in our baseline OLS regressions:

$$Injury\ Rates_{i,t} = \alpha_0 + \beta_1\ Generalist\ CEO\ Measures_{i,t} + \beta\ Control\ Variables_{i,t} + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \quad (2.2)$$

In this equation, for firm *i* and time *t*, injury rates are measured using either the

TCR (Total Case Rate) or the industry-adjusted TCR.

We utilize several measures to capture the presence of generalist CEOs, including (i) the GAI (General Ability Index) median dummy variable, (ii) the raw GAI, and (iii) the industry-adjusted GAI. We control for industry- and year-fixed effects following prior literature (Qian *et al.*, 2024). Industry fixed effects account for potentially omitted and unobserved characteristics specific to each industry, such as industry-specific safety regulations. Year fixed effects capture overall safety trends common across all companies, as we observe a gradual decline in injury levels over time. These year fixed effects are essential because the gradual change in safety levels is not explicitly modeled by other independent variables in the regressions. In the context of fixed effects, the constant term, α_0, refers to the intercept associated with each group. This intercept provides a baseline value for the regression line when all independent variables are zero. Across all models, we use heteroskedasticity-robust standard errors to enhance the reliability of statistical inference.

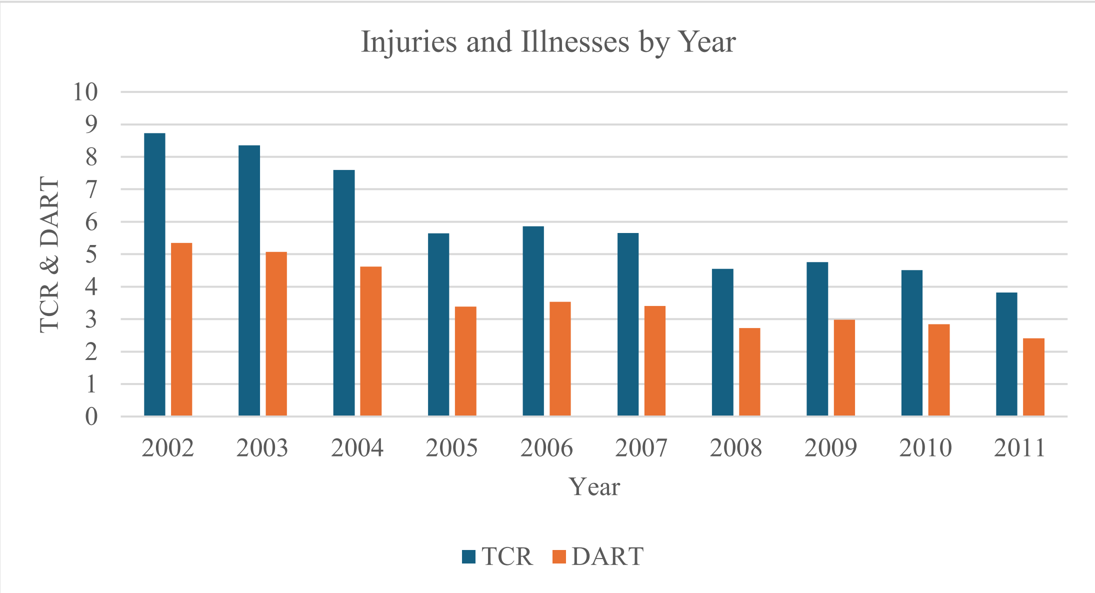
2.4. Results

2.4.1. Univariate analysis

To provide a preliminary overview, we present a visual representation of injury rates over time and across various levels of CEO general ability. Figure 2.1 displays injury rates by year, revealing a consistent decline from 2002 to 2011. Specifically, the TCR injury rate dropped from 8.7 in 2002 to 3.8 in 2011.

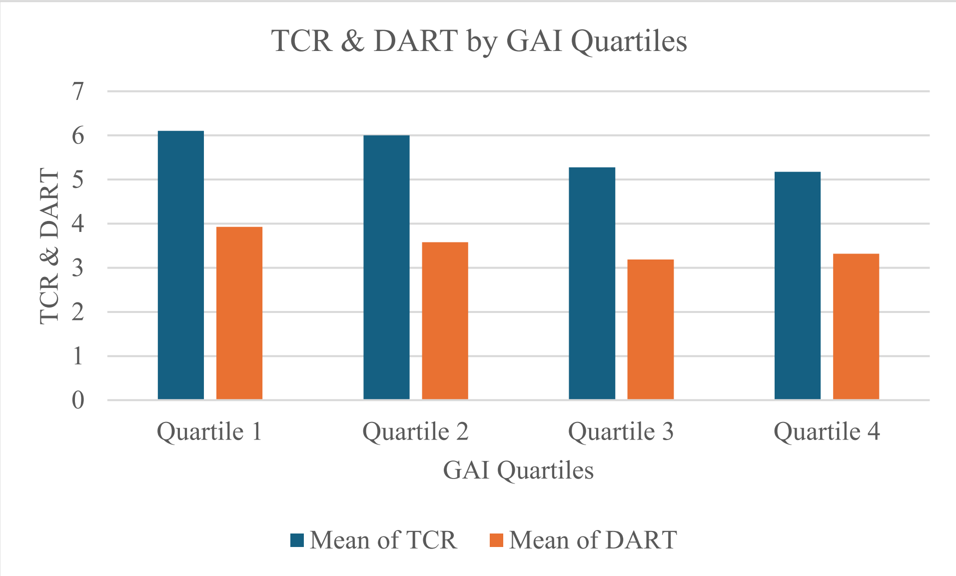
Figure 2.2 presents injury rates by GAI quartiles. The GAI quartiles are calculated annually to account for temporal variations in GAI values. Both TCR and DART rates are lower in higher GAI quartiles, suggesting that firms managed by CEOs with higher general ability indexes tend to have lower employee injury rates. The differences in injury rates between the highest and lowest GAI quartiles are statistically significant at the 1% level. Specifically, the highest GAI quartile has, on average, 0.93 fewer TCR injuries and 0.61 fewer DART injuries per establishment compared to the lowest quartile. Overall, the univariate analysis results provide preliminary evidence of a negative relationship between CEOs' general skills and workplace injury rates.

Figure 2.1: Workplace injuries and illnesses by year



This figure presents workplace injuries and illnesses by year, during the period from 2002 to 2011. The bar representing TCR is on the left side of each year, while the DART is on the right.

Figure 2.2: TCR and DART injury rates across GAI-sorted portfolios



	GAI Quartiles					
	(1)	(2)	(3)	(4)	(5)	(6)
	Quartile 1 Lowest GAI	Quartile 2	Quartile 3	Quartile 4 Highest GAI	(1) – (4)	t-statistics (*p*-value)
TCR	6.1057	6.0019	5.2770	5.1781	0.9276***	$t = 4.79$ ($p = 0.00$)
DART	3.9303	3.5796	3.1897	3.3216	0.6087***	$t = 4.19$ ($p = 0.00$)

This figure presents the average values of TCR and DART injury rates across general ability index (GAI) quartile portfolios. The GAI quartiles are calculated annually to account for the time variations of the GAI values. The bar representing TCR is on the left side of each quartile, while the DART is on the right. The table following the figure displays the mean values of injury rates for each GAI quartile. Column (5) examines the difference between the lowest and highest GAI quartile, and the resulting *t*-statistics and *p*-values are reported in Column (6).

2.4.2. Baseline regression results

Table 2.2 presents the results of the baseline regression equation (2.2), which estimates the relationship between CEOs' general managerial skills and workplace injury rates. Panels A and B report the results for the establishment-level and firm-level analyses, respectively.[10] We present two sets of models: one includes only the key independent variables of interest without controls (models 1, 3, and 5), and the other includes all control variables (models 2, 4, and 6). Overall, all three measures for generalist CEOs exhibit negative relationships with the injury measures in both the establishment-level and firm-level analyses. The relationship is statistically significant at the 1% level. While statistical significance indicates the likelihood that the relationship is not due to chance, economic magnitude emphasizes the scale of the impact.

To elaborate on the economic magnitude, Column (2) of Panel A suggests that, on average, establishments led by generalist CEOs are associated with 0.981-unit lower TCR injury rates compared to those led by non-generalist CEOs. This reduction of 0.981 TCR units corresponds to a 12.72% decrease relative to the sample mean or a 0.148 standard deviation improvement in TCR.[11] The magnitude of this effect is economically meaningful and comparable to the impact of other determinants documented in the literature. For instance, Liang *et al*. (2023) find that public listing on an exchange reduces establishments' TCR by 1.147 units. Similarly, Gong *et al.* (2023) demonstrate that safety levels deteriorate following the enactment of Universal Demand (UD) laws, which limit shareholders' ability to sue company executives. Specifically, in states without such laws, TCR is, on average, 0.95 units lower, representing a 10.0% reduction relative to their sample mean.

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[10] Firm-level TCR injury rate is the simple mean of reported establishments' values.
[11] 12.72% = 0.981/ 7.713 (the sample average); 0.148 = 0.981 / 6.637 (the sample standard deviation).

Additionally, according to Column (4) of Panel A, a one-unit increase in the general ability index (GAI) is associated with a 0.497-unit decrease in the TCR injury rate. Given that the GAI's standard deviation is 0.892, a one-standard-deviation increase in the GAI leads to approximately 0.443 fewer reported cases per one hundred full-time employees.[12] Since the mean TCR injury rate is 7.713 at the establishment level, this reduction of 0.443 cases corresponds to an approximately 5.74% decrease in the injury rate.[13] Prior studies suggest that this effect is both economically and practically significant. To provide further context, Cohn and Wardlaw (2016) discover that a one-standard-deviation decrease in leverage is associated with a similar magnitude of change in the injury rate, which is 5.6% relative to the sample mean. Thus, our documented effect of general managerial skills on injury rates is at least equally important as the impact of firm-level attributes reported by Cohn and Wardlaw (2016).

[12] This number is calculated as follows: 0.443 cases = 0.497 × 0.892 (where 0.892 is the standard deviation of GAI).

[13] This number is calculated as follows: 5.74% = 0.443 / 7.713 (the sample average).

Table 2.2: Generalist CEOs and workplace safety

Panel A: Establishment-level analyses

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*	(4) *TCR*	(5) *TCR*	(6) *TCR Ind. Adj.*
GAI Median Dummy	-0.678***	-0.981***				
	(0.116)	(0.061)				
General Ability Index			-0.263***	-0.497***		
			(0.031)	(0.036)		
GAI Industry Adjusted					-0.593***	-0.102***
					(0.031)	(0.005)
Controls:						
Ln(Assets)		0.164***		0.130***	0.149***	0.006
		(0.027)		(0.026)	(0.027)	(0.005)
Leverage		2.176***		1.926***	1.977***	0.336***
		(0.255)		(0.254)	(0.255)	(0.043)
Tangibility		2.076***		2.189***	2.173***	0.170***
		(0.289)		(0.289)	(0.290)	(0.046)
Sales/Assets		-0.234***		-0.311***	-0.328***	-0.046***
		(0.063)		(0.063)	(0.064)	(0.010)
CAPEX/Assets		-1.187		-1.341	-1.840	0.350
		(1.315)		(1.320)	(1.322)	(0.220)
Market to Book		0.649***		0.683***	0.662***	0.118***
		(0.070)		(0.070)	(0.071)	(0.012)
FCF/Assets		-3.038***		-2.979***	-2.666***	-0.665***
		(0.713)		(0.715)	(0.721)	(0.122)
Cash/Assets		6.298***		6.586***	6.797***	0.880***
		(0.467)		(0.470)	(0.473)	(0.082)
Dividends/Assets		-3.300		-3.698*	-1.420	0.179
		(2.052)		(2.052)	(2.062)	(0.359)
Ln(Analyst)		-0.442***		-0.458***	-0.444***	-0.070***
		(0.061)		(0.061)	(0.061)	(0.010)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64,499	57,206	64,499	57,206	56,952	56,939
Adjusted R-squared	0.230	0.238	0.229	0.237	0.239	0.020

Panel B: Firm-level analyses

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*	(4) *TCR*	(5) *TCR*	(6) *TCR Ind. Adj.*
GAI Median Dummy	-0.678***	-0.483***				
	(0.116)	(0.131)				
General Ability Index			-0.396***	-0.320***		
			(0.064)	(0.074)		
GAI Industry Adjusted					-0.294***	-0.066***
					(0.067)	(0.015)
Controls:						
Ln(Assets)		-0.085		-0.074	-0.066	-0.021
		(0.061)		(0.062)	(0.062)	(0.014)
Leverage		1.184**		1.204**	1.199**	0.261**
		(0.470)		(0.470)	(0.472)	(0.109)
Tangibility		0.448		0.414	0.424	-0.116
		(0.659)		(0.659)	(0.667)	(0.133)
Sales/Assets		1.012***		1.012***	1.017***	0.210***
		(0.135)		(0.134)	(0.136)	(0.029)
CAPEX/Assets		-3.288		-3.475	-3.219	-0.376
		(3.262)		(3.268)	(3.293)	(0.700)
Market to Book		-0.150		-0.162	-0.169	-0.046
		(0.129)		(0.129)	(0.130)	(0.029)
FCF/Assets		2.211*		2.211*	2.331*	0.572*
		(1.267)		(1.266)	(1.285)	(0.298)
Cash/Assets		-0.699		-0.657	-0.669	-0.420**
		(0.755)		(0.755)	(0.761)	(0.178)
Dividends/Assets		0.780		1.018	0.900	1.118
		(3.948)		(3.953)	(3.962)	(0.908)
Ln(Analyst)		-0.343***		-0.340***	-0.342***	-0.103***
		(0.124)		(0.124)	(0.125)	(0.029)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,964	3,948	4,964	3,948	3,892	3,892
Adjusted R-squared	0.311	0.356	0.312	0.357	0.354	0.061

This table presents the regression results of TCR injury rates on generalist CEO measures. Panel A reports establishment-level results, while panel B reports firm-level analysis. The dependent variable is the TCR total case rates in Columns (1) to (5), and the industry-adjusted TCR in Column (6). The main explanatory variables of interest are the general ability index (GAI), GAI yearly median dummy, and industry-adjusted GAI. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.4.3. CEO turnover tests

We acknowledge that our findings are potentially subject to endogeneity concerns, which arise when unobserved factors influence both the independent and dependent variables, potentially biasing the results. For instance, unobserved factors might lead firms to hire CEOs with greater general skills while simultaneously contributing to fewer injuries and illnesses. Alternatively, reverse causality could be at play: firms with safer workplaces may prefer to recruit generalist CEOs.

The cases of CEO turnover warrant thorough examination. While such events may not always be entirely exogenous, as some replacements may be driven by the need to acquire CEOs with broader managerial expertise, these events still offer an opportunity to partially mitigate endogeneity concerns. We examine changes in injury rates following CEO turnover and identify two types of turnovers: (1) non-generalist to generalist turnover and (2) generalist to non-generalist turnover. Furthermore, we utilize propensity score matching (PSM), a statistical method that pairs observations with similar characteristics (control and treatment groups) to ensure better comparability within the sample and to reduce selection bias. Specifically, the matching criteria require that the control observation must occur in the same year as the treatment observation. Then, the propensity score is calculated using a logit model, a type of regression suitable for binary outcomes, based on the following variables: *Ln(Assets)*, *Leverage*, *Tangibility*, *CAPEX*, and the 2-digit SIC code. These control variables were selected because they are significant when regressing the General Ability Index (GAI) on the baseline controls, as reported in Appendix A3.[14] The matching caliper is set at 0.01, ensuring that only closely matched

[14] Reported in Appendix A.3, the regression uses GAI General Ability Index as the dependent variable and includes all the baseline control variables as explanatory variables. The regression has industry and year fixed effects and robust standard errors clustered at firm-year. There are four significant determinants of GAI, including firm size, leverage ratio, asset tangibility, and capital expenditure. These are significant at

pairs (within a 1% difference in propensity scores) are compared, consistent with prior research. This process results in 24 and 33 matched pairs, respectively.

We generate an explanatory variable, an interaction term of two dummy variables, to capture the effect of CEO turnovers on workplace safety. Specifically, the first dummy variable, *CEO turnover*, equals one in panel A if the turnover involves a transition from a non-generalist CEO to a generalist CEO, and zero otherwise. In Panel B, this variable equals one if the turnover involves a transition from a generalist to a non-generalist CEO, and zero otherwise. The second dummy variable, *Post*, is defined as the period during or within three years after the turnover occurs. Specifically, *Post* equals one for observations in years *t* to *t*+3 following the turnover and zero for observations in years *t*-3 to *t*-1 prior to the turnover. The interaction term of these two dummy variables captures the combined effect of CEO turnover and the post-turnover period on workplace safety. Specifically, this term reflects whether a CEO turnover (from non-generalist to generalist or vice versa) had an impact on injury rates in the three years following the turnover.

To further address potential endogeneity concerns, we examine the reasons for prior CEO departures. We utilize CEO dismissal reason data from Gentry, Harrison, Quigley, and Boivie (2021). Some CEO departures are due to exogenous reasons such as retirement, illness, death, or new career opportunities, while others are related to job performance or regulatory violations. We conduct separate analyses on two samples: one includes the full sample of all CEO turnover types, and the other is restricted to exogenous turnovers unrelated to job performance or violations. By adding the analyses on exogenous turnovers due to CEOs' personal reasons, we mitigate concerns that CEO dismissals may be directly linked to workplace safety.

Table 2.3 presents the results. In both panels, Column (1) includes the full sample

1% level, while the other variables are insignificant.

of all CEO turnover types. Column (2) restricts the sample to turnovers where the departing reasons are unrelated to job performance or violations. The regression model is consistent with the baseline specification, including the same control variables and fixed effects. The statistically significant results in Panel A suggest that workplace safety improves after a generalist replaces a non-generalist CEO. Based on the results reported in Column (1), on average, the TCR injury rate decreases by 1.082 units annually in the three years following the turnover. Conversely, in Panel B, the main explanatory variable has a significantly positive coefficient estimate in the full sample (Column 1). On average, the TCR injury rate increases by 0.85 units annually after a non-generalist replaces a generalist CEO. However, this coefficient becomes statistically insignificant when the sample is restricted to exogenous turnovers. One possible explanation is that the departing generalist CEO has established strong safety policies, leaving limited room for deterioration under the new leadership. Overall, although the turnover test cannot fully eliminate endogeneity concerns, the results support the conclusion that generalist CEOs contribute to reducing workplace injury rates.

Table 2.3: CEO turnover tests

	Panel A: Non-generalist to generalist CEOs		Panel B: Generalist to non-generalist CEOs	
	(1) All turnovers	(2) Exogeneous turnovers	(1) All turnovers	(2) Exogeneous turnovers
VARIABLES	*TCR*	*TCR*	*TCR*	*TCR*
CEO Turnover × Post	-1.082**	-1.634***	0.850*	0.590
	(0.495)	(0.568)	(0.466)	(0.553)
Controls:				
Ln(Assets)	0.193	-0.694*	0.029	0.481
	(0.352)	(0.395)	(0.270)	(0.339)
Leverage	-2.861	-1.006	2.338	-0.315
	(2.180)	(2.623)	(1.980)	(2.119)
Tangibility	13.054***	6.647**	-6.921***	-3.982
	(3.207)	(3.133)	(2.603)	(3.043)
Sales/Assets	0.396	1.114	1.761***	2.194***
	(0.620)	(0.683)	(0.482)	(0.634)
CAPEX/Assets	-48.259***	-7.174	22.849	8.248
	(14.394)	(14.754)	(16.084)	(16.628)
Market to Book	1.320*	0.519	0.664	0.058
	(0.751)	(0.605)	(0.636)	(0.784)
FCF/Assets	-18.454**	-8.609	0.989	10.183
	(7.107)	(5.945)	(5.304)	(6.174)
Cash/Assets	6.119**	6.013**	-0.172	0.839
	(2.410)	(2.691)	(2.417)	(2.664)
Dividends/Assets	13.323	60.260**	12.905	17.228
	(23.266)	(23.376)	(23.873)	(27.817)
Ln(Analyst)	0.025	0.455	-0.803*	-1.358**
	(0.547)	(0.628)	(0.479)	(0.546)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	229	164	318	263
Adjusted R-squared	0.467	0.489	0.412	0.451

This table presents the regression results of the CEO turnover tests incorporating propensity score matching at the firm level. Panel A examines turnovers from non-generalist to generalist CEOs, while Panel B focuses on turnovers from generalist to non-generalist CEOs. In both panels, Column (1) includes the full sample of all CEO turnover types. Column (2), however, restricts the sample to turnovers where the departing reasons are unrelated to job performance or regulatory violations, such as retirement, illness, death, or new career opportunities. The Post variable is a dummy variable that equals one if the observation is in the year on or within three years after which the turnover happens, and zero otherwise. The dependent variable is the TCR injury rate. Both panels include control variables used in the baseline regressions. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Descriptions of the variables are available in Appendix A.1.

2.4.4. Entropy balancing tests

Entropy balancing is a method designed to address biases related to the functional form of relationships between variables. It achieves covariate balance by reweighting treatment and control observations, ensuring that firms with generalist CEOs and those with non-generalist CEOs are more comparable. This approach reduces the risk of bias arising from differences in firm characteristics and indirectly mitigates certain forms of endogeneity.

In this analysis, the treatment and control groups are distinguished by the generalist CEO median dummy variable. The prespecified balancing conditions include all control variables to ensure a fair comparison between the two groups. This is particularly important because firms with certain characteristics may prefer hiring generalist CEOs, while others may favor non-generalists, leading to systematic differences between the two groups. The entropy balancing technique adjusts the weights of observations, effectively equalizing the mean and standard deviation of the control variables. This ensures that the non-generalist group mirrors the firm characteristics of the generalist group. The balancing efficiency, reported in Appendix A.3, demonstrates how well the matching process has equalized firm characteristics between the two groups, confirming that the groups are well-matched for comparison.

Table 2.4 presents the results of the entropy balancing tests. Consistent with the findings from our baseline regressions, both panels of Table 2.4 demonstrate that generalist CEOs are associated with lower injury rates at both the establishment and firm level.

Table 2.4: Entropy balancing tests

	Panel A: Establishment Level	Panel B: Firm Level
VARIABLES	*TCR*	*TCR*
GAI Median Dummy	-0.511***	-0.377***
	(0.078)	(0.134)
Controls:		
Ln(Assets)	-0.212***	-0.212***
	(0.040)	(0.065)
Leverage	1.057***	1.543***
	(0.344)	(0.495)
Tangibility	3.640***	0.548
	(0.434)	(0.711)
Sales/Assets	-0.600***	0.929***
	(0.083)	(0.137)
CAPEX/Assets	-3.787**	-3.875
	(1.704)	(3.533)
Market to Book	0.976***	-0.349**
	(0.099)	(0.139)
FCF/Assets	-7.258***	1.928
	(0.924)	(1.455)
Cash/Assets	6.830***	-0.054
	(0.615)	(0.891)
Dividends/Assets	-11.679***	2.028
	(2.812)	(4.226)
Ln(Analyst)	0.170	-0.124
	(0.113)	(0.143)
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	57,205	3,948
R-squared	0.280	0.357

This table presents the regression results of the entropy balancing tests. Panel A reports the results for the establishment level, while Panel B reports the results for firm-level analyses. The treatment and control groups are distinguished by the GAI Median Dummy. The balancing variables are all the control variables. The dependent variable is the TCR injury rate. Both panels include control variables used in the baseline regressions. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Descriptions of the variables are available in Appendix A.1. The matching efficiency is reported in Appendix A.4.

2.4.5. Cross-sectional tests

The effect of generalist CEOs on workplace safety may vary across different contexts. As discussed in hypothesis section 2.2.3, we propose two moderating variables that could influence the magnitude of this relationship: product market competition and firm financial constraints.[15]

Our subsamples are constructed based on the sample median of the moderating variables. We first rerun the baseline regressions for each subsample and then utilize seemingly unrelated regression (SUR) and Wald tests to compare the effects of generalist CEOs across the two subsamples. For moderating variables, we employ the widely-used product market fluidity measure as a proxy for product market competition (Hoberg, Phillips, & Prabhala, 2014) and the Kaplan and Zingales (KZ) index to capture financing constraints (Lamont, Polk, & Saá-Requejo, 2001). The product market fluidity measure, developed by Hoberg *et al*. (2014), is based on a company's product text descriptions and competitor actions. This measure's emphasis is on rival actions. If a firm's competitors begin to enter its existing product lines, it translates into tougher competition. Lamont *et al*.'s (2010) KZ index is a combination of five accounting ratios: cash flow to total capital, market to book ratio, debt to capital, dividends to capital, and cash to capital.[16] Firms with greater financing constraints are associated with higher KZ index values.

Table 2.5 presents the results of the cross-sectional tests. Panel A and B report the results for competition and financing constraints, respectively. The findings suggest that the impact of generalist CEOs on workplace safety is more pronounced under conditions of high competition. The coefficients on GAI increase from 0.183 to 0.507 in highly competitive

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[15] McManus and Schaur (2016) and Cohn & Wardlaw (2016) document that market competition and financial constraints induces workplace injuries.

[16] The specifics of KZ index construction formula are available in Appendix A.1: Variable definitions.

markets. Additionally, when firms face greater financing constraints, the impact of generalist CEOs on workplace safety becomes more pronounced. The coefficients on GAI increase from 0.264 to 0.571 and are statistically significant at the 5% level or higher.

Table 2.5: Cross-sectional tests

Panel A: Market Competition		
	Product Market Fluidity	
	(1)	(2)
	Low Competition	High Competition
VARIABLES	*TCR*	*TCR*
General Ability Index	-0.183*	-0.507***
	(0.104)	(0.107)
Baseline Controls	Included	Included
Unit of Analysis	Firm Level	Firm Level
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	2,048	1,811
Adjusted R-squared	0.308	0.424
SUR & Wald Test for Differences in Coefficients:		
Chi-squared Statistics	4.89**	
p-value	0.027	

Panel B: Financing Constraint		
	KZ Index	
	(1)	(2)
	Low Financing Constraint	High Financing Constraint
VARIABLES	*TCR*	*TCR*
General Ability Index	-0.264**	-0.571***
	(0.106)	(0.114)
Baseline Controls	Included	Included
Unit of Analysis	Firm Level	Firm Level
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	1,872	1,723
Adjusted R-squared	0.373	0.363
SUR & Wald Test for Differences in Coefficients:		
Chi-squared Statistics	4.03**	
p-value	0.045	

This table presents the regression results of the cross-sectional tests. Panel A reports the results associated with the cross-sectional variable of market competition, proxied by the product market fluidity. Panel B analyses the cross-sectional impacts from the financing constraint, proxied by the KZ index. The regression models are the same as the baseline models, except that the sample is split into two halves based on the cross-sectional variable. The dependent variable is the TCR injury rate. The main explanatory variable of interest is the GAI general ability index. The bottom two rows in each panel report the results of the SUR & Wald tests for differences in the coefficients. Both panels include control variables used in the baseline regressions. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.4.6. Possible channels

In this section, we explore how and why these executives influence safety and discuss various potential mechanisms that facilitate these relationships. We propose three potential mechanisms, which include labor investment efficiency, employee workload, and information quality.

Regarding the first channel, we argue that CEOs with diverse career experiences possess a deeper understanding of the optimal level of labor investment. This insight enables them to mitigate workplace injuries and illnesses, which often stem from worker inexperience. This is particularly critical given that new employees are more prone to injuries due to their limited familiarity with safety risks and hazardous materials in the workplace, as documented by Bell and Grushecky (2006) and Leigh (1986). These studies highlight the importance of labor investment efficiency in enhancing workplace safety.

The second channel, employee workloads, receives support from both anecdotal and empirical evidence. A recent Deloitte survey identifies heavy workloads as the most frequently cited obstacle to workplace well-being (Fisher & Silverglate, 2022). Caskey and Ozel (2017) further demonstrate that increased employee workloads are associated with higher rates of work-related injuries and illnesses. Additionally, Che, Zhou, Kessler, and Spector (2017) provide empirical evidence showing that executives' management styles significantly influence how employee workloads are allocated. Building on these findings, we argue that executives with diverse career experiences are better equipped to understand and implement appropriate workload distributions. This proficiency helps prevent excessive workloads, which have been consistently linked to elevated rates of workplace injuries and illnesses.

The third channel, information quality, draws on two strands of literature. First, research on workplace misconduct by Hope *et al*. (2022) demonstrates that higher information quality is associated with significantly lower rates of workplace injuries. Second, the corporate management literature, particularly Hu and Liu (2015), suggests that CEOs with broader career experiences can reduce information asymmetry due to their extensive social networks. Building on these insights, we hypothesize that generalist CEOs enhance workplace safety by improving information quality, thereby equipping employees and managers with the necessary information to make informed decisions regarding workplace safety policies. To test these channels, we employ the following regression equation and present the results in Table 2.6.

$$\textit{Channel Measures}_{i,t} = \alpha_0 + \beta_1 \textit{ Generalist CEO Measures}_{i,t} + \beta \textit{ Control Variables}_{i,t} + \textit{Industry Fixed Effects} + \textit{Year Fixed Effects} + \varepsilon_{i,t} \quad (2.3)$$

The regression model incorporates all control variables from the baseline model, along with an additional control variable, *Ln(Delta)*, which captures the sensitivity of the CEO's wealth to changes in the firm's stock price. This measure reflects the CEO's risk-taking incentives and is a critical determinant of managerial decision-making, as highlighted by Anantharaman and Lee (2014) and Boyallian and Ruiz-Verdu (2018).

The Panel A of Table 2.6 reports the results for the labor investment efficiency channel. To quantify labor investment efficiency, we adopt a well-established approach from the literature (e.g., Cao & Rees, 2020; Ee, Hasan, & Huang, 2022; Jung, Lee, & Weber, 2014). We measure labor investment efficiency as the deviation of actual net hiring from expected net hiring, where expected net hiring is determined by factors such as sales growth, profitability, and leverage. This measure was originally developed by Jung *et al*. (2014), where a negative regression coefficient indicates higher efficiency. To facilitate interpretation, we invert their measure by multiplying it by negative one, so that a positive value now corresponds to better labor investment efficiency.

The results in Panel A indicate that generalist CEOs are associated with more efficient labor investments. For instance, based on the coefficient estimate in Column (1), a 0.012-unit improvement in efficiency translates to 11.21% of the sample mean.[17] Furthermore, the establishment-level analysis corroborates these findings, confirming the robustness of the results.

Panel B of Table 2.6 reports the results of the employee workload tests. Following Caskey and Ozel (2017), we employ two measures of employee workload: production per employee and sales revenue per employee, where production is defined as the cost of goods sold minus the decrease in inventory. The results show that generalist CEOs are associated with lower employee workloads. Specifically, under the leadership of generalist CEOs, production per employee decreases by 6.15%, and revenue per employee decreases by 4.7%. These reductions in workload suggest that employees experience less physical stress, which in turn leads to fewer workplace injuries and illnesses.

To measure information quality, we employ two established metrics: the high-low spread developed by Corwin and Schultz (2012) and the financial statement divergence (FSD) score introduced by Amiram, Bozanic, and Rouen (2015). The high-low spread, derived from daily high and low stock prices, is shown by Corwin and Schultz (2012) to effectively estimate the bid-ask spread and outperform several traditional measures. A higher bid-ask spread indicates greater information asymmetry (Greenstein & Sami, 1994). The FSD score, on the other hand, captures the quality of financial statements (Amiram *et al*., 2015) and serves as a proxy for the firm's overall information quality.

The results in Panel C of Table 2.6 indicate that generalist CEOs are associated with lower high-low spreads and lower financial statement divergence (FSD) scores. The coefficient estimates correspond to approximately 2.33% and 3.79% of the sample mean,

[17] The sample mean of abnormal net hire is 0.107.

respectively.[18] These findings suggest that generalist CEOs contribute to better information quality. Overall, the regression results demonstrate that generalist CEOs enhance workplace safety through three key mechanisms: more efficient labor investments, milder employee workloads, and improved information quality.

[18] The mean of the high-low spread is 0.0086, while the mean of the FSD score is 0.0264.

Table 2.6: Channel mechanism tests

	Panel A: Labor Investment Efficiency		Panel B: Employee Workloads	
	(1)	(2)	(1)	(2)
VARIABLES	*Inv_Eff*	*Inv_Eff Ind. Adj.*	*Ln(Production per Employee)*	*Ln(Revenue per Employee)*
GAI Median Dummy	0.012**	0.060**	-0.062***	-0.047**
	(0.006)	(0.028)	(0.023)	(0.021)
Controls:				
Ln(Assets)	-0.001	-0.002	0.152***	0.153***
	(0.002)	(0.012)	(0.011)	(0.010)
Leverage	-0.076***	-0.366***	-0.211***	-0.151**
	(0.025)	(0.111)	(0.082)	(0.072)
Tangibility	0.004	-0.061	0.368***	0.099
	(0.029)	(0.147)	(0.122)	(0.110)
Sales/Assets	0.027***	0.095***	0.455***	0.244***
	(0.005)	(0.024)	(0.027)	(0.025)
CAPEX/Assets	0.515***	2.834***	-3.451***	-2.001***
	(0.126)	(0.678)	(0.565)	(0.524)
Market to Book	-0.001	-0.005	-0.089***	-0.016
	(0.005)	(0.024)	(0.024)	(0.022)
FCF/Assets	0.167***	0.877***	-0.843***	0.108
	(0.051)	(0.269)	(0.247)	(0.238)
Cash/Assets	-0.049	-0.247	0.533***	1.008***
	(0.031)	(0.153)	(0.115)	(0.100)
Dividends/Assets	0.530***	2.207**	-2.441***	-1.188*
	(0.176)	(0.891)	(0.748)	(0.615)
Ln(Delta)	0.002	0.015	0.014	0.008
	(0.003)	(0.013)	(0.011)	(0.010)
Unit of Analysis	Firm Level	Firm Level	Firm Level	Firm Level
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	3,014	3,014	3,200	3,348
Adjusted R-squared	0.040	0.050	0.412	0.404

Panel C: Information Quality		
	(1)	(2)
VARIABLES	*High-Low Spread*	*FSD Score*
GAI Median Dummy	-0.0002*	-0.001**
	(0.000)	(0.000)
Controls:		
Ln(Assets)	-0.001***	-0.001***
	(0.000)	(0.000)
Leverage	0.000	-0.003***
	(0.000)	(0.001)
Tangibility	0.003***	0.002*
	(0.001)	(0.001)
Sales/Assets	0.000***	0.001***
	(0.000)	(0.000)
CAPEX/Assets	-0.012***	-0.006
	(0.003)	(0.007)
Market to Book	0.000**	0.001**
	(0.000)	(0.000)
FCF/Assets	-0.011***	-0.004
	(0.001)	(0.003)
Cash/Assets	0.006***	0.006***
	(0.001)	(0.002)
Dividends/Assets	-0.028***	-0.004
	(0.003)	(0.009)
Ln(Delta)	-0.000***	-0.000
	(0.000)	(0.000)
Unit of Analysis	Firm Level	Firm Level
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	3,109	3,447
Adjusted R-squared	0.611	0.059

This table presents the regression results of the channel mechanism tests. Panel A presents the labor investment efficiency channel, measured by *Inv_Eff* and *Indus_Adj_Inv_Eff*. Panel B reports the employee workload channel, measured by *Ln(Production per Employee)* and *Ln(Revenue per Employee)*. Panel C reports the channel of information quality, measured by the high-low spread and FSD financial statement divergence score. The main explanatory variable of interest is the GAI yearly median dummy. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.4.7. Economic consequence tests

This section includes two main analyses. First, we explore the impact of workplace safety on innovation, productivity, and firm value. Second, we investigate whether generalist CEOs mitigate the adverse effects associated with unsafe workplaces.

Workplace health-oriented leadership has been shown to enhance worker performance (Klebe, Felfe, & Klug, 2021). Improved employee treatment and satisfaction are linked to higher morale, increased productivity, and reduced turnover intentions (Harter, Schmidt, & Hayes, 2002). Furthermore, employee human capital plays a critical role in shaping a firm's innovation capabilities (Bornay-Barrachina, De la Rosa-Navarro, López-Cabrales, & Valle-Cabrera, 2012). Enhanced employee treatment fosters greater innovation outputs by promoting employee stability and operational efficiency (Chen, Chen, Hsu, & Podolski, 2016; Pham, Merkoulova, & Veld, 2024).

Table 2.7 presents the results of these analyses. The main explanatory variable is the TCR injury rate in a given year (t=0). All models include the same control variables and fixed effects as in the baseline models. Given that it often takes several years for efforts to translate into measurable innovation and productivity outcomes (Evanschitzky, Wangenheim, & Wünderlich, 2012; Wang & Hagedoorn, 2014), we evaluate the corporate outcomes (i.e., innovation, productivity, and firm value) two and three years after the present year (i.e., t+2 and t+3) to account for potential delayed effects over time.[19]

Panel A presents the results examining the impact of workplace safety on corporate innovation. In line with the innovation literature, the dependent variable of interest is corporate innovation, measured by the number of patents granted in a firm-year (e.g., Custódio *et al*., 2019; Fang, Tian, & Tice, 2014; Griliches, 1990; Seru, 2014). We

[19] In untabulated results (for brevity), we repeat our analyses for one year following the present year (i.e., t+1) and find our results are qualitatively unchanged.

obtain patent data from Kogan, Papanikolaou, Seru, and Stoffman (2017), who compile the complete history of patents filed by firms with the United States Patent and Trademark Office (USPTO).[20] The results in Column (1) indicate that higher levels of work-related injuries and illnesses are associated with reduced innovation success. Specifically, using the number of patents granted two years after the present year (i.e., *t*+2) as an example, a one-unit increase in the TCR injury rate is associated with a 1.7% decrease in the number of granted patents.

In Columns (2) and (3), we re-estimate the model from Column (1) for two subsamples: firms led by non-generalist CEOs (Column 2) and firms led by generalist CEOs (Column 3).[21] Consistent with prior analyses, we use Seemingly Unrelated Regression (SUR) and Wald tests to determine whether the coefficient estimates for the two subsamples are statistically different. The results from Columns (2) and (3) suggest that generalist CEOs mitigate the adverse effects of workplace injuries and illnesses on innovation outputs. Specifically, the coefficient on TCR becomes statistically insignificant for firms led by generalist CEOs. This indicates that generalist CEOs can contribute to firms' innovation by maintaining higher levels of employee well-being. The findings in Panel A provide additional insights, as Custódio *et al*. (2019) demonstrate that CEOs with general skills tend to foster innovation and are associated with a higher number of patents. Our results suggest that maintaining adequate employee treatment, particularly through improved workplace safety, represents another channel through which generalist CEOs enhance innovation outputs.

Panel B of Table 2.7 presents the results of the firm productivity analyses. To measure productivity, we use the firm-level total factor productivity (TFP) measure

[20] In untabulated results (for brevity), we use number of citations as an alternative measure of innovation and find our results are robust.
[21] The samples for Columns (2) and (3) are based on the availability of general ability index (GAI) data.

derived from İmrohoroğlu and Tüzel (2014). Total factor productivity captures overall firm-level efficiency by incorporating both labor and capital inputs in the production process. Similar to Panel A, Column (1) reports the results for the impact of workplace safety on firm productivity, while Columns (2) and (3) re-estimate the model from Column (1) for two subsamples: firms led by non-generalist CEOs (Column 2) and firms led by generalist CEOs (Column 3). The results in Column (1) indicate that workplace injuries and illnesses negatively affect firm productivity. The economic magnitude is significant, with a one-unit increase in the TCR rate leading to a 0.005-unit decrease in the productivity measure three years after the present year (i.e., *t*+3). This decrease corresponds to approximately 1.74% of the sample mean.[22] When we examine the subsamples of firms led by non-generalist CEOs (Column 2) and generalist CEOs (Column 3), we consistently find that generalist CEOs mitigate the negative effects of injuries and illnesses on productivity over time.

Panel C of Table 2.7 presents the results of the firm value analyses. Firm value is proxied by Tobin's Q ratio, a widely used measure in economics and finance literature to capture firm value and growth opportunities (e.g., Custódio *et al*., 2013; Hu & Liu, 2015). Tobin's Q is defined as the ratio of a firm's market value to the replacement cost of its assets.[23] The results in column (1) align with Cohn and Wardlaw (2016), showing that work-related injuries and illnesses reduce firm value. These results are both statistically and economically significant. Specifically, a one-standard-deviation increase in the TCR rate in the present year (*t*=0) is associated with a 0.024-unit decrease in firm value two years later (i.e., *t*+2), equivalent to 1.48% of the sample mean.[24] Additionally, the

[22] This number is calculated as follows: 1.74% = -0.005 / -0.288 (where -0.288 is sample mean of total factor productivity in year *t*+3).
[23] Tobin's Q's calculation method is available in the Appendix A1: Variable definitions.
[24] This number is calculated as follows: 0.024 units = 4.812 (standard deviation of TCR) × 0.005 (coefficient estimate). 1.48% = 0.024/ 1.620 (where 1.620 is sample mean of Tobin's Q in year *t*+2).

difference between the coefficients in Columns (2) and (3) is statistically significant, highlighting the role of generalist CEOs in mitigating the adverse effects of work-related injuries on firm value.

Overall, the findings in Table 2.7 indicate that workplace injuries and illnesses negatively impact firms' innovation output, productivity, and firm value. However, generalist CEOs play a significant role in mitigating these adverse consequences.

Table 2.7: Economic consequence tests

Panel A: Innovation			
	(1)	(2)	(3)
	Overall Sample	Subsample Non-generalist CEOs	Subsample Generalist CEOs'
		Dependent Variable: *Ln(Patents)*$_{t+2}$	
TCR	-0.017***	-0.035***	0.004
	(0.004)	(0.008)	(0.010)
Controls & Fixed Effects	Included	Included	Included
Observations	5,959	1,902	1,933
Adjusted R-squared	0.385	0.449	0.378
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics		10.30***	
p-value		0.0013	
		Dependent Variable: *Ln(Patents)*$_{t+3}$	
TCR	-0.018***	-0.036***	0.003
	(0.004)	(0.008)	(0.010)
Controls & Fixed Effects	Included	Included	Included
Observations	5,794	1,902	1,933
Adjusted R-squared	0.374	0.441	0.368
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics		9.79***	
p-value		0.0018	

Panel B: Productivity			
	(1)	(2)	(3)
	Overall Sample	Subsample Non-generalist CEOs	Subsample Generalist CEOs'
		Dependent Variable: *Total Factor Productivity*$_{t+2}$	
TCR	-0.003***	-0.005**	-0.000
	(0.001)	(0.002)	(0.002)
Controls & Fixed Effects	Included	Included	Included
Observations	4,560	1,595	1,658
Adjusted R-squared	0.434	0.417	0.469
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics		3.55*	
p-value		0.0594	
		Dependent Variable: *Total Factor Productivity*$_{t+3}$	
TCR	-0.005***	-0.005**	0.001
	(0.001)	(0.002)	(0.002)
Controls & Fixed Effects	Included	Included	Included
Observations	4,366	1,550	1,601
Adjusted R-squared	0.402	0.389	0.425
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics		5.40**	
p-value		0.0201	

Panel C: Firm value

	(1) Overall Sample	(2) Subsample Non-generalist CEOs	(3) Subsample Generalist CEOs'
		Dependent Variable: *Tobin's* Q_{t+2}	
TCR	-0.005***	-0.009***	-0.002
	(0.002)	(0.003)	(0.003)
Controls & Fixed Effects	Included	Included	Included
Observations	5,126	1,711	1,640
Adjusted R-squared	0.562	0.581	0.657
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics		3.60*	
p-value		0.0577	
		Dependent Variable: *Tobin's* Q_{t+3}	
TCR	-0.007***	-0.010***	0.001
	(0.002)	(0.003)	(0.004)
Controls & Fixed Effects	Included	Included	Included
Observations	4,398	1,530	1,446
Adjusted R-squared	0.455	0.494	0.562
SUR & Wald Test for Differences in Coefficients (Column 2 & Column 3):			
Chi-squared Statistics			5.62**
p-value			0.0178

This table presents the regression results of the economic consequence tests. Panels A, B, and C report the results for corporate innovation, productivity, and firm value, respectively. Column (1) reports the regressions on the overall sample. Columns (2) and (3) report the results for subsamples of firms led by non-generalist CEOs and generalist CEOs. SUR & Wald tests are used to test for coefficient differences between Columns (2) and (3). The main explanatory variable of interest is the TCR injury rate. All models include the baseline control variables. Industry fixed effects based on two-digit SIC and year-fixed effects are included in all the regressions. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.4.8. Robustness tests

To ensure that our baseline findings are not sensitive to specific measures or model specifications, we conduct additional robustness tests.[25] The results are presented in Table 2.8. Panel A incorporates additional establishment-level controls. Following Haga *et al.* (2022) and Hope *et al.* (2022), these controls include the number of employees to reflect

[25] Baseline tests are performed using ordinary least squares regressions. We follow Caskey and Ozel (2017) to utilize the Poisson model and negative binomial model. These alternative models generate significant results at both establishment and firm levels, ensuring the robustness of the relationship between CEOs' general skills and workplace safety levels.

establishment size, hours per employee to capture workload, and dummy variables for employee strikes, facility shutdowns, seasonal business operations, and natural disasters. These controls account for establishment-specific factors that may influence workplace safety outcomes. The results in Panel A demonstrate that the baseline findings remain robust to the inclusion of these additional controls. Moreover, the coefficient estimates for the generalist measures in this panel are very similar to the baseline coefficients reported in Panel A of Table 2.2.

The Panel B of Table 2.8 reports the results with additional control variables regarding CEO characteristics. There are five additional controls: CEO's age, tenure, compensation, gender, and duality. These control variables are consistent with the previous research by Wu *et al*. (2023) and Haga *et al*. (2022). Age, tenure, and gender may influence CEOs' skills and preferences toward workplace safety. We also control for CEO compensation, as generalist CEOs are often associated with premium pay (Custódio *et al*., 2013). By including compensation as a control, we can more accurately isolate the effect of CEOs' general skills on workplace safety. Additionally, we incorporate a duality dummy variable, as CEOs holding chairman positions possess structural power that can significantly influence safety outcomes (Haga *et al.*, 2022).

In Columns (1) through (5) of Panel B in Table 2.8, we sequentially introduce one additional CEO control variable in each column. Column (6) includes all five CEO control variables simultaneously. Across all columns, generalist CEOs are consistently associated with improved workplace safety. Examining the coefficients of the added control variables reveals that, in Column (3), CEO compensation is positively associated with higher workplace safety levels. However, it is important to note that the relationship between compensation and safety is not purely linear or straightforward. For instance, excessively high equity incentives tied to short-term performance metrics might incentivize CEOs to prioritize profits over safety, potentially undermining workplace safety (Chircop *et al.*, 2025). Although the coefficients for the other four CEO characteristics (age, tenure, gender, and duality) are statistically insignificant in this model, their potential relationship with workplace safety warrants careful consideration and further in-depth analysis. For example, future research could explore whether these characteristics interact with other firm-level factors to influence safety outcomes. Overall, the baseline results remain robust to the inclusion of these CEO characteristics as control variables, reinforcing the finding that generalist CEOs are associated with better workplace safety.

To ensure the robustness of our baseline findings, we incorporate additional governance and corporate culture control variables and present the results in Panel C of Table 2.8. Corporate governance is arguably a crucial factor that influences management behavior and firm policies (Bertrand & Mullainathan, 2003). While the baseline regressions in Table 2.2 include the analyst coverage variable *Ln(Analyst)*, which captures certain governance aspects, this test further examines the robustness of our results using alternative corporate governance measures. Specifically, we include four widely used governance variables: board independence, board size, institutional share ownership ratio, and the takeover index. First, board independence, measured as the percentage of independent directors on the board, enhances monitoring effectiveness (Pan, Huang, & Gopal, 2018). Second, board size is a key governance factor with implications for corporate performance (Cheng, 2008). Third, institutional shareholders play a vital monitoring role (Kempf *et al.*, 2017) and significantly influence corporate social responsibility practices (Chen, Dong, & Lin, 2020). Finally, the takeover index, developed by Cain, McKeon, and Solomon (2017), captures external governance pressures.

Additionally, firms with strong corporate cultures are more likely to exhibit higher levels of workplace safety (Haga *et al.*, 2024). If such firms also exhibit a preference for hiring generalist CEOs, potential endogeneity concerns may arise. To mitigate this, we control for corporate culture using a textual analysis-based measure developed by Li, Mai, Shen, and Yan (2021) and employed by Haga *et al*. (2024). This measure, derived from the textual analysis of earnings conference call transcripts, captures cultural values such as integrity and respect. We include this corporate culture control variable in Column (5) of Panel C.

The results in Panel C indicate that the baseline findings remain robust after incorporating these additional governance and culture controls. Columns (1) and (2) suggest that board independence and board size are significantly associated with higher workplace safety levels, highlighting the board's critical role in maintaining safety. To our knowledge, the literature lacks a thorough examination of how boards influence safety, presenting a potential avenue for future research. Column (5) demonstrates that generalist CEOs are positively associated with higher workplace safety levels, even after controlling for corporate culture. Overall, these findings reinforce the robustness of our baseline results.

We employ an alternative workplace safety measure to test for robustness, and the results are reported in Panel D of Table 2.8. The regression model in this panel is consistent with the baseline model. The results reveal a consistent relationship between generalist CEOs and various workplace safety measures. Specifically, the DART (Days Away, Restricted, or Transferred) injury rate, which typically measures the rate of severe injuries and illnesses, shows a significant association with generalist CEOs. Column (1) of Panel D indicates that establishments led by generalist CEOs, on average, exhibit 0.665 lower DART rates compared to those led by non-generalists. This difference translates to 12.91% of the sample mean, highlighting the substantive impact of generalist CEOs on workplace safety outcomes.

Following the approach of Bradley *et al*. (2022), the *Safety Index* in Panel D represents a qualitative measure of a firm's employee well-being, derived from ratings provided by the Kinder, Lydenberg, and Domini (KLD) agency. The *Safety Index* is calculated as the difference between the KLD "Health and Safety Strength" indicator variable and the KLD "Health and Safety Concern" indicator variable. As a result, the index can take on three possible values: 1 (indicating positive recognition of employee health and safety), -1 (indicating concerns about health and safety), and 0 (indicating neutral ratings). This index serves as a proxy for workplace safety. While the original KLD ratings are at the firm level, we assign these firm-level values to individual establishments by identifying the establishments owned by specific firms. In summary, the establishment-level tests using alternative dependent variables yield results that are consistent with our baseline findings.

We also conduct first-difference tests to further validate the baseline findings. This approach examines changes in variables over time, rather than their levels at a single point in time, effectively removing firm-level variations and ensuring uncorrelated residuals (Pham, Merkoulova, & Veld, 2023). The results, presented in Appendix A.5, are consistent with our baseline findings, reinforcing the robustness of our conclusions.

Additionally, we examine the effect of generalist CEOs on the standard deviation of establishments' TCR injury rates within a firm-year. The results, reported in Appendix A.6, show significantly negative coefficients, suggesting that generalist CEOs achieve more consistent management of workplace safety across a firm's establishments.

Table 2.8: Robustness tests

Panel A: Establishment-level analyses with added establishment-level controls

	(1)	(2)	(3)
VARIABLES	*TCR*	*TCR*	*TCR*
GAI Median Dummy	-0.866***		
	(0.060)		
General Ability Index		-0.454***	
		(0.035)	
GAI Industry Adjusted			-0.535***
			(0.031)
Additional Establishment Controls	Yes	Yes	Yes
Baseline Controls	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	57,206	57,206	56,952
Adjusted R-squared	0.259	0.259	0.260

Panel B: Firm-level analyses with additional CEO controls

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*TCR*	*TCR*	*TCR*	*TCR*	*TCR*	*TCR*
GAI Median Dummy	-0.466***	-0.437***	-0.518***	-0.318**	-0.486***	-0.402**
	(0.134)	(0.139)	(0.152)	(0.133)	(0.134)	(0.171)
Ln(CEO Age)	-0.040					0.003
	(0.566)					(0.713)
Ln(CEO Tenure)		-0.003				-0.076
		(0.076)				(0.098)
Ln(CEO Comp.)			-0.432***			-0.213*
			(0.137)			(0.117)
CEO Gender				0.475		0.594
				(0.459)		(0.512)
CEO Duality					0.062	0.128
					(0.134)	(0.169)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,831	3,487	2,469	3,622	3,935	2,017
Adjusted R-squared	0.355	0.358	0.347	0.360	0.354	0.354

Panel C: Firm-level analyses with additional corporate governance and culture controls

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*	(4) *TCR*	(5) *TCR*	(6) *TCR*
GAI Median Dummy	-0.465***	-0.533***	-0.525***	-0.390***	-0.499***	-0.303*
	(0.149)	(0.147)	(0.136)	(0.132)	(0.136)	(0.161)
Board Independence	-1.736***					-1.674**
	(0.638)					(0.716)
Board Size		-1.544***				-0.085
		(0.467)				(0.498)
IOR			0.274			-0.112
			(0.412)			(0.825)
Takeover Index				-0.511		0.708
				(0.647)		(0.557)
Corporate Culture					-0.001	0.009
					(0.042)	(0.049)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,153	3,153	3,545	3,762	3,402	2,409
Adjusted R-squared	0.360	0.360	0.351	0.353	0.365	0.366

Panel D: Establishment-level analyses with alternative dependent variables

VARIABLES	(1) *DART*	(2) *DART*	(3) *Safety Index*	(4) *Safety Index*
GAI Median Dummy	-0.665***		0.070***	
	(0.046)		(0.006)	
General Ability Index		-0.360***		0.013***
		(0.027)		(0.003)
Baseline Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	57,207	57,207	51,273	51,273
Adjusted R-squared	0.253	0.253	0.293	0.291

This table presents the regression results of the robustness tests. Panel A reports establishment-level regression results with additional control variables. Panel B reports firm-level regression results with additional CEO characteristics controls. Panel C includes additional corporate governance and culture control variables. Panel D reports the establishment-level results using alternative dependent variables, which are DART and the Safety Index. The main explanatory variables of interest are GAI yearly median dummy and GAI general ability index. The coefficients on the baseline control variables are not reported for brevity. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis in all four panels. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.4.9. Alternative sample tests

We conduct additional tests using an alternative sample. Specifically, we utilize corporate safety and healthcare-related offense data from Good Jobs First's Violation Tracker dataset.[26] This dataset provides comprehensive coverage of workplace violations and penalties for U.S. business establishments. Our alternative sample spans the period from 2000 to 2016, as the Violation Tracker data begins in 2000 and our CEO general ability index data ends in 2016. To construct the dependent variable, we aggregate the penalty amounts at the establishment level to create a firm-year measure. This measure is then scaled by the number of employees and transformed using the natural logarithm. Scaling by the number of employees is necessary, as firms with larger workforces may have a higher likelihood of safety and healthcare-related violations. This adjustment ensures that our analysis accounts for differences in firm size.

We report the results of the alternative sample tests in Table 2.9. The regression follows the baseline model specifications, and the results are statistically significant at the 5% level, indicating that generalist CEOs are associated with fewer safety and healthcare-related penalties. In terms of economic magnitude, the coefficient in the first column suggests that generalist CEOs are linked to a 14.7% reduction in violation penalty amounts per employee. Furthermore, the result in the second column shows that a one standard deviation increase in the CEO general ability index corresponds to an 8.45% decrease in penalties.[27] These findings provide additional evidence that CEOs with general skills are more effective in safeguarding workers.

[26] Violation Tracker is produced by the Corporate Research Project of Good Jobs First. The official webpage is https://violationtracker.goodjobsfirst.org/.
[27] 8.45% = Coefficient estimate of 0.092 × GAI's sample standard deviation of 0.919. The standard deviation of 0.919 in the alternative sample is different from the baseline sample figure of 0.892.

Table 2.9: Alternative sample tests

VARIABLES	(1) *Ln(Penalty Amount/Employees)*	(2) *Ln(Penalty Amount/Employees)*
GAI Median Dummy	-0.147**	
	(0.068)	
General Ability Index		-0.092**
		(0.039)
Ln(Assets)	-0.327***	-0.325***
	(0.038)	(0.039)
Leverage	-0.370	-0.374
	(0.246)	(0.247)
Tangibility	0.562**	0.560**
	(0.284)	(0.283)
Sales/Assets	-0.371***	-0.376***
	(0.066)	(0.066)
CAPEX/Assets	-3.046***	-3.129***
	(1.040)	(1.042)
Market to Book	0.045	0.045
	(0.063)	(0.063)
FCF/Assets	0.482	0.494
	(0.617)	(0.618)
Cash/Assets	3.110***	3.144***
	(0.613)	(0.614)
Dividends/Assets	-3.337	-3.189
	(2.350)	(2.352)
Ln(Analyst)	-0.164**	-0.169**
	(0.067)	(0.067)
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	3,015	3,015
Adjusted R-squared	0.370	0.370

This table presents the regression results of the alternative sample tests. We acquire the corporate safety and healthcare related violation data from Good Jobs First's Violation Tracker dataset. The dependent variable is the natural log of penalty amount scaled by the number of employees. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

2.5. Discussion

Anecdotal evidence suggests that while executives recognize the importance of employee well-being and safety, they may not fully understand the needs of their workers or demonstrate genuine concern for their overall welfare. A recent survey conducted by

Deloitte and Workplace Intelligence highlights this issue, revealing that a significant proportion of C-suite executives (i.e., 68% of surveyed managers) admit to failing to implement adequate measures to protect employee health.[28] The survey identifies several key reasons for this shortfall, including executives feeling overwhelmed, lacking confidence, and facing insufficient funding. This anecdotal evidence underscores the importance of understanding how managerial attributes can influence workplace safety. In this context, our research, which demonstrates that CEOs with general skillsets and expertise are better equipped to safeguard employee well-being, provides a timely and actionable response to address workplace safety challenges.

Our findings have several implications for the existing literature. First, while prior research suggests that generalist CEOs, with their broader career options, tend to exhibit greater risk tolerance in corporate decision-making (Custódio *et al*., 2019), our study reveals a nuanced perspective: these CEOs also prioritize employee safety. This implies that their risk tolerance does not extend to workplace safety, likely due to an understanding of the financial and reputational costs tied to injuries and illnesses. In essence, generalist CEOs balance strategic risk-taking with a commitment to maintaining a safe work environment, demonstrating both ambition and responsibility in their leadership.

Second, our findings add insights into the intriguing discussion regarding whether generalist CEOs prioritize shareholder interests at the potential cost of other stakeholders. Custódio *et al.* (2013) highlight the premium compensation that generalist CEOs earn, while Xu, Xu, Chan, and Li (2021) demonstrate that they tend to achieve greater success in mergers and acquisitions compared to specialists. These studies suggest that generalist CEOs are skilled at delivering outcomes aligned with shareholder priorities. However, our

[28] More details about the survey can be found at https://www2.deloitte.com/insights/topics/leadership/employee-wellness-in-the-corporate-workplace.html (retrieved on March 27, 2023).

research reveals that this focus on shareholder value does not necessarily compromise employee safety. This may stem from shareholders' own vested interest in maintaining high safety standards. Gong *et al.* (2023) support this view, showing that firms with stronger shareholder litigation rights tend to have better safety records. This suggests that shareholders recognize the financial value of a safe workplace. Thus, it appears that the interests of shareholders and employees are not always in conflict and can align in ways that benefit both.

Third, our research highlights how general managerial skills foster firm innovation by positively influencing workplace safety and employee satisfaction. This aligns with Custódio *et al*. (2019), who demonstrate that generalist CEOs enhance corporate innovation, and Chen *et al.* (2016), who show that employee satisfaction drives innovation. Innovation outputs, such as patents and citations, contribute to a firm's intangible assets. Similarly, employee satisfaction, with its implications on firm value and stock returns, can also be viewed as an intangible asset (Edmans, 2011). Thus, our findings provide deeper insights into how CEOs with general managerial skills bolster a firm's intangible assets.

From other perspectives, our study has additional implications. First, from a corporate management perspective, our findings underscore the importance of considering a CEO's general skill sets when selecting leaders. Second, for stakeholders such as investors, our research provides evidence on the economic benefits of generalist CEOs in promoting workplace safety, which can contribute to more sustainable and productive firms. Finally, given the significance of our findings, future research could explore other top management attributes that help mitigate unhealthy working conditions, offering a promising avenue for further research.

We acknowledge some limitations in our study. First, the OSHA workplace injury and illness data rely on self-reporting by businesses, which may introduce bias. However, this concern is mitigated by the consistency of our results when using alternative data (Violation Tracker) that do not depend on self-reporting. Second, our dataset is limited to U.S. firms. While it provides comprehensive insights into workplace safety within the U.S., caution is warranted when generalizing these findings to other countries. Future research could expand the scope by incorporating data from different nations, enriching the exploration of our research question.

2.6. Conclusion

Our quantitative study empirically examines how CEOs' general managerial skills impact workplace safety. We find that firms led by generalist CEOs experience fewer workplace injuries, illnesses, and safety-related penalties. These CEOs enhance workplace safety through more efficient labor investments, balanced employee workloads, and improved firm information quality. The positive impact of generalist CEOs on safety is particularly pronounced in firms facing intense market competition or financial constraints. Furthermore, employee safety and health significantly influence company innovation, productivity, and firm value. Generalist CEOs play a critical role in mitigating value-destructive effects by prioritizing employee well-being. Our study highlights the practical implications for executive selection and leadership training, emphasizing that investing in generalist leadership skills is a strategic approach to enhancing organizational performance by fostering safer workplaces.

Chapter Three – Essay Two "Shareholder Distraction and Workplace Safety"

This chapter introduces the second essay, which examines the relationship between shareholder distraction and workplace safety. Section 3.1 presents the introduction. Section 3.2 discusses the related literature and hypothesis development. Section 3.3 describes the data. Section 3.4 reports the empirical results. Section 3.5 offers discussions and conclusions.

Statement of Contribution Form – Essay Two

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We, the student and the student's main supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the student's contribution as indicated below in the Statement of Originality.

Student name:	Xiaochi Zhang
Name and title of main supervisor:	Associate Professor Harvey Nguyen
In which chapter is the manuscript/published work?	Essay Two in Chapter Three

Describe the contribution that the student and members of the supervisory team have made to the manuscript/published work:[1]

Tony and his supervisors discussed and agreed on the topic of Essay Two. Tony organized the datasets. He conducted the empirical analyses and produced results. In weekly meetings, Tony's supervisors reviewed his findings and provided suggestions. Tony wrote the draft paper. The whole team discussed and revised the paper for journal submission.

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1

Doctoral Research Committee
May 2023

Abstract of Essay Two

Workplace injuries and illnesses are not only operational challenges but also ethical concerns in the corporate world. Grounded by attention-based view and attention allocation theories, we examine how shareholder distraction impacts workplace safety. Utilizing a large sample of over 46,000 establishment-year observations, we find that distracted shareholders are associated with an increased occurrence of work-related injuries and illnesses. This effect is more pronounced among firms with dual CEO-chairperson roles and high competition risks. During periods of reduced monitoring by distracted shareholders, we observe reductions in safety-related expenditures, increases in employee workloads, and a rise in earnings management practices. In addition, these distraction-induced injuries and illnesses result in a decline in firm value. Overall, this research provides further insights into the ethical implications of shareholder distraction and suggests the necessity for alternative corporate monitoring mechanisms.

3.1. Introduction

Building and maintaining human capital is important for corporate resilience. A safe and healthy working environment is essential for employee well-being and demonstrates a company's commitment to ethical practices. In this research, we explore the implications of shareholder distraction on employee well-being and corporate human capital. We specifically examine how limited attention among shareholders can undermine workplace safety.

We focus on the influence of shareholder distraction on workplace well-being due to its significant social, economic, and ethical implications. Specifically, the International Labour Organization (ILO) reveals alarming statistics estimating that work-related diseases and injuries accounted for 2.9 million global fatalities in 2019 (International Labor Organization, 2023). In economic terms, the estimated costs associated with workplace injuries and illnesses amount to 3.9% of worldwide gross domestic product (EU-OSHA, 2017). In addition, corporations face adverse consequences such as decreased productivity (FinSMEs, 2022), higher workforce turnover intentions and less trust towards corporate management (Harter, 2022), as well as lower firm value due to the existence of unsafe working conditions (Cohn & Wardlaw, 2016). Given these consequences, workplace well-being is an increasingly important consideration for regulators, investors, and other key stakeholders (e.g., Heese, Perez-Cavazos, & Peter, 2022; Liang *et al.*, 2023; Qian, Crilly, Lin, Zhang, & Zhang, 2023).

Attention is a finite cognitive resource, limiting individuals' capacity to focus on tasks that require concentration or problem-solving (Kahneman, 1973, 2011). This limitation affects key corporate stakeholders, such as shareholders and investors (Barber & Odean, 2008). Several established theories provide a foundational framework for understanding limited shareholder attention. Attention-based view of the firm (Ocasio,

1997) highlights how the allocation of organizational attention shapes strategic decision-making. In our context, this theory suggests that when shareholders are preoccupied with external factors, they may neglect oversight responsibilities. Cognitive load theory (Sweller, 1988) further explains that cognitive capacities are finite, and shareholders may struggle to effectively monitor firms when overwhelmed by information. In addition, attention allocation theory underscores how individuals strategically distribute their limited cognitive resources (Huang, Huang, & Lin, 2019). Shareholders may focus on companies with volatile stock returns, inadvertently neglecting those with stable returns, which could lead to ineffective monitoring.

As owners and equity investors, shareholders play important roles in monitoring corporate managers (Chen, Harford, & Li, 2007; Kempf *et al.*, 2017). Their limited attention, however, reduces their ability to maintain continuous, high-intensity scrutiny across all their portfolio companies (Fich, Harford, & Tran, 2015; Schmidt, 2019). This diminished monitoring by distracted shareholders can create opportunities for corporate misconduct. In such cases, the lack of attentive oversight may lead to the manipulation of financial information (Garel, Martin-Flores, Petit-Romec, & Scott, 2021), managerial prioritization of personal benefits over the interests of other stakeholders (Kempf *et al.*, 2017), and more pronounced managerial short-termism (Li *et al.*, 2019).

We argue that institutional shareholders matter for employee well-being for several reasons. First, institutions are increasingly adopting socially responsible investment approaches (Sparkes & Cowton, 2004). Given the potential financial and reputational risks associated with poor employee health and safety (e.g., legal liabilities, operational disruptions, and negative media coverage), it is beneficial for institutional shareholders to mitigate these risks. Second, a workforce with high well-being is more likely to contribute to long-term value creation (Cohn & Wardlaw, 2016) and long-run stock return outperformance (Faleye & Trahan, 2011), providing potential financial incentives for shareholders. Third, maintaining employees' physical welfare requires significant financial resources, time, and effort allocation (Cohn & Wardlaw, 2016). Such important corporate decisions, therefore, involve key stakeholders' engagement. By uncovering the impact of shareholder attention on employees' well-being, our study provides further insights into how distracted shareholders influence companies.

While corporate managers are unlikely to intentionally harm employees, anecdotal evidence suggests a potential lack of genuine managerial dedication to employee well-being. According to a Gallup survey, only 24% of employees feel that corporate management strongly appreciates workplace well-being (Harter, 2022), reflecting a prevailing attitude in this matter. Furthermore, maintaining workplace safety and investing in employee well-being often requires significant financial and human resources (Cohn & Wardlaw, 2016), posing challenges for short-term profits. Additionally, corporate management may exhibit managerial myopia and prioritize short-term financial results during periods of decreased monitoring (Li *et al.*, 2019). Consequently, employee health and safety may be jeopardized during periods of lower shareholder monitoring.

To investigate the relation between shareholder distraction and workplace employee well-being, we utilize the institutional shareholder distraction measure derived from institutions' 13F filings, as proposed by Kempf *et al.* (2017). This distraction measure considers stocks with extreme returns in the portfolios as attention-grabbing for investors, causing them to pay less attention to the other holdings within their portfolios. To assess employee well-being, we utilize workplace injury and illness records from the U.S. Occupational Safety and Health Administration (OSHA). Utilizing a large sample of over 46,000 U.S.-based establishment-year observations, our baseline regression indicates that distracted shareholders are associated with an increase in work-related injuries and illnesses.

More specifically, a one standard deviation increase in distraction is linked to about 15% increase in injuries from the sample mean. The effect of shareholder distraction on workplace safety remains robust across alternative models, variable measurements, fixed effect estimations, and workplace safety samples. In addition, the results hold for both establishment-level and firm-level analyses.

We consider the possibility that the relationship may be driven by reverse causality or unobserved omitted variables influencing both safety profiles and shareholder attention. We argue that our distraction measure mitigates the likelihood of reverse causality, as workplace accidents in a certain firm are unlikely to lead to extreme returns in other industries. To further address endogeneity concerns, we employ propensity score matching, entropy balancing, and firm fixed effect approaches. The results of these tests consistently support our findings.

We identify three possible channels through which distracted shareholders influence workplace safety. Specifically, during periods of reduced monitoring by distracted shareholders, we observe (i) a reduction in safety-related expenditures, (ii) an increase in employee workloads, and (iii) a rise in earnings management.

As the effect of shareholder distractions can vary across different settings, we consider several moderating variables that can influence our baseline finding. Specifically, we find that the association between shareholder distraction and workplace safety is more pronounced among firms with dual CEO-chairperson positions and elevated competition risks. Furthermore, we explore the economic implications of shareholder distraction and find that distraction-induced injuries and illnesses result in a decline in firm value.

This study offers two key contributions to the literature. First, we contribute to cross-disciplinary research on the consequences of shareholder attention-misallocation (e.g., El Ghoul *et al.*, 2023; Hirshleifer *et al.*, 2009; Peress & Schmidt, 2020). While Chen *et al.* (2020) demonstrate that shareholder distraction reduces overall CSR ratings, particularly in the employee dimension, we advance their findings by examining tangible employee safety outcomes, which provide a more direct measure of organizational performance. Unlike Li and Raghunandan (2021), who focus on institutional ownership and its interaction with distraction in shaping labor law compliance, we isolate distraction as a primary driver of workplace safety outcomes, independent of ownership structures. This allows us to highlight its direct consequences for physical safety rather than broader employment misconduct. Similarly, while Gong *et al.* (2023) emphasize shareholder litigation rights and the moderating role of distraction, we demonstrate that distraction independently worsens workplace safety, even in the absence of litigation. By introducing specific channel mechanisms and moderating variables, we provide a more comprehensive understanding of how shareholder distraction operates as a standalone driver of adverse outcomes.

Second, we contribute to the growing body of research on the factors influencing workplace safety and employee well-being. While previous studies have identified several firm-level attributes and external factors influencing corporate safety outcomes (e.g., Bradley *et al.*, 2022; Caskey & Ozel, 2017; Cohn & Wardlaw, 2016; Cohn *et al.*, 2021), there remains a gap in understanding the role of corporate governance and monitoring in shaping workplace conditions. Specifically, while prior research has explored the monitoring role of other stakeholders, such as lenders (e.g., Liao, Ma, & Xia, 2024), our study uniquely focuses on shareholder distraction as a critical yet underexplored factor. This focus is motivated by the central role shareholders play in corporate oversight and their ability to influence managerial priorities. By doing so, we provide new insights into how cognitive limitations at the governance level, particularly among shareholders, can adversely impact safety outcomes. Our study builds on Heese *et al.* (2023), who highlight "mood" as a human bias in identifying safety violations, by introducing distraction as another critical cognitive bias.

This paper has direct practical implications for corporate governance and regulatory policies. Our findings show that shareholder distraction weakens oversight, allowing firms to compromise worker well-being. For example, Amazon faced high injury rates at its warehouses due to intense production targets and inadequate safety measures, but shareholders did not intervene for stronger safety protocols (The Guardian, 2023). Similarly, at Massey Energy, investors failed to hold management accountable for repeated safety violations, which led to the Upper Big Branch mine disaster, killing 29 miners (EHS Today, 2017). These cases underscore the dangers of weak shareholder oversight. To address this, we recommend incorporating safety metrics into corporate disclosures and board oversight, as outlined by the SEC's disclosure requirements and Investor Stewardship Group's (ISG) corporate governance principles, ensuring that workplace safety remains a priority even with fluctuating shareholder attention.

The structure of the rest of the paper is as follows. Section 3.2 reviews relevant literature and presents hypothesis development. Section 3.3 discusses data and variables. Section 3.4 presents empirical results. Section 3.5 discusses the implications and concludes the paper.

3.2. Related literature and hypothesis development

3.2.1. Theoretical framework

Several established theories provide a foundational framework for our study. Ocasio's (1997) attention-based view (ABV) of the firm emphasizes how organizational attention shapes strategic decision-making and actions. According to ABV, the strategic actions of a firm are influenced by how attention is allocated within the organization. In the context of shareholder distraction, ABV suggests that when shareholders are preoccupied with external factors like market volatility, they may neglect critical governance and oversight responsibilities. The concept of situated attention, an extension of ABV, proposes that attention is context-dependent and influenced by social dynamics within the organization (Brielmaier & Friesl, 2023). Shareholders, as key stakeholders, play a significant role in shaping where management's attention is directed. When shareholders are engaged and communicative, they often steer management's focus toward their priorities. Conversely, when shareholders are distracted, the lack of engagement may lead to a managerial neglect of areas like workplace safety.

Cognitive load theory, advanced by Sweller (1988), is also relevant to understanding limited attention. This theory emphasizes that cognitive abilities are finite, meaning individuals can only process a limited amount of information at any given time. In our context, when shareholders are distracted by extreme portfolio returns, their cognitive load increases as they process this information. According to the theory, this heightened demand can overwhelm their cognitive capacity, reducing their ability to monitor other companies in their portfolio.

Additionally, attention allocation theory, which focuses on how individuals distribute their limited cognitive resources among various tasks, is crucial to our framework (Huang *et al.*, 2019). This theory suggests that attention allocation is a strategic decision influenced by factors such as task complexity or perceived importance (Avoyan *et al.*, 2024). In our context, shareholders may prioritize monitoring companies with extreme stock returns, overlooking those with stable returns. Consequently, firms with relatively distracted shareholders may face weaker governance, potentially leading to the neglect of operational areas like workplace safety management.

Overall, these three theories converge on the idea that shareholder attention is limited, and their oversight may weaken during periods of distraction. Our findings can be understood through the lens of these established theories.

3.2.2. Literature review

Workplace misconduct is a critical area of concern affecting employee well-being, productivity, and organizational culture. Misconduct behavior encompasses a broad range of unethical and inappropriate practices, such as discrimination, harassment, neglecting duties, and violating ethical standards. Current literature demonstrates several corporate governance factors that impact workplace misconduct. For example, independent board members can more effectively regulate corporate misconduct than affiliated members (Hambrick, Misangyi, & Park, 2015), and co-opted directors of the board are weaker in mitigating workplace-related violations (Zaman, Atawnah, Baghdadi, & Liu, 2021). Additionally, Heese and Pacelli (2023) find that social media activity provides an effective monitoring mechanism that reduces corporate wrongdoing, particularly non-financial violations such as poor treatment of employees.

Within the broad context of workplace misconduct, we focus on examining employee well-being and workplace safety due to their significant social and financial implications. For example, physical well-being reduces workers' psychological burnout (Vu *et al*., 2022) and maintains job satisfaction and retention (Danna & Griffin, 1999). Furthermore, workplace safety reflects a firm's treatment of its employees, while better employee treatment leads to benefits of higher morale and productivity (Harter *et al.*, 2002). Additionally, employees who are satisfied with their treatment in workplaces can contribute to increases in firm value and stock returns (Edmans, 2011).

Prior studies have attempted to discover the determinants of workplace safety. Cohn and Wardlaw (2016) identify financing constraints as a factor impacting safety since maintaining a safe working environment requires financial resources. Caskey and Ozel (2017) document that firms that just meet or slightly beat analyst forecasts experience more injuries and illnesses than firms that miss or significantly beat forecasts. The channels of the relationship mentioned above are higher employee workloads and less discretionary safety-related expenditures (Caskey & Ozel, 2017). Liang *et al*. (2023) demonstrate that being publicly listed on the stock market benefits workplace well-being due to increased monitoring by the media and regulators. Additionally, Amin *et al.* (2021) establish that companies located in more religious areas have safer workplaces, as religion promotes responsible behavior. Furthermore, Bradley *et al*. (2022) suggest that analyst coverage improves workplace safety, as analysts provide external monitoring of firms. Current literature has limited findings on how corporate governance affects employee safety. In particular, the influence of shareholders on workplace safety remains unexplored.

Institutional shareholders play crucial monitoring roles in companies (e.g., Edmans, 2009; Kempf *et al*., 2017). Institutions monitor firms and exert influence over managerial decisions through predominantly two channels: "voice" and "exit" (Hirschman, 1970). "Voice" refers to communicating with management and voting in shareholder meetings. An IRRC (2011) survey suggests that the majority of institutions engage with corporations to monitor firms' operations. Such engagement typically occurs through conference calls, shareholder meetings, and phone calls (Frankel, Johnson, & Skinner, 1999; Green, Jame, Markov, & Subasi, 2014). Institutional shareholders can also submit CSR-related proposals or formal shareholder complaints to corporate management to promote responsible company activities (Rehbein, Waddock, & Graves, 2004). However, distracted institutional investors significantly reduce their participation in conference calls, board member elections, and shareholder proposals (Kempf *et al.*, 2017; Liu, Low, Masulis, & Zhang, 2020). The "exit" channel is the threat of selling shares of the company and is particularly effective for larger shareholders who can drive down stock prices (Admati & Pfleiderer, 2009). In addition, Dawkins (2018) illustrates that divesting shares is a crucial method supporting the effectiveness of the responsible investment philosophy.

There are potential differences among institutional shareholders' extent of engaging with corporate managers. Notably, there are actively managed and passive index-tracking institutional investors. Active investors face no obstacles in engaging in both "voice" and "exit" channels. Regarding institutional investors of passively managed funds, extensive research papers suggest that these passive institutions still fulfill governance roles (e.g., Appel, Gormley, & Keim, 2016; Iliev & Lowry, 2015). Appel *et al*. (2016) discover that passive shareholders exert influence through proxy voting with their sizable stakes, thereby improving firms' governance structures[29]. Some passive institutions, constrained by limited resources for monitoring firms, seek recommendations from proxy advisory companies such as Institutional Shareholder Services (ISS) (Iliev & Lowry, 2015; Malenko & Shen, 2016).

Individuals' cognitive attention is inherently limited and cannot efficiently multitask (Kahneman, 1973, 2011). This limitation extends to investors (Barber & Odean, 2008), and various factors can further exacerbate investor distraction, such as economic uncertainty (Andrei, Friedman, & Ozel, 2023), large lottery jackpots (Huang *et al*., 2019), or climate disasters (Peress & Schmidt, 2020). The limitations in investor attention lead to several economic consequences, including a lower focus on firm-specific information (Peng & Xiong, 2006), inefficient processing of accounting information (Hirshleifer, Lim, & Teoh, 2011), and inaccurate pricing of assets in the stock market (Andrei & Hasler, 2015).

[29] More independent directors on the board, removal of takeover defence mechanisms, and more equal voting rights are examples of improved firm governance (Appel *et al*., 2016).

Shareholder distraction has also been linked to corporate earnings management (Garel *et al*., 2021), firm disclosure decisions (Abramova, Core, & Sutherland, 2020), higher audit risk (Yang, Wu, & Yu, 2021), higher cost of debt (El Ghoul *et al*., 2023), and stock price instability (Flugum, Orlova, Prevost, & Sun, 2021; Ni, Peng, Yin, & Zhang, 2020).

Moreover, researchers have identified significant effects of distracted shareholders on corporate governance and management behavior. Liu *et al*. (2020) demonstrate that institutional shareholder distraction negatively impacts board oversight performance due to reduced monitoring incentives and poorer discipline. Kempf *et al*. (2017) highlight that corporate management tends to prioritize personal benefits under looser monitoring, engaging in activities such as cutting dividends, retaining poorly performing CEOs, and making value-destructive acquisitions. Additionally, Li *et al.* (2019) reveal that shareholder distraction leads to lower R&D investments, reflecting managerial myopia and a preference for short-term financial results. Although institutional investors are critical in mitigating managerial myopia (Edmans, 2009), their occasional inattention can weaken this monitoring role in companies.

3.2.3. Hypothesis development

Drawing on existing literature, we hypothesize that shareholder distraction is associated with poorer workplace safety. Institutional shareholders typically recognize the significant financial risks posed by unsafe workplaces (Gong *et al.*, 2023), given their detrimental long-term effects on firm value and stock performance (Cohn & Wardlaw, 2016; Faleye & Trahan, 2011). However, when institutional investors are distracted, their reduced oversight grants managers greater discretion in decision-making. Freed from the pressure to prioritize long-term investments, managers may shift their focus to short-term performance metrics that are more visible and directly tied to their compensation or job security (Wiersema, Koo, Chen, & Zhang, 2025). While the moral and operational imperative of workplace safety suggests it should remain a priority, evidence from Li *et al.* (2019) shows that shareholder distraction leads to cuts in R&D expenditures, reinforcing the argument that managers engage in cost-cutting short-termism. This tendency is further exacerbated by managers' propensity to engage in earnings management when shareholders are distracted, as demonstrated by Garel *et al.* (2021). Earnings management, which often involves manipulating financial outcomes to meet short-term targets, can divert resources away from discretionary safety-related expenditures.

Furthermore, shareholder distraction raises the cost of debt (El Ghoul *et al.*, 2023), which could strain financial resources and force firms to make difficult budgetary trade-offs. While some firms may view safety as a strategic necessity, Cohn and Wardlaw (2016) demonstrate that financing constraints often lead to underinvestment in workplace safety. Finally, the board of directors, tasked with monitoring management on behalf of shareholders, becomes less effective when institutional investors are distracted (Liu *et al.*, 2020). This weakened oversight grants managers greater latitude to prioritize short-term financial performance over long-term safety commitments. Collectively, these dynamics create an environment where shareholder distraction is likely to result in deteriorating workplace safety. We present our hypothesis below:

H3.1: Shareholder distraction is associated with poorer workplace safety.

3.3. Data

3.3.1. Workplace safety data

We collect workplace injury and illness data from the U.S. Occupational Safety and

Health Administration (OSHA).[30] OSHA is a federal agency within the Department of Labor that ensures safe working conditions. The agency conducted a data initiative program that surveys private sector establishments on work-related injuries and illnesses annually from 1996 to 2011. This program was discontinued in 2011 due to funding cuts. OSHA's survey prior to 2002 exhibits material differences in recording criteria and industry coverage compared to the period after. Thus, we follow the literature and employ the most widely used survey period, from 2002 to 2011, in our sample due to data availability and comparability reasons. Notably, this sample source and period align with those used in many recently published influential studies, such as Bradley *et al.* (2022), Chen *et al.* (2023), and O'Sullivan *et al.* (2024), ensuring consistency and allowing for meaningful comparisons with prior research.

OSHA defines an establishment as a single physical location where business activities are performed. Thus, each company may have multiple establishments. We follow Caskey and Ozel and match the establishment names to listed companies in Compustat.[31]

Our main measure of workplace safety is the OSHA's official measure of total case rate (*TCR*) (Bradley *et al.*, 2022; Caskey & Ozel, 2017; Haga *et al.*, 2022). The *TCR* is the sum of injuries and illnesses in an establishment year, divided by employees' working hours and multiplied by 200,000. Since a full-time worker's annual working hours are approximately 2,000 hours, the *TCR* effectively calculates the injury and illness rate per 100 full-time workers. We also utilize an alternative metric for injuries and illnesses known as *DART*, which assesses the frequency of severe injury cases resulting in absence, restrictions, or transfers for employees. In addition to the establishment-level variables, we

[30] OSHA webpage is available at: https://www.osha.gov/ords/odi/establishment_search.html.
[31] We thank Bugra Ozel for sharing the establishment linking file.

define a firm-level injury rate as the mean of its establishments' rates.

OSHA records establishment characteristics that are relevant for workplace safety, which are continuous variables of the number of employees and working hours per employee, and dummy variables of worker strikes, facility shutdown, seasonal workers, and natural disasters. We, therefore, include these characteristics as control variables (Bradley *et al.*, 2022; Caskey & Ozel, 2017; Wu *et al.*, 2023). Additionally, we transform these establishment-level variables into firm-level variables by taking the simple average values of establishments in a firm-year.

As part of the sensitivity analysis, we consider an alternative workplace safety sample from the Violation Tracker dataset, which includes business violations penalized by regulatory agencies in the United States. Detailed explanations for the variables are available in the Variable Definitions Section.

3.3.2. Shareholder distraction measure

We follow Kempf *et al.*'s (2017) method to derive shareholder distraction levels. The rationale is based on the premise that significant changes in industry stock returns in the portfolios can capture the attention of institutional investors, causing them to focus more on these attention-grabbing stocks and less on other holdings in their portfolios. We gather the institutional holding information from quarterly 13F filings.[32] The level of distraction for each institutional investor is determined based on the weights of the extreme-return industry holdings within each portfolio. For each firm, a firm-level distraction measure is calculated based on each institutional shareholder's proportion of share ownership and percentage of portfolio allocation. The variable is measured as follows:

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[32] According to the United States Securities and Exchange Commission, U.S. institutions that have investment discretion of $100 million or more must file Form 13F.

$$D_{fq} = \sum_{i \in F_{q-1}} \sum_{IND \neq IND_f} w_{ifq-1} \times w_{iq-1}^{IND} \times IS_q^{IND} \qquad (3.1)$$

In this formula, IS_q^{IND} dummy variable represents an industry-level metric indicating whether a specific industry has encountered significant fluctuations in returns from the previous period to the current period. Meanwhile, w_{iq-1}^{IND} denotes the proportion of an institutional investor's portfolio that is allocated to the distracting industry. The result of multiplying these two components quantifies the extent to which the attention of institutional investors is diverted away from the firm. To arrive at a firm-level measure, we aggregate the distraction scores across all institutional shareholders. This aggregation involves weighting each institutional investor's distraction score by w_{ifq-1}.

$$w_{ifq-1} = \frac{QPFweight_{ifq-1} + QPercOwn_{ifq-1}}{\sum_{i \in F_{q-1}} (QPFweight_{ifq-1} + QPercOwn_{ifq-1})} \qquad (3.2)$$

This weighting method considers two aspects. First, $PercOwn_{ifq-1}$ represents the ownership percentage of an institutional investor in the firm during the previous quarter. Second, $PFweight_{ifq-1}$ measures the relative weight of an institutional investor's holdings in the firm compared to their overall portfolio. As the distraction measure is derived on a quarterly basis, we follow Kempf *et al.* (2017) and define our annual distraction measure as the average of the quarterly values. Higher values of shareholder distraction indicate more institutional shareholder distraction and looser monitoring of the firm.[33]

A significant advantage of Kempf et al.'s (2017) approach is that they derive the distraction measure from exogenous shocks in unrelated industries, making it unrelated to firm fundamentals and mitigating potential endogeneity concerns (El Ghoul *et al.*, 2023). In addition, this distraction measure successfully passes a range of validation tests (Garel

[33] In our establishment-level analyses, an establishment's distraction value is the parent firm's distraction value.

et al., 2021; Ni *et al.*, 2020).

3.3.3. Firm-level variables

We follow Caskey and Ozel (2017) and associate the reported establishments in OSHA's safety data with their corresponding firms. We collect corporate financial variables from the Compustat database and merge the data based on the company identifier and year.

We include several firm financial variables as control variables in both establishment-level and firm-level tests. The variables that proxy financing resources are highly relevant because Cohn and Wardlaw (2016) identify financing as a significant factor impacting workplace safety. Therefore, we include assets, leverage, free cash flows, and cash. Since asset-heavy physical production workplaces present more safety hazards than asset-light service work settings (Cohn & Wardlaw, 2016), we adopt tangibility and capital expenditures as relevant controls. Furthermore, the included market-to-book ratio reflects a company's growth rate. Faster growth is typically associated with more injuries due to potential short staffing or new employees' inexperience. Lastly, asset turnover indicates work pressure and workload, which can contribute to work-related injuries and illnesses (Amin *et al*., 2021; Caskey & Ozel, 2017).

In addition to the control variables mentioned above, we also include the institutional ownership ratio as a control. The percentage of institutional ownership and institutional monitoring impacts corporate governance, influencing myopic corporate decision-making (Burns, Kedia, & Lipson, 2010).

3.3.4. Sample selection

The availability of OSHA's safety data determines our sample period to be from

2002 to 2011. Following Caskey and Ozel (2017) and Cohn and Wardlaw (2016), we exclude utility and financial firms from the sample because these firms are subject to special regulations. [34] After merging workplace safety data with institutional shareholder distraction data, our sample consists of 46,427 establishment-year and 3,899 firm-year observations.

3.3.5. Descriptive statistics

Table 3.1 presents the descriptive statistics. We exclude observations for which distraction values are unavailable. We winsorize continuous variables to mitigate the influence of outliers. The original OSHA workplace injury and illness measures are at the establishment level. In addition, we define the firm-level safety measures as the mean of establishments' values. In Table 3.1, the establishment *TCR* injury rate has a mean of 7.986 and a standard deviation of 6.989, consist with previous relevant studies (e.g., Amin *et al*., 2021; Bradley *et al*., 2022; Haga *et al*., 2022).

Our shareholder distraction variable has a mean of 0.161, highly consistent with Kempf *et al*.'s (2017) statistics. The distraction variable is an unstandardized raw number, with values ranging from a minimum of 0.067 to a maximum of 0.262 in our sample. Additionally, the safety expenditure variable has negative values because it is a residual term from the discretionary expense model estimation (Amin *et al*., 2021; Caskey & Ozel, 2017).[35]

In addition, Table B.2 in the Appendix offers industry-level sample information categorized by the Fama French 12 industry classification. The table includes the number of observations by industry, along with *TCR* (total case rate) mean values and shareholder

[34] Utility companies have standard industrial classification (SIC) codes between 4900 and 4999. Financial companies have SIC codes between 6000 and 6999.
[35] We calculate the safety expenditure variable following Caskey and Ozel's (2017) approach.

distraction mean values associated with each industry. It is noteworthy that different sectors record varying *TCR* injury and illness rates and relatively similar distraction values. The 'other' sector, which typically includes mining, construction, and transportation businesses, has the highest observed *TCR* levels. If we exclude this sector from the sample, the baseline regression results remain robust.

Table 3.1: Summary statistics

VARIABLES	(1) N	(2) Mean	(3) Std. Dev.	(4) P25	(5) Median	(6) P75
Establishment Level:						
TCR	46,399	7.986	6.989	2.450	6.395	11.69
DART	46,400	5.395	5.402	1.035	3.899	8.162
Ln(Num_Employees)	46,427	4.995	1.064	4.277	4.890	5.609
Hours per Employee	46,427	1,918	444.4	1,673	1,973	2,131
Strike	46,427	0.003	0.052	0	0	0
Shutdown	46,427	0.074	0.262	0	0	0
Seasonal	46,427	0.036	0.185	0	0	0
Disaster	46,427	0.006	0.077	0	0	0
Firm Level:						
TCR	3,899	5.785	4.855	2.076	4.644	8.455
DART	3,899	3.570	3.498	0.970	2.575	5.179
Ln(Num_Employees)	3,899	5.385	0.974	4.787	5.351	5.977
Hours per Employee	3,899	2,007	884.2	1,896	2,022	2,116
Strike	3,899	0.003	0.038	0	0	0
Shutdown	3,899	0.120	0.243	0	0	0.143
Seasonal	3,899	0.033	0.138	0	0	0
Disaster	3,899	0.006	0.047	0	0	0
Shareholder Distraction	3,899	0.161	0.037	0.133	0.156	0.180
Distraction_Med	3,899	0.151	0.048	0.119	0.144	0.168
Ln(Assets)	3,896	7.980	1.438	6.913	7.778	8.854
Leverage	3,885	0.259	0.196	0.130	0.239	0.350
Tangibility	3,894	0.297	0.196	0.149	0.253	0.398
Asset Turnover	3,895	1.275	0.745	0.803	1.104	1.524
CAPEX/Assets	3,891	0.050	0.039	0.023	0.037	0.064
Market to Book	3,563	1.913	0.981	1.239	1.642	2.276
FCF/Assets	3,697	0.088	0.080	0.044	0.084	0.135
Cash/Assets	3,893	0.126	0.127	0.033	0.082	0.173
IOR	3,899	0.762	0.185	0.660	0.788	0.885
Safety Expenditures	3,685	-32.75	65.69	-56.12	-21.86	0.728
Ln(Production per Employee)	3,605	5.127	0.742	4.650	5.034	5.499
Real Earnings Management	3,889	-0.066	0.455	-0.152	-0.055	0.031
Board Independence	2,964	0.754	0.138	0.667	0.778	0.875
CEO Chairperson Duality	3,154	0.628	0.483	0	1	1
Product Market Fluidity	3,816	5.285	2.819	3.241	4.690	6.658
Tobin's Q	3,580	1.751	0.828	1.216	1.511	2.027
Safety Violation Dummy	3,315	0.306	0.461	0	0	1

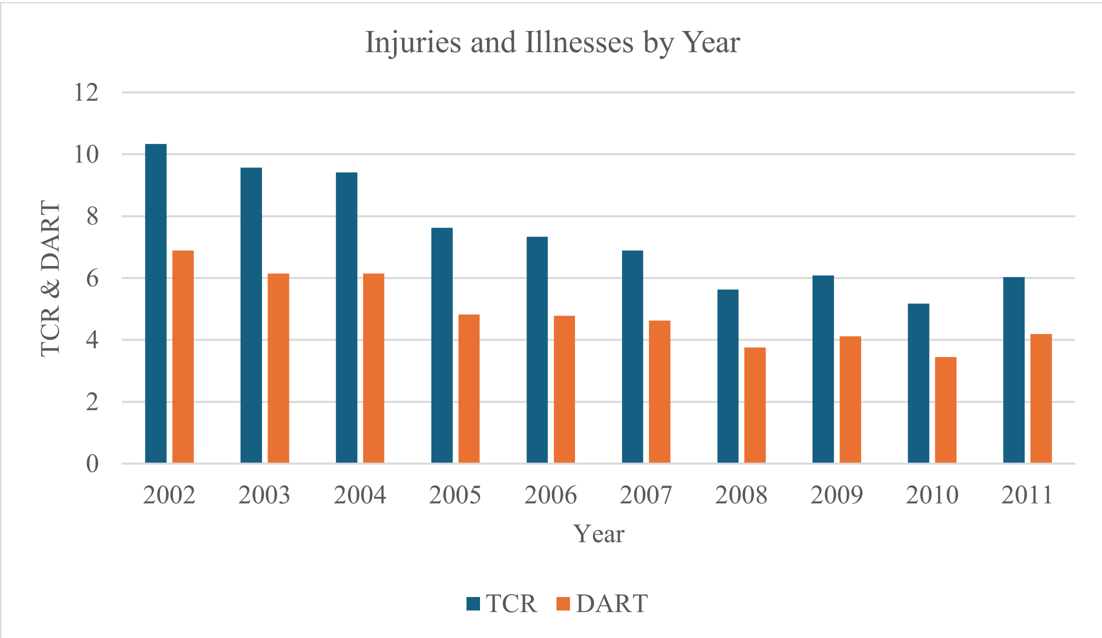
This table presents the descriptive statistics. Observations with unavailable shareholder distraction values are excluded. There are 46,400 establishment-year observations and 3,899 firm-year observations. Detailed descriptions of the variables are available in the Variable Definitions Section.

3.4. Empirical results

3.4.1. Univariate analysis

We conduct univariate analysis by visually illustrating the patterns of workplace injury rates across time and various levels of shareholder distraction. Figure 3.1 illustrates the establishments' annual average injury rates from the year 2002 to 2011. The trend is generally downward over the 10-year period. In 2002, the *TCR* injury rate was 10.33%. The *TCR* level decreased to 5.62% in 2008 and then remained approximately flat at around 6% until 2011. The *DART* injury rate exhibits the same pattern as the *TCR*.

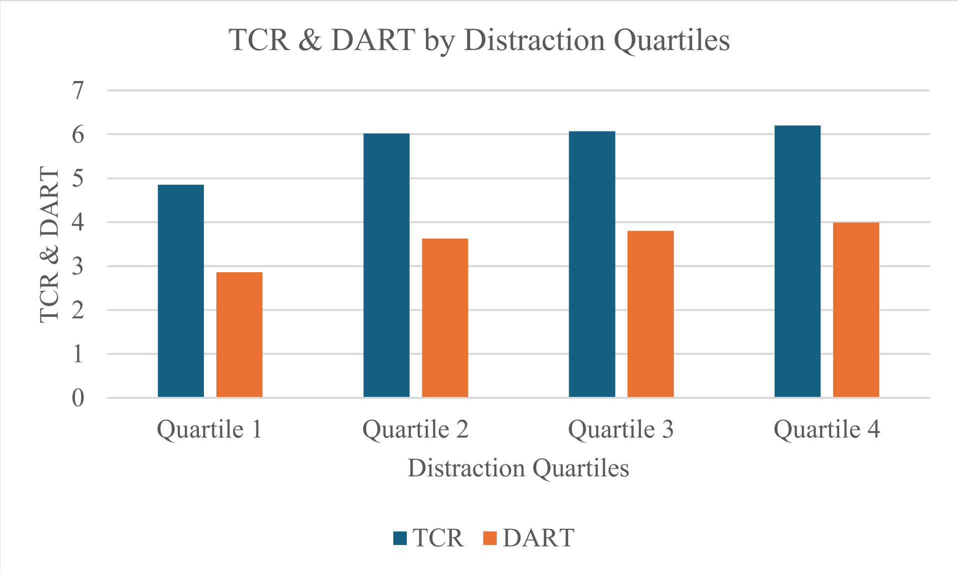
Figure 3.1: Injuries and illnesses by year



This figure presents the trend of workplace injuries and illnesses over time. The dark blue bars illustrate the average total case rate (*TCR*), which represents the injury and illness rate per 100 full-time workers. The orange bars display the average rate of severe injuries and illnesses per 100 full-time workers (*DART*).

Figure 3.2 reveals the levels of injury rates associated with different shareholder distraction levels. We split the sample into four quartiles based on distraction magnitude. Comparing the injury and illness rates between the lowest quartile and the highest quartile, the differences are statistically significant at 1% levels. Specifically, the highest distraction quartile has, on average, 1.35 units higher *TCR* rate, and 1.13 units higher *DART* rate. These observed differences offer preliminary evidence supporting a positive relationship between shareholder distraction and work-related injuries.

Figure 3.2: Univariate analysis



	Distraction Quartiles					
	(1)	(2)	(3)	(4)	(5)	(6)
	Quartile 1 Low	Quartile 2	Quartile 3	Quartile 4 High	Low - High	*t*-statistics (*p*-value)
TCR	4.850	6.021	6.071	6.200	-1.350***	$t = -6.026$ ($p = 0.000$)
DART	2.864	3.627	3.799	3.994	-1.130***	$t = -7.103$ ($p = 0.000$)

This figure presents the average *TCR* and *DART* injury rates by shareholder distraction's annual quartiles. *TCR* represents the injury and illness rate per 100 full-time workers. *DART* reflects the rate of severe injuries and illnesses per 100 full-time workers. The green bar representing *TCR* is on the left side of each quartile, while the orange *DART* bar is on the right. The table below the figure displays the average values of injury rates for each distraction quartile. Column (5) reports the differences between the lowest and highest quartiles, and Column (6) reports the *t*-statistics and *p*-values.

3.4.2. Baseline regression model

We use equation (3.3) below as our baseline OLS regression model:

$$TCR\ Injury\ Rates_{i,t+1} = \beta_0 + \beta_1 \times Shareholder\ Distraction_{i,t} + \beta_2 \times Control\ Variables_{i,t} + Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{i,t} \qquad (3.3)$$

The analyses are conducted at two levels: the establishment level and the firm level. The U.S. OSHA agency only publishes workplace injury data at the establishment level, and we define the firm-level injury rate as the mean of reported establishments' injury rates in a given firm-year.

The dependent variable is the total case rate (*TCR*), which is OSHA's official injury rate measure in year *t*+1. The main explanatory variable is the shareholder distraction variable at year *t*. The rationale for the lead-lag measure is to eliminate potential concerns about reverse causality. In addition, less stringent monitoring leads to changes in management behavior, such as reduced safety-related investments. Although management activities change in the current period, it takes time for the consequences to reflect on workplace safety measures.

Several control variables are present in the model, as discussed in the data section. We follow the literature and employ both industry-fixed effects and year-fixed effects (e.g., Bradley *et al.*, 2022; Qian *et al.*, 2024; Qian, Crilly, *et al.*, 2023). The industry fixed effect mitigates the impact of omitted factors that are unique to each industry's safety profiles, while the year fixed effect takes into account the common trend of work-related injuries and illnesses over time.

3.4.3. Baseline regression results

Table 3.2 presents the baseline regression results. Panels A and B report establishment-level and firm-level results, respectively.[36] In each panel, Column (1) only comprises the key independent variable without any control variables, whereas Column (2) includes several controls, and Column (3) includes all controls. All columns in both Panels report statistically significant results at the 1% level, indicating that shareholder distraction is associated with higher injury and illness levels.

The effect of shareholder distraction is also economically meaningful. In column (3) in Panel A, a one standard deviation increase in shareholder distraction is associated with a 1.2 unit increase in *TCR* injury rate,[37] corresponding to approximately 15% of *TCR*'s sample mean or 0.17 standard deviations of *TCR*.[38] Prior studies document that financing constraints or worker unionization exhibit similar magnitudes of effects on workplace safety and conclude such effects to be economically significant (e.g., Cohn & Wardlaw, 2016).

[36] Firm-level variables of *TCR, Ln(Num_Employees), Hours per Employee, Strike, Shutdown, Seasonal, Disaster* are defined as the mean of establishment values in a given firm year.
[37] The calculation is as follows: 1.20 units *TCR* = distraction's standard deviation of 0.037 × coefficient estimate of 32.451.
[38] The calculation is as follows: 1.20 units / *TCR*'s sample mean of 7.986 = 15.03%. 1.20 units / *TCR*'s standard deviation of 6.989 = 0.17.

Table 3.2: Baseline regressions

Panel A: Establishment-level Results

VARIABLES	(1) TCR_{t+1}	(2) TCR_{t+1}	(3) TCR_{t+1}
Shareholder Distraction	27.360***	32.706***	32.451***
	(3.618)	(3.903)	(3.910)
Controls:			
Ln(Assets)		0.097**	0.096**
		(0.049)	(0.049)
Leverage		0.985***	0.991***
		(0.342)	(0.342)
Tangibility		1.311***	1.314***
		(0.485)	(0.486)
Asset Turnover		-0.020	-0.007
		(0.108)	(0.108)
CAPEX/Assets		-14.229***	-13.933***
		(2.369)	(2.378)
Market to Book		-0.000	-0.005
		(0.082)	(0.083)
FCF/Assets		-6.483***	-6.415***
		(1.238)	(1.240)
Cash/Assets		9.954***	9.916***
		(0.715)	(0.715)
IOR		-1.466***	-1.497***
		(0.370)	(0.370)
Ln(Num_Employees)		0.297***	0.292***
		(0.047)	(0.047)
Hours per Employee		-0.002***	-0.002***
		(0.000)	(0.000)
Strike			2.107**
			(0.962)
Shutdown			0.205
			(0.176)
Seasonal			0.672***
			(0.239)
Disaster			-0.005
			(0.554)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	23,342	20,854	20,854
Adjusted R-squared	0.243	0.270	0.270

Panel B: Firm-level Results

VARIABLES	(1) TCR_{t+1}	(2) TCR_{t+1}	(3) TCR_{t+1}
Shareholder Distraction	10.552***	14.637***	14.468***
	(3.977)	(4.279)	(4.286)
Controls:			
Ln(Assets)		-0.475***	-0.474***
		(0.068)	(0.068)
Leverage		0.628	0.638
		(0.516)	(0.516)
Tangibility		1.928**	1.935**
		(0.765)	(0.765)
Asset Turnover		0.351**	0.350**
		(0.155)	(0.156)
CAPEX/Assets		-15.353***	-15.467***
		(3.912)	(3.929)
Market to Book		-0.036	-0.040
		(0.135)	(0.135)
FCF/Assets		-1.273	-1.296
		(1.635)	(1.639)
Cash/Assets		0.552	0.558
		(0.955)	(0.954)
IOR		-0.603	-0.597
		(0.536)	(0.536)
Ln(Num_Employees)		0.095	0.092
		(0.093)	(0.092)
Hours per Employee		-0.002***	-0.002***
		(0.000)	(0.000)
Strike			2.754
			(2.702)
Shutdown			-0.245
			(0.354)
Seasonal			0.909
			(0.617)
Disaster			0.628
			(1.423)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	3,043	2,654	2,654
Adjusted R-squared	0.336	0.358	0.358

This table presents the baseline OLS regression results of *TCR* injury rates on shareholder distraction. Panels A and B report establishment-level and firm-level results, respectively. The dependent variable is the total case rate (*TCR*). Column (1) does not include control variables, while column (2) includes some of the controls, and column (3) includes all controls. The model includes industry-fixed effects (based on two-digit SIC codes) and year-fixed effects. Robust standard errors are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in the Variable Definitions section.

3.4.4. Propensity score matching

We consider the possibility that firm characteristics could influence the relationship in our baseline findings. To address this concern and ensure better comparability of observations in the sample, we employ propensity score matching to create a balanced dataset. This matching process aims to establish similar characteristics between observations with distracted shareholders and those with focused shareholders.

We conduct matching separately at the establishment and firm levels. Initially, we construct a median dummy variable for shareholder distraction. This variable takes the value of one if the distraction value of the observation is above the annual median, and zero if it is below the median. We then categorize observations into treatment and control groups based on this annual median dummy variable.[39] We utilize a logit model to predict the distraction median dummy and obtain propensity scores. This logit model includes all baseline control variables as independent variables and incorporates industry- and year-fixed effects. Subsequently, for each treatment observation, we match it with one control observation with the closest propensity score, from the same industry and year, using a strict threshold of 0.01.[40] We report matching efficiency in Table B.3 of the Appendix. Comparing the treatment and control groups, the control variables exhibit significant differences before propensity score matching, but most of these differences are no longer significant after matching. This indicates the effectiveness of our matching procedure.

In the post-matching balanced sample, we re-conduct the baseline regressions with all control variables and report the results in Table 3.3. The establishment-level result in Panel A is significant at the 10% level, while the firm-level result in Panel B is significant

[39] The treatment group's distraction median dummy equals to one, while the control group's distraction median dummy equals to zero.

[40] We utilize the no-replacement option, so that a control observation is only matched to one treatment observation. The results are also significant if we use the with-replacement option.

at the 1% level. The significantly positive coefficients in both panels indicate that our baseline findings are robust in a balanced sample.

Table 3.3: Propensity score matching

VARIABLES	Panel A: Establishment Level TCR_{t+1}	Panel B: Firm Level TCR_{t+1}
Shareholder Distraction	21.676*	32.795***
	(12.202)	(11.143)
Controls:		
Ln(Assets)	-0.040	-0.549***
	(0.155)	(0.140)
Leverage	1.936**	1.470*
	(0.849)	(0.886)
Tangibility	4.397***	0.567
	(1.537)	(1.641)
Asset Turnover	0.013	0.558
	(0.456)	(0.354)
CAPEX/Assets	-24.272***	-12.043
	(9.214)	(8.932)
Market to Book	0.117	-0.051
	(0.277)	(0.262)
FCF/Assets	0.177	5.365*
	(3.492)	(3.081)
Cash/Assets	4.716*	-0.506
	(2.594)	(2.011)
IOR	-1.694*	-1.453
	(0.980)	(1.069)
Ln(Num_Employees)	-0.193	-0.014
	(0.137)	(0.160)
Hours per Employee	-0.001**	-0.001
	(0.000)	(0.001)
Strike	7.063***	30.005***
	(2.648)	(3.901)
Shutdown	0.170	-0.047
	(0.356)	(0.669)
Seasonal	1.712***	1.719
	(0.607)	(1.348)
Disaster	-0.094	-0.161
	(1.133)	(1.738)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	2,011	662
Adjusted R-squared	0.274	0.379

This table presents the results of propensity score matching tests. The treatment variable is *shareholder distraction's* annual median dummy. The matching criteria are that the treatment and control observations are in the same industry and year. The matching variables include all baseline control variables. The propensity score is calculated using a logit model with industry and year-fixed effects and without replacement. The matching caliper is set at 0.01. The regression dependent variable is the total case rate (*TCR*). The model includes industry-fixed effects (based on two-digit SIC codes) and year-fixed effects. Robust standard errors are reported in parentheses. *, **, and *** represent statistical significance at 10%, 5%, and 1% levels. Matching efficiency is provided in Appendix B.3.

3.4.5. Entropy balancing

We employ entropy balancing as another method to construct a balanced sample to ensure that firm characteristics do not influence our baseline relationship. This technique reweights each observation to align the means of prespecified variables between the treatment and control groups. McMullin and Schonberger (2020) demonstrate the reliability of the entropy balancing technique.

In our sample, the annual distraction median dummy separates the observations into treatment and control groups. We include all the control variables in the baseline model as balancing variables. The entropy balancing method ensures that firms with lower shareholder distraction exhibit highly similar control variable characteristics to firms with higher distraction. We report matching efficiency in Table B.4 of the Appendix.

We present the relevant regression results in Table 3.4. The entropy balancing tests include both establishment-level and firm-level samples. The regression model is the same as the baseline test, incorporating all control variables. The results are significant at the 1% level and further confirm the positive relationship between shareholder distraction and work-related injuries and illnesses.

Table 3.4: Entropy balancing

VARIABLES	Panel A: Establishment Level TCR_{t+1}	Panel B: Firm Level TCR_{t+1}
Shareholder Distraction	29.218***	14.766***
	(3.985)	(4.345)
Controls:		
Ln(Assets)	0.088*	-0.474***
	(0.050)	(0.069)
Leverage	0.870**	0.326
	(0.351)	(0.504)
Tangibility	1.366***	2.006**
	(0.497)	(0.834)
Asset Turnover	0.005	0.396**
	(0.110)	(0.154)
CAPEX/Assets	-14.564***	-18.268***
	(2.463)	(4.670)
Market to Book	-0.051	0.036
	(0.087)	(0.148)
FCF/Assets	-6.552***	-1.980
	(1.296)	(1.765)
Cash/Assets	11.292***	0.555
	(0.754)	(0.965)
IOR	-1.813***	-0.524
	(0.378)	(0.576)
Ln(Num_Employees)	0.306***	0.134
	(0.048)	(0.093)
Hours per Employee	-0.002***	-0.002***
	(0.000)	(0.000)
Strike	2.176**	1.982
	(0.937)	(2.277)
Shutdown	0.289	-0.146
	(0.184)	(0.364)
Seasonal	0.595**	0.779
	(0.238)	(0.590)
Disaster	-0.004	0.091
	(0.597)	(1.269)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	20,858	2,658
R-squared	0.273	0.386

This table presents the results of entropy balancing tests. Panels A and B report establishment-level and firm-level results, respectively. The treatment and control groups are split by the shareholder distraction's median dummy. The balancing variables are all the control variables. The regression dependent variable is the total case rate (*TCR*). The model includes industry-fixed effects (based on two-digit SIC codes) and year-fixed effects. Robust standard errors are reported in parentheses. *, **, and *** represent statistical significance at 10%, 5%, and 1% levels. Matching efficiency is provided in Appendix B.4.

3.4.6. Firm fixed effect estimation

Although we have included several relevant control variables in the baseline model, the presence of omitted variable bias remains a possibility. In addition to the industry- and year-fixed effects, we utilize firm-fixed effects to mitigate the influence of time-invariant omitted firm variables on our baseline relationship.

We also consider an alternative dependent variable, *DART*, which quantifies the rate of severe injuries and illnesses leading to workers being away, restricted, or transferred from work. *DART* has recently been employed in several papers as an alternative measure of employee well-being (e.g., Amin *et al*., 2021; Wu *et al*., 2023).

Table 3.5 presents the firm fixed effects estimation results. Both establishment-level and firm-level results are statistically significant. While the firm-level significance levels are not the highest, the establishment-level coefficients are highly significant at 1%. Moreover, the adjusted R-squared of this model is higher than the baseline model due to the inclusion of firm fixed effects.

Table 3.5: Firm fixed effects estimation

	Panel A: Establishment Level		Panel B: Firm Level	
	(1)	(2)	(3)	(4)
VARIABLES	TCR_{t+1}	$DART_{t+1}$	TCR_{t+1}	$DART_{t+1}$
Shareholder Distraction	19.618***	21.679***	7.710*	6.470**
	(6.896)	(4.754)	(4.353)	(3.042)
Controls:				
Ln(Assets)	-0.328	-0.106	-0.171	0.103
	(0.346)	(0.264)	(0.344)	(0.282)
Leverage	1.094	0.518	0.584	0.422
	(0.749)	(0.572)	(0.796)	(0.578)
Tangibility	-0.195	-1.356	0.079	-0.806
	(1.264)	(1.001)	(1.389)	(1.083)
Asset Turnover	-0.266	0.113	0.213	0.250
	(0.436)	(0.338)	(0.392)	(0.300)
CAPEX/Assets	2.257	3.353	-5.070	0.773
	(4.673)	(3.695)	(4.548)	(3.462)
Market to Book	-0.191	0.068	-0.077	0.030
	(0.180)	(0.144)	(0.156)	(0.114)
FCF/Assets	3.739*	2.225	1.927	1.059
	(2.104)	(1.599)	(2.001)	(1.560)
Cash/Assets	-1.791	-1.885**	-0.192	-0.118
	(1.230)	(0.956)	(1.204)	(0.935)
IOR	2.008**	0.496	-0.145	-0.524
	(0.831)	(0.641)	(0.967)	(0.663)
Ln(Num_Employees)	0.175***	0.152***	0.086	0.043
	(0.049)	(0.039)	(0.127)	(0.097)
Hours per Employee	-0.001***	-0.001***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Strike	1.838**	1.617**	0.656	-0.536
	(0.890)	(0.684)	(1.905)	(0.998)
Shutdown	0.361**	0.226*	-0.279	-0.262
	(0.170)	(0.129)	(0.348)	(0.260)
Seasonal	0.507**	0.486**	-1.020	-0.298
	(0.240)	(0.204)	(0.674)	(0.578)
Disaster	0.497	0.921**	-0.137	-0.252
	(0.506)	(0.440)	(1.148)	(0.858)
Firm FE	Yes	Yes	Yes	Yes
Industry × Year FE	Yes	Yes	Yes	Yes
Observations	20,720	20,720	2,457	2,457
Adjusted R-squared	0.361	0.360	0.700	0.697

This table presents the regression results incorporating firm fixed-effects models. Panels A and B report establishment-level and firm-level results, respectively. The dependent variables are the *TCR* and *DART*. *TCR* represents the injury and illness rate per 100 full-time workers. *DART* reflects the rate of severe injuries and illnesses per 100 full-time workers. Robust standard errors are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.4.7. Possible channels

To understand how and why distracted shareholders lead to worsened workplace safety, we propose three potential channels: reduced safety-related expenditures, increased employee workloads, and real earnings management.

Safety-related expenditures are often categorized as discretionary costs, meaning they can be adjusted more easily than fixed costs. When management is overly focused on short-term financial performance, they may cut these expenditures to boost profitability in the near term. For example, investments in safety training and equipment maintenance may be deferred or reduced. While this may improve short-term financial metrics, it can lead to a deterioration in workplace safety conditions over time. Research by Amin *et al.* (2021) and Caskey and Ozel (2017) demonstrates that reductions in safety expenditures are directly correlated with higher rates of workplace accidents and injuries.

The calculation of the safety-related expenditure measure follows Caskey and Ozel's (2017) and Roychowdhury's (2006) approaches. Firms typically record safety-related expenditures within their selling, general, and administrative expenses (SG&A). As companies do not directly report details about safety expenditures, Roychowdhury (2006) developed a model to estimate the normal level of SG&A expenses. The residual term of this model serves as a proxy for abnormal safety-related discretionary expenses. Caskey and Ozel (2017) further refined Roychowdhury's (2006) variable by scaling it on a per-employee basis, providing a more precise measure of safety expenditure intensity relative to workforce size.

Another channel through which distracted shareholders may impact workplace safety is by increasing employee workloads. When management prioritizes short-term earnings targets, they may push employees to work longer hours or increase production rates. Overburdened employees are more likely to experience fatigue and stress, which increase the likelihood of workplace injuries. Additionally, higher workloads can lead to shortcuts in safety procedures, further exacerbating safety risks. According to Hatfield, Fisher, and Silverglate's (2022) survey, workers identify heavy workloads as the most significant obstacle to health and safety. Caskey and Ozel (2017) provide empirical evidence that heavy workloads contribute to more work-related injuries and illnesses. Following Caskey and Ozel (2017) and Amin *et al*. (2021), our measure of employee workload is log-transformed production per employee, where production is calculated as the cost of goods sold plus the increase in inventory.

Real earnings management involves manipulating operational activities to meet or exceed earnings targets, often at the expense of long-term value creation (Roychowdhury, 2006). For example, a company might delay necessary maintenance, reduce quality control measures, or cut back on safety inspections to lower costs and boost short-term profits. While these actions may temporarily improve financial performance, they can have severe consequences for workplace safety. Caskey & Ozel (2017) argue that real earnings management is particularly detrimental to safety because it directly impacts the operational environment in which employees work. For instance, delaying equipment maintenance might lead to machinery malfunctions, increasing the risk of safety accidents.

We use Cohen and Zarowin's (2010) measure of real earnings management, which is based on abnormal operating cashflows and abnormal discretionary expenses. A higher value of this measure indicates more earnings management. We focus on real earnings management rather than accrual-based earning management because manipulation through real activities affects cashflows and business practices (Cohen & Zarowin, 2010). Moreover, real earnings management has become more prevalent since the introduction of the Sarbanes-Oxley Act (SOX) in 2002 (Garel *et al*., 2021), as firms face stricter regulations on accrual-based manipulation.

Table 3.6 presents the results of the channel tests. The statistically significant results indicate that shareholder distraction is associated with reduced safety-related discretionary expenditures, heavier employee workloads, and increased real earnings management. In terms of economic significance, a one standard deviation increase in shareholder distraction corresponds to a 9.41% decrease in safety expenditure, a 9.03% increase in employee workload, and a significant 37.78% rise in real earnings management, relative to the sample mean.[41] These observed effects are consistent with Li *et al.*'s (2019) argument that managerial prioritization of near-term financial results is common under weaker shareholder monitoring. This management short-termism arguably leaves employee well-being vulnerable, as firms sacrifice long-term safety and sustainability for short-term financial gains.

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[41] The calculations are as follows: 9.41% = *distraction*'s standard deviation 0.037 × coefficient 83.270 / *safety expenditure*'s sample mean -32.75; 9.03% = *distraction*'s standard deviation 0.037 × exp(coefficient 0.892); 37.78% = *distraction*'s standard deviation 0.037 × coefficient 0.674/ *real earnings management*'s sample mean -0.066.

Table 3.6: Possible channels

VARIABLES	Panel A: Safety Expenditure *Safety Expenditure*	Panel B: Employee Workload *Ln(Production/ Emp)*	Panel C: Real Earnings Management *Real Earnings Management*
Shareholder Distraction	-83.270**	0.892*	0.674**
	(39.161)	(0.496)	(0.276)
Controls:			
Ln(Assets)	0.342	0.108***	-0.007
	(0.823)	(0.009)	(0.007)
Leverage	10.210*	-0.156***	-0.018
	(5.351)	(0.058)	(0.049)
Tangibility	-61.428***	0.265**	0.067
	(7.718)	(0.103)	(0.077)
Asset Turnover	-17.265***	0.479***	0.065***
	(1.849)	(0.023)	(0.017)
CAPEX/Assets	69.794*	-2.025***	-1.000***
	(36.015)	(0.475)	(0.365)
Market to Book	12.590***	-0.084***	-0.033**
	(1.710)	(0.017)	(0.014)
FCF/Assets	-0.134	-1.136***	-0.739***
	(20.592)	(0.199)	(0.145)
Cash/Assets	88.542***	0.432***	-0.141*
	(9.921)	(0.098)	(0.085)
IOR	-0.690	-0.095	-0.097*
	(5.303)	(0.060)	(0.051)
Ln(Num_Employees)	2.716**	-0.031***	0.003
	(1.235)	(0.011)	(0.010)
Hours per Employee	-0.016***	0.000**	0.000
	(0.003)	(0.000)	(0.000)
Strike	-18.065	0.233	-0.100
	(14.850)	(0.228)	(0.143)
Shutdown	-1.814	-0.073*	-0.058
	(3.169)	(0.037)	(0.042)
Seasonal	-7.833*	0.182***	0.052
	(4.431)	(0.060)	(0.038)
Disaster	-44.951***	0.143	-0.134
	(9.918)	(0.195)	(0.123)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	3,202	3,117	3,385
Adjusted R-squared	0.541	0.619	0.071

This table presents the regression results of channel mechanism tests. Panels A, B, and C report channels of safety expenditure, employee workload, and real earnings management. The tests are at the firm level. The dependent variables are the channel measures. Robust standard errors are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.4.8. Cross-sectional tests

The impact of shareholder distraction on workplace safety is likely influenced by various factors. In this study, we examine the potential moderating roles of CEO duality and market competition.

CEO duality potentially plays an important role in moderating the relationship between institutional shareholder distraction and workplace safety. When the CEO also serves as the board chair, they gain substantial control over the board, potentially weakening its ability to provide effective oversight (Pham, Oh, & Pech, 2015). This diminished monitoring capacity becomes particularly relevant in the context of distracted institutional shareholders, as Liu *et al.* (2020) demonstrate that shareholder distraction further impairs board members' oversight effectiveness. In such situations, entrenched CEOs with dual roles may have greater discretion to deprioritize workplace safety investments without facing significant resistance from the board or shareholders. While prior research suggests that CEO duality can enhance a CEO's ability to implement effective safety policies (Haga *et al.*, 2022), its influence likely depends on the broader governance environment. Under conditions of shareholder distraction, the absence of external monitoring may enable entrenched CEOs to prioritize short-term financial objectives at the expense of employee well-being. Therefore, CEO duality is a potential moderating factor in this study, capturing how managerial entrenchment can intensify the negative effects of shareholder distraction on workplace safety.

Additionally, market competition may play a crucial role in shaping corporate behavior and its implications for workplace safety. Shleifer (2004) suggests that heightened competition can incentivize firms to engage in unethical practices, as the pressure to maintain profitability and market share may lead to cost-cutting measures that compromise ethical standards. Similarly, McManus and Schaur (2016) find that firms operating under intense competitive pressures often prioritize productivity and cost efficiency over worker safety. When shareholders are distracted, managerial discretion over resource allocation increases, making it more likely that safety expenditures will be deprioritized in favor of short-term financial performance. As a result, competitive market forces may amplify the adverse effects of shareholder distraction on workplace safety. We follow Hoberg *et al.* (2014) and use product market fluidity as a proxy. In addition to the original fluidity measure, we further include an industry-adjusted measure to account for the variations in competition levels across different industries. [42]

The cross-sectional testing method first involves splitting the overall sample into two subsamples based on annual tertiles of the moderating variables. Thus, one subsample corresponds to the bottom tertile, and the other to the top tertile. Then, we conduct the baseline regressions on the subsamples. Finally, we compare the differences in distraction coefficients across the two subsamples using seemingly unrelated regression (SUR) and Wald tests. This approach is widely employed in the literature (e.g., Pham, 2020).

Table 3.7 presents the results of cross-sectional tests. The two panels display the regression coefficients for the subsamples, along with the corresponding Seemingly Unrelated Regressions (SUR) and Wald test statistics. The significant SUR and Wald test results indicate that the coefficient estimates differ statistically, underscoring the moderating effects of the examined variables. In Panel A, the impact of shareholder distraction on workplace safety is significantly stronger when the CEO also serves as the board chairperson. Notably, when the CEO does not hold both positions, the baseline relationship becomes insignificant. Similarly, Panel B shows that the effect of shareholder

[42] The industry adjusted product market fluidity is the original value minus the yearly industry mean, and then divided by the yearly industry standard deviation.

distraction on workplace safety is more pronounced in firms facing higher levels of market competition. Overall, these findings suggest that distracted shareholders are associated with increased workplace injuries and illnesses, particularly in firms with dual CEO-chairperson leadership and intense market competition.

Table 3.7:Cross-sectional tests

	Panel A: CEO Duality		Panel B: Market Competition			
	(1)	(2)	(1)	(2)	(3)	(4)
			Product Market Fluidity		Ind. Adj. Product Market Fluidity	
Sub-samples	CEO is chairperson	CEO is not chairperson	Low	High	Low	High
VARIABLES	TCR_{t+1}	TCR_{t+1}	TCR_{t+1}	TCR_{t+1}	TCR_{t+1}	TCR_{t+1}
Shareholder Distraction	35.898***	-5.206	20.256***	63.877***	9.935*	66.356***
	(-5.319)	(-7.368)	(5.684)	(7.086)	(5.832)	(7.117)
Baseline Controls	Included	Included	Included	Included	Included	Included
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,164	3,953	6,098	6,982	5,727	7,101
Adjusted R-squared	0.284	0.272	0.261	0.326	0.264	0.328
SUR & Wald Test for Differences in Coefficients:						
Chi-squared Statistics	20.46***		23.06***		37.60***	
p-value	0.0000		0.0000		0.0000	

This table presents the regression results of cross-sectional tests. Panels A and B report the moderating roles of CEO duality and market competition, respectively. The Low and High subsamples represent the bottom and top annual tertiles of the moderating variables. All panel tests are at the establishment level. The dependent variable is the total case rate (*TCR*). Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.4.9. Economic consequence tests

In addition to the direct impact on employee well-being, workplace safety also significantly affects the company's financial performance. Building on the findings of Cohn and Wardlaw (2016), who demonstrate that work-related injuries and illnesses decrease firm value, we aim to investigate the role of shareholder distraction in the relationship between safety and firm value.

Following the methodology of Cohn and Wardlaw (2016), we employ future-period Tobin's Q as a measure of firm value.[43] In our analysis, we introduce an interaction term between the *TCR* injury rate and the dummy variable indicating high shareholder distraction into the regressions. This dummy variable, *High Distraction*, takes a value of one if the observation's distraction value falls within the top overall tertile, and zero if it falls within the bottom overall tertile. This dummy variable excludes observations that fall within the middle tertile and focuses on the extreme values of shareholder distraction.

From the results in Table 3.8, the *TCR* injury rates are associated with lower firm value, confirming Cohn and Wardlaw's (2016) findings. Additionally, the interaction term is also statistically significant and negative, indicating that the effect of injuries on firm value is amplified when shareholders are more distracted. Taking the coefficient estimates in Column 1 as an example to interpret the economic significance, when the distraction tertile dummy is one, a one standard deviation increase in the *TCR* injury rate leads to approximately 1.1% lower firm value from the sample mean.[44]

[43] Tobin's Q is the market value of assets divided by replacement cost of assets.
[44] The calculation is as follows: 1.1% from sample mean = coefficient estimates (0.002+0.002) × firm-level *TCR* standard deviation 4.855 / Tobin's Q mean 1.751.

Table 3.8: Economic consequence tests

VARIABLES	(1) *Tobin's Q* $_{t+1}$	(2) *Tobin's Q* $_{t+2}$	(3) *Tobin's Q* $_{t+3}$
TCR	-0.002***	-0.003***	-0.001***
	(0.000)	(0.000)	(0.000)
TCR × High Distraction	-0.002***	-0.001**	-0.005***
	(0.001)	(0.001)	(0.001)
High Distraction	-0.025	0.017	0.029
	(0.016)	(0.020)	(0.020)
Baseline Controls:	Included	Included	Included
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	26,705	26,143	25,145
Adjusted R-squared	0.839	0.793	0.753

This table presents the regression results of economic consequence tests. The three columns report results on firm value, proxied by Tobin's Q of future periods. The dependent variables are Tobin's Q. Explanatory variables include *TCR*, an interaction term *TCR × High Distraction*, *High Distraction*, and all baseline control variables. *TCR* represents the injury and illness rate per 100 full-time workers. *High Distraction* is a dummy variable that equals one if the distraction level is among the top tertile, and zero if it is among the bottom tertile. The results are at the establishment level. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.4.10. Robustness tests

Additional tests are necessary to ensure the robustness of the baseline relationship to substitute independent variables, alternative samples, different regression models, and additional control variables.

Table 3.9 reports the results of these robustness tests. In previous analyses, the annual shareholder distraction variable was defined as the mean of quarterly values. In Panel A, we include an alternative distraction variable, *Distraction_Med*, whose annual value represents the median of the reported four quarters. We follow Ni *et al.*'s (2020) to construct this alternative distraction variable. Panel A's results suggest that our main findings are robust.

Following Yang *et al.* (2021), we exclude observations with more than a 10% change in institutional ownership. This test aims to ensure that large changes in ownership structure do not interfere with the underlying relationship. After excluding 5,798 establishment-year observations and 998 firm-year observations, the results in Panel B of Table 3.9 support the robustness of our main findings.

In Panel C of Table 3.9, we run regressions using alternative regression models. Wu *et al*. (2023) utilized a Poisson model in their study on workplace safety. The Poisson model is suitable because the number of injuries and illnesses typically comprises many zero and low counts and does not include negative values. However, since the dependent variable must be discrete integers, the continuous *TCR* injury rate is no longer a suitable dependent variable for this model. Thus, following Wu *et al*. (2023), our dependent variable, *SumCases*, represents the total number of injuries and illnesses. Moreover, our exposure variable, *Hours*, denotes the total hours worked by all employees.

In addition to the Poisson model, we adopt the approach of Caskey and Ozel (2017) by including a negative binomial model. While the Poisson regression requires the assumption that the mean of the distribution equals the variance, the negative binomial model addresses this limitation. Notably, both models produce significant results, indicating the robustness of our findings across different model estimations.

In Panel D of Table 3.9, we introduce additional corporate governance control variables into the baseline model to assess whether our findings remain robust in the presence of other governance mechanisms. Specifically, we include six governance measures: *Board Percentage*, *Board Size*, *CEO Duality*, *Analysts*, *Takeover Index*, and *Governance Index*. The board plays a critical role in corporate governance. In particular, a higher percentage of independent directors enhances monitoring effectiveness (Pan *et al.*, 2018), while board size has important governance implications (Cheng, 2008). *CEO duality*, where the CEO also serves as the board chair, concentrates structural power and influences governance effectiveness. Haga *et al.* (2022) highlight *CEO duality*'s impact on safety outcomes. Analyst coverage also affects corporate governance, with prior research demonstrating its significant implications for workplace safety (Bradley *et al.*, 2022). Additionally, the *Takeover Index*, developed by Cain *et al.* (2017), captures the legal environment's restrictiveness on corporate takeovers, reflecting external governance pressures. Lastly, the *Governance Index,* developed by Gompers, Ishii, and Metrick (2003), is a composite measure based on 24 governance provisions that limit shareholder rights and strengthen managerial control. After incorporating these additional governance controls, our results in Panel D remain highly significant, reinforcing the robustness of our findings.

Table 3.9: Robustness tests

Panel A: Alternative Distraction Variable

VARIABLES	(1) TCR_{t+1}	(2) TCR_{t+1}
Distraction_Med	15.850***	7.436**
	(0.000)	(0.012)
Baseline Controls:	Included	Included
Model Level	Establishment Level	Firm Level
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	20,854	2,654
Adjusted R-squared	0.269	0.356

Panel B: Exclude Observations with over 10% Changes in Institutional Ownership

VARIABLES	(1) TCR_{t+1}	(2) TCR_{t+1}
Shareholder Distraction	38.981***	15.147***
	(0.000)	(0.008)
Baseline Controls:	Included	Included
Model Level	Establishment Level	Firm Level
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	15,056	1,656
Adjusted R-squared	0.295	0.390

Panel C: Alternative Models

Models	Poisson Model		Negative Binomial Model	
	(1)	(2)	(3)	(4)
VARIABLES	$SumCases_{t+1}$	$SumCases_{t+1}$	$SumCases_{t+1}$	$SumCases_{t+1}$
Shareholder Distraction	1.820***	2.965***	3.513***	2.263***
	(0.428)	(1.033)	(0.453)	(1.012)
Baseline Controls:	Included	Included	Included	Included
Model Level	Establishment	Firm	Establishment	Firm
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Log Likehood	-121,083	-17,247	-71,499	-9,202
Observations	20,858	2,658	20,858	2,658
Pseudo R-squared	0.283	0.302	0.052	0.061
Exposure Variable	Hours	Hours	Hours	Hours

Panel D: Additional Corporate Governance Controls

VARIABLES	(1) *TCR*	(2) *TCR*
Shareholder Distraction	39.124***	12.102**
	(6.328)	(6.009)
Board Independence	-6.311***	-2.009**
	(0.729)	(0.906)
Board Size	-0.636	-0.557
	(0.495)	(0.570)
CEO Duality	-0.517***	0.194
	(0.197)	(0.221)
Analysts	-1.282***	-0.604**
	(0.219)	(0.274)
Takeover Index	1.982**	0.995
	(0.979)	(1.155)
Governance Index	-0.024	-0.027
	(0.042)	(0.048)
Baseline Controls:	Included	Included
Model Level	Establishment Level	Firm Level
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	8,290	1,279
Adjusted R-squared	0.314	0.387

This table presents the regression results of robustness tests. The robustness tests include the alternative distraction variable (in Panel A), the sample which excludes observations with over 10% changes in institutional ownership (in Panel B), alternative regression models of Poisson and negative binomial models (in Panel C), and additional corporate governance control variables (in Panel D). The dependent variables are the rate of injuries and illnesses per 100 full-time workers (*TCR)* in Panels A, B, and D, and the number of injury and illness cases (*SumCases)* in Panel C. The main explanatory variable in Panel A, *Distraction_Med*, is the annual median of quarterly institutional shareholder distraction values. The alternative models in Panel C have an exposure variable, which is total hours worked by all employees in an establishment. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.4.11. Alternative sample

We consider an alternative workplace safety sample in addition to our baseline dataset. The non-profit organization Good Jobs First provides a Violation Tracker dataset, which contains a comprehensive record of business violations penalized by regulatory agencies in the United States.[45] This Violation Tracker dataset has been employed in several published research papers (e.g., Chircop, Tarsalewska, & Trzeciakiewicz, 2023; Raghunandan & Rajgopal, 2022; Zaman, 2024). While the dataset tracks several types of violations, we focus on violations related to workplace safety.

For our analysis, we follow Raghunandan & Rajgopal (2022) to construct the dummy variable. Specifically, a dummy variable, *Safety Violation Dummy*, indicates whether a parent-firm has incurred a safety-related violation in a given year.

We report the results of the logit regressions in Table 3.10. The dependent variable is the *Safety Violation Dummy*. The main explanatory variable is *Distraction*. In Column (1), we do not include the control variables used in the baseline tests, whereas we include the baseline controls in Column (2). The coefficients for *Distraction* are significantly positive, indicating an association between shareholder distraction and a higher likelihood of incurring a workplace safety violation. The results are consistent with the previous baseline tests using the OSHA safety sample.

[45] The official webpage of Good Jobs First's Violation Tracker is at https://violationtracker.goodjobsfirst.org/.

Table 3.10: Alternative sample: violation tracker

VARIABLES	(1) *Safety Violation Dummy*	(2) *Safety Violation Dummy*
Distraction	9.491***	7.563**
	(3.241)	(3.290)
Controls:		
Ln(Assets)		0.610***
		(0.082)
Leverage		-0.049
		(0.451)
Tangibility		1.221*
		(0.683)
Asset Turnover		0.744***
		(0.185)
CAPEX/Assets		-0.163
		(2.973)
Market to Book		-0.074
		(0.130)
FCF/Assets		0.689
		(1.264)
Cash/Assets		-1.738*
		(0.929)
IOR		0.098
		(0.472)
Ln(Num_Employees)		-0.016
		(0.091)
Hours per Employee		0.000
		(0.000)
Strike		1.025
		(1.469)
Shutdown		-0.194
		(0.329)
Seasonal		0.035
		(0.606)
Disaster		-0.765
		(1.400)
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	2,635	2,315
Pseudo R-squared	0.313	0.413

This table presents the regression results of the alternative sample tests. The sample uses the violation tracker dataset from Good Jobs First. The dependent variable is the *Safety Violation Dummy* variable for *t*+1 period. The regression model is logit model. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels.

3.5. Discussions and conclusions

3.5.1. Discussions

Workplace safety has strong ethical implications since it directly affects the physical well-being of employees. Ensuring a safe work environment demonstrates a company's commitment to valuing its workforce. Moreover, corporate safety profiles may reflect firms' overall responsible attitudes and ethical performance. By investing in workplace safety, companies can reinforce their dedication to ethical practices and social responsibility.

There is debate about whether institutional investors are motivated solely by financial interests or if they also consider ethical concerns (Dyck, Lins, Roth, & Wagner, 2019). The relationship we identified sheds light on the extent to which institutional shareholders prioritize employee well-being. Our empirical results indicate that when shareholders actively monitor their holding firms, workplace safety tends to improve. This finding supports the idea that institutional investors are increasingly adopting a responsible investment approach.

From a nuanced perspective, fostering a safe working environment does not necessarily undermine shareholder returns. On the contrary, it can enhance long-term value (Cohn & Wardlaw, 2016) and contribute positively to long-run stock returns (Faleye & Trahan, 2011). By prioritizing workplace safety, institutional investors can promote sustainable business practices that align financial performance with ethical considerations, ultimately benefiting both employees and shareholders. This dual focus on profitability and ethics reflects a more responsible approach to investment, recognizing that the well-being of employees is integral to the overall success of a firm.

In the field of corporate governance, the agency problem refers to the potential conflict of interest where managers may not act in the best interests of shareholders. This misalignment arises because managers might pursue their personal goals at the expense of shareholder value. When managers are not closely monitored, there are documented effects of short-termism, where decisions are made to boost immediate performance rather than ensure long-term success (Li *et al.*, 2019). Additionally, managers might engage in private benefit maximization, prioritizing their gains over the company's welfare (Kempf *et al.*, 2017). We add to the agency problem argument by providing evidence of the adverse effects on employees when shareholder monitoring is weak. We emphasize the importance of active and responsible shareholder engagement in mitigating the agency problem and promoting a healthier work environment.

3.5.2. Conclusions

We document a significant association between distracted shareholders and workplace injuries and illnesses. We observe that when facing looser shareholder monitoring, corporate management tends to cut discretionary safety-related expenditures, allocate heavier employee workloads, and conduct more real earnings management. Our baseline finding is robust to alternative regression models, fixed effects, control variables, and safety samples. To mitigate endogeneity concerns, we employ propensity score matching and entropy balancing techniques, supported by the exogenous design of the distraction variable. In addition, we explore CEO duality and market competition as moderating factors that influence the magnitude of the baseline relationship between shareholder distraction and workplace safety. In terms of economic consequences, we further establish that work-related injuries and illnesses contribute to a decrease in firm value.

Chapter Four – Essay Three "Top Management General Counsel and Workplace Safety"

This chapter introduces the third essay, which examines the impact of including general counsel's legal expertise in top management on workplace safety. Section 4.1 presents the introduction. Section 4.2 discusses the literature and hypothesis. Section 4.3 describes the data and methodology. Section 4.4 reports the empirical results. Section 4.5 offers discussions. Lastly, Section 4.6 concludes this chapter.

Statement of Contribution Form – Essay Three

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GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION
DOCTORATE WITH PUBLICATIONS/MANUSCRIPTS

We, the student and the student's main supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the student's contribution as indicated below in the Statement of Originality.

Student name:	Xiaochi Zhang
Name and title of main supervisor:	Associate Professor Harvey Nguyen
In which chapter is the manuscript/published work?	Essay Three in Chapter Four

Describe the contribution that the student and members of the supervisory team have made to the manuscript/published work:[1]

Tony and supervisors discussed and agreed on the topic for Essay Three. Tony handled the datasets. He conducted the empirical analyses. In fortnightly meetings, Tony's supervisors reviewed his result findings and provided suggestions. Tony wrote the initial draft paper. The whole team revised the paper for journal submission.

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Student's signature:	Xiaochi Zhang (Digitally signed by Xiaochi Zhang Date: 2025.06.13 22:17:24 +09'00')	Main supervisor's signature:	Harvey Nguyen (Digitally signed by Harvey Nguyen Date: 2025.06.15 11:33:58 +12'00')

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1

Doctoral Research Committee
May 2023

Abstract of Essay Three

This study examines the impact of including general counsel's legal expertise in top management on workplace safety. Using a comprehensive dataset of establishment-level workplace safety, and drawing on upper echelon and agency theories, we find that firms with general counsel in their top management team have lower rates of worker injuries and illnesses. The effect is stronger in firms characterized by better information quality, more efficient labor investment, leadership by lawyer CEOs, weaker governance structures, and heightened agency problems. Furthermore, firms with general counsel in top management incur fewer regulatory safety violations. These findings underscore the strategic role of general counsel in shaping organizational outcomes, particularly by influencing employee well-being and fostering a culture of compliance. The study suggests that general counsel contribute to broader economic and social outcomes, extending beyond their traditional legal gatekeeping role.

4.1 Introduction

The corporate in-house general counsel (GC) represents an important segment of the legal profession, positioned on par with national law firm partners and often commanding high levels of compensation (Aggarwal, 2023; Heineman, 2016). Over the past few decades, the role of general counsel has evolved significantly. The Sarbanes-Oxley Act, for instance, expanded their responsibilities beyond traditional legal advisory duties to include broader corporate governance functions.[46] This shift has coincided with a growing trend of general counsels participating in senior management (Heineman, 2012; Hsu & Liu, 2024), resulting in notable organizational effects, such as improved management earnings forecast disclosures (Kwak *et al.*, 2012) and reduced corporate misconduct related to bad news hoarding (Al Mamun *et al.*, 2021). Despite these advancements, the broader implications of general counsels' involvement in corporate outcomes remain underexplored.

In this paper, we investigate whether and to what extent incorporating general counsels' legal expertise into top management influences workplace safety. Workplace safety has significant economic and social implications. Economically, maintaining a safe working environment reduces both direct and indirect costs. Effective safety practices lower the incidence of accidents and injuries, thereby minimizing regulatory penalties, legal liabilities, and associated expenses. Furthermore, fostering a strong safety culture enhances organizational performance by improving employee productivity (Lari, 2024). These cost savings and efficiency gains contribute to improved profitability and firm value (Amin *et al.*, 2021; Cohn & Wardlaw, 2016). Socially, workplace safety is essential for protecting

[46] The Sarbanes–Oxley Act of 2002 (SOX) mandates that firms have in-house counsel (Al Mamun *et al.*, 2021). Section 307 of SOX requires general counsels to report securities law violations to the CEO, audit committee, and board of directors (Hsu & Liu, 2024). Additionally, general counsels must certify financial report accuracy and are held personally liable for financial misconduct (Michael, Ali, Atawnah, & Muniandy, 2022).

employees' physical well-being. A safe work environment also boosts employee morale and retention, which strengthen workplace culture and enhance the company's reputation (Danna & Griffin, 1999; McCaughey *et al.*, 2013). Thus, a safe and healthy workplace delivers both economic and social benefits, underscoring its critical importance for organizations.

The primary responsibility of in-house general counsel traditionally involves managing regulatory compliance and corporate litigation (KPMG, 2012). However, their influence often extends far beyond these legal and compliance matters (DeMott, 2005; Heineman, 2016). A recent survey by the Association of Corporate Counsel (2024) reveals that many GCs oversee broader business functions: 43% are responsible for business ethics, and 77% are involved in shaping corporate ESG strategies. General counsels in top management also play a vital role in corporate governance by serving as monitors, helping ensure ethical and compliant decision-making (Al Mamun *et al.*, 2021; Michael *et al.*, 2022). When general counsels join top management teams, their elevated status can amplify their influence across the organization. This heightened authority may enable them to prioritize workplace safety, given its critical compliance, legal, economic, and social implications.

However, concerns have been raised about the potential risks associated with GCs' integration into top management. Scholars argue that this shift may undermine their independent gatekeeping role, as evidenced by associations with aggressive accounting practices (Hopkins *et al.*, 2015) and heightened firm credit risk (Ham & Koharki, 2016). High-profile corporate scandals, such as the Enron collapse in 2001 and the Volkswagen emissions scandal in 2015, further underscore skepticism about whether corporate GCs can effectively oversee managerial misconduct. These cases raise questions about whether GCs in top management can fully leverage their legal expertise and managerial authority to enhance workplace safety. Ultimately, this remains an important empirical question.

To address the research question, we utilize a large sample from the U.S. Occupational Safety and Health Administration (OSHA), which contains comprehensive records of workplace injury and illness information. Following relevant literature, we define top management legal expertise as the presence of a general counsel among the top five highest-paid managers of the firm (Hopkins *et al*., 2015; Kwak *et al*., 2012). We collect data on executive roles and information from the ExecuComp database and find that 26% of the observations in our combined sample include general counsels in top management. Our empirical analyses reveal that top management legal expertise is associated with lower injury and illness rates, with the effect being both statistically and economically significant. Specifically, the decrease in injury and illness rates corresponds to 10.26% of the sample mean.

We perform a range of sensitivity tests to verify the robustness of our findings. These tests include incorporating additional control variables, using alternative dependent variables, applying different fixed effects, examining with various regression models, and analyzing alternative samples. Additionally, the effect becomes more pronounced under conditions of higher information quality, greater labor investment efficiency, the presence of lawyer CEOs, weaker corporate governance, and more significant agency problems. We further discover that firms with a GC in top management experience fewer safety-related regulatory violations.

We employ several techniques to address potential endogeneity issues. Specifically, we use entropy balancing and propensity score matching to create a more balanced dataset, thereby reducing biases related to covariate imbalance and omitted variables, which can be sources of endogeneity. Additionally, the firm and establishment fixed effects used in our robustness tests alleviate omitted variable bias and address reverse causality by focusing on changes within firms.

The remainder of the paper is organized as follows: Section 4.2 presents the literature review and hypothesis development. Section 4.3 discusses the data and methodology. Section 4.4 analyzes the empirical results. Section 4.5 discusses the findings. Section 4.6 offers the conclusions.

4.2. Literature and hypothesis

4.2.1. Theoretical framework

Established academic theories provide a foundational framework for our study. The upper echelon theory, introduced by Hambrick and Mason (1984), suggests that the characteristics and experiences of top executives significantly impact organizational outcomes. According to this theory, the backgrounds and knowledge of top management shape how they perceive and interpret the business environment, which in turn affects the strategic choices they make and the overall performance of the organization. In our context, general counsels (GCs) in top management, typically trained in legal risk management and regulatory compliance, bring a unique perspective focused on minimizing legal liabilities and ensuring adherence to regulations. Executives' legal expertise, as a critical managerial capability, allows organizations to incorporate legal considerations more effectively into their operations (Bagley, 2008).

Empirical research has documented the impact of legal expertise on managerial behavior and corporate outcomes. For instance, managers with a legal education are more likely to exhibit ethical and legally compliant behavior (Bagley, Clarkson, & Power, 2010). Directors with a legal background contribute to stronger monitoring and are associated with lower corporate risk-taking (Litov, Sepe, & Whitehead, 2014). Legal executives have been shown to enhance stock liquidity (Pham, 2020) and improve credit ratings (Pham *et al.*, 2023) by reducing information asymmetry and mitigating company risks. Additionally, legal executives tend to be more conservative in using private information for insider trades (Jiang, Wintoki, & Xi, 2021), are more attentive to corporate legal risks, and contribute to shaping a stable legal environment (Dai, Tong, & Jia, 2024). In our context, the inclusion of GCs in top management can plausibly influence corporate behavior and outcomes by promoting greater compliance and reducing risks.

Agency theory, a key concept in corporate governance, explores the relationship between shareholders and managers within a firm, particularly focusing on the conflicts that arise when their interests are not perfectly aligned (Jensen & Meckling, 1976). The theory argues that managers, as agents, may pursue personal objectives that diverge from the best interests of shareholders, resulting in potential agency costs for the firm (Eisenhardt, 1989; Kempf *et al.*, 2017). Misaligned financial interests between executives and other stakeholders can adversely affect workplace safety outcomes (Wu *et al.*, 2023). Consequently, corporate governance mechanisms, such as board monitoring and analyst coverage, are essential to ensure that managerial actions do not compromise workplace safety (Bradley *et al.*, 2022; Haidar & Hossain, 2024).

In the context of this study, GCs in top management serve a critical role in aligning these interests and enhancing governance. From a regulatory perspective, Section 307 of the Sarbanes-Oxley Act requires GCs to report securities law violations to the audit committee and the board of directors (Hsu & Liu, 2024). The Act further holds GCs personally liable for corporate financial misconduct (Michael *et al.*, 2022). Additionally, Rule 1.13 of the Model Rules of Professional Conduct, established by the American Bar Association, emphasizes that GCs must recognize and navigate conflicts of interest between the companies they represent and the managers running them. Empirical evidence further highlights the governance effects of GCs, such as mitigating the hoarding of bad news (Al Mamun *et al.*, 2021) and reducing potential litigation risks (Hsu & Liu, 2024). Overall, the oversight provided by GCs can significantly enhance corporate governance, mitigating the risks of managerial actions that could harm workplace safety outcomes.

4.2.2. Literature review

The determinants of workplace safety, encompassing work-related injuries and illnesses, are influenced by various factors. Increased monitoring on firms can benefit workplace safety, as evidenced by analyst coverage (Bradley *et al.*, 2022) and stock market listing (Liang *et al.*, 2023). Additionally, better corporate internal information quality positively influences safety by ensuring that accurate and timely information is available for decision-making (Hope *et al*., 2022). In contrast, financing constraints impair safety, as limited resources restrict the implementation of necessary safety measures (Charles, Johnson, Stephens Jr, & Lee, 2022; Cohn & Wardlaw, 2016). Pressure from short sellers can shift managerial attention away from safety towards financial performance (Qian, Crilly, *et al.*, 2023). Similarly, management pressure to meet earnings expectations can damage safety, as resources may be diverted from safety initiatives to meet financial targets (Caskey & Ozel, 2017). Other determinants that can benefit safety include the presence of labor unions (Li, Rohlin, & Singleton, 2022), increased threat of shareholder litigation (Gong *et al.*, 2023), more intense import competition (Lai, Lu, & Ng, 2022), and less heat (Ireland, Johnston, & Knott, 2023).

Characteristics of top management can significantly impact workplace safety. CEOs' expertise power and structural power improve safety, whereas ownership power tends to damage it (Haga *et al.*, 2022). Additionally, CEO inside debt can align management's financial interest to maintain safety (Wu *et al.*, 2023). Conversely, CEO overconfidence can impair workplace safety (Chen *et al.*, 2023). A CEO's regulatory and prevention focus are also crucial, as these attributes are associated with improved safety outcomes (Qian *et al.*, 2024). Furthermore, CEOs can influence the organizational safety climate and the behavior of others, setting the tone for workplace safety practices (Tucker *et al.*, 2016). However, the influence of other senior executives and the impact of having legal expertise in top management on workplace safety is rather underexplored.

The role of in-house general counsel within top management has been extensively debated in existing literature, highlighting both negative and postive impacts on firm outcomes. On one hand, the presence of GCs in top management might compromise their independent monitoring function, potentially leading to detrimental outcomes. Research by Ham and Koharki (2016) suggests that GCs' promotion to senior executive positions can erode their gatekeeping role, resulting in increased firm credit risk. Similarly, Hopkins *et al*. (2015) find that highly compensated GCs are associated with more aggressive accounting practices, which may indirectly reflect a broader tolerance for risk-taking behaviors within the firm. Moreover, GCs in top management can lead to higher cost of equity (Chen, Ke, & Wang, 2024).

On the other hand, GCs in top management can contribute positively to organizational outcomes. Kwak *et al.* (2012) emphasize the significance of GCs as an internal advisory and governance mechanism, highlighting their contribution to fairer voluntary information disclosure. Al Mamun *et al.* (2021) further underscore the governance role of GCs, providing evidence that their presence reduces stock price crash risk and enhances corporate transparency. Similarly, Michael *et al*. (2022) argue that senior GCs improve stock liquidity by minimizing information asymmetry and lowering business risk, indicating that legal expertise at the executive level fosters a more transparent and risk-conscious corporate culture. Hsu and Liu (2024) add to this perspective, noting that

GCs in top management help mitigate corporate litigation risks and adverse legal outcomes, thereby creating a stronger compliance environment and promoting stricter adherence to safety regulations.

4.2.3. Hypothesis development

Considering the relevant literature, we hypothesize that the presence of general counsel legal expertise in top management can enhance workplace safety levels for several reasons. First, workplace safety is fundamentally a compliance issue with significant potential legal consequences. For instance, Dollar General was fined $12 million for violating safety standards (Singh, 2024), while Amazon faced a lawsuit by the New York Attorney General over inadequate worker safety conditions (Weise, 2021). Monitoring compliance and addressing legal risks are core responsibilities of GCs (KPMG, 2012). Existing research highlights the role of GCs in governance and risk mitigation, showing their effectiveness in reducing corporate legal liabilities (Al Mamun *et al.*, 2021; Hsu & Liu, 2024; Kwak *et al.*, 2012). Second, GCs have strong incentives to excel in their roles, as underperformance can carry significant career repercussions. On average, GCs dismissed for inadequate performance face a four-year period of unemployment before securing another position (Aggarwal, 2023). Furthermore, the likelihood of dismissal increases significantly if their company is penalized for regulatory violations (Aggarwal, 2023), underscoring the importance of prioritizing safety compliance to safeguard their professional careers. Third, holding a senior executive position affords GCs greater influence over organizational operations. GCs in top management are better positioned to influence other executives, ensuring that safety protocols are upheld across the organization. Based on these considerations, we propose the following hypothesis:

H4.1: Incorporating general counsel into top management enhances employee safety.

However, there are counterarguments to this hypothesis above. Promotions to senior management often come with increased status and compensation, creating pressure for GCs to align with CEOs' business goals. This alignment can lead GCs to prioritize business objectives over strict legal compliance, potentially undermining their traditional oversight role (Ham & Koharki, 2016). Such compromises are evident in cases where GCs facilitate opportunistic earnings management , contribute to higher company credit risk (Ham & Koharki, 2016), and increase the cost of equity (Chen et al., 2024). Additionally, evidence suggests that many GCs aspire to play a strategic liaison role with CEOs, involving themselves in key business decisions (Association of Corporate Counsel, 2015). This shift toward a business-oriented focus could detract from their compliance and monitoring responsibilities.

Another challenge lies in organizational dynamics. Company management may not always support GCs' compliance efforts, and some GCs have faced retaliatory firing after reporting corporate misconduct or violations (ALM Media, 2019; Vanderford, 2022). Furthermore, the declining average tenure of GCs raises questions about their ability to influence lasting cultural change and effectively fulfil their monitoring role within organizations (Aggarwal, 2023). Given these perspectives, we propose a second hypothesis below. The question of whether GCs in top management improve workplace safety remains an empirical issue requiring further investigation.

H4.2: Incorporating general counsel into top management does not enhance employee safety.

4.3. Data and methodology

4.3.1. Workplace safety data

We obtain data on work-related injuries and illnesses from the U.S. Occupational Safety and Health Administration (OSHA), which actively collects information at the establishment level, defined as specific operational sites such as factories or warehouses. We associate the establishment data in the OSHA records with their parent companies using the linking file provided by Caskey and Ozel (2017).[47]

From 1996 to 2011, OSHA ran the Data Initiative program (ODI), collecting reportable injury data from U.S. workplace establishments.[48] However, federal funding cuts led to the discontinuation of this program in 2011. Additionally, in 2002, OSHA implemented significant changes to the injury reporting standards and industry coverage, rendering data from earlier years incomparable. As a result, our analysis primarily focuses on the period from 2002 to 2011, due to the data availability. Our sample source and period are consistent with the recently published workplace safety literature (e.g., Amin *et al*., 2021; Bradley *et al*., 2022; Caskey & Ozel, 2017; Haga *et al*., 2022; Qian *et al*., 2024). While our main analysis is based on OSHA data from 2002 to 2011, we also consider two alternative samples: OSHA 2016-2019 data[49] and Good Jobs First's Violation Tracker,[50] which compiles information on corporate violations, including workplace safety issues. We will discuss these alternative samples in Section 4.4.7.

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[47] We appreciate Bugra Ozel for sharing the establishment and company identifier linking file, which is available at: https://sites.google.com/view/bugraozel/data.

[48] The official OSHA website provides downloadable workplace injury and illness data, which can be accessible at: https://www.osha.gov/ords/odi/establishment_search.html.

[49] Since 2016, OSHA requires certain establishments to submit work-related injury and illness data through the Injury Tracking Application (ITA) program, which can be accessed at https://www.osha.gov/Establishment-Specific-Injury-and-Illness-Data.

[50] Violation Tracker, produced by the Corporate Research Project of Good Jobs First, is available at https://violationtracker.goodjobsfirst.org/.

Annually, OSHA collects injury reports from approximately 80,000 private sector establishments, documenting details such as the establishment's name, location, number of employees, hours worked, and variables related to employee strikes, production shutdowns, seasonal businesses, and natural disasters. The agency targets high-hazard industries such as manufacturing, transportation, and construction for surveys. OSHA employs an adjusted random sampling method to select these establishments, ensuring it surveys those identified as high hazard at least once every three years.

In our study, the primary dependent variable, the Total Case Rate (*TCR*), represents the incidence of injuries and illnesses. We calculate the *TCR* for each establishment-year by summing the incidents of injuries and illnesses, dividing by the total hours worked by the employees, and then multiplying by 200,000 hours. This formula standardizes the *TCR* as the rate of injury and illness per 100 full-time workers, assuming a 40-hour workweek and 50 working weeks per year. This metric is recognized and utilized by the official OSHA agency and the Bureau of Labor Statistics. For example, a *TCR* of 3 indicates three reportable injuries or illnesses per hundred full-time employees.

For robustness checks, we consider alternative measures of workplace injuries. These include an industry adjusted TCR (*TCR Ind. Adj.*), which is calculated by subtracting the annual industry mean from the establishment's *TCR* and then dividing by the industry standard deviation for that year. This industry-adjusted variable enables more meaningful comparisons across industries with varying risk levels. Additionally, we examine the Days Away, Restricted, or Transferred (*DART*) rate, which quantifies the rate of severe injury cases that result in the employee being away from work, restricted, or transferred to another job. Researchers in related fields often employ these *TCR* and *DART* variables in their baseline regressions or robustness tests (e.g., Liang *et al.*, 2023; McManus & Schaur, 2016; Wu *et al.*, 2023). We use the injury rate rather than the total number of injury cases to better reflect injury intensity and minimize the influence of workplace size.

4.3.2. General counsel data

Our dataset documenting the presence of General Counsel (GC) in top management leverages data sourced from the ExecuComp database. ExecuComp annually details titles and compensation levels for executives across approximately 2,000 publicly traded companies. We follow Kwak *et al.* (2012)'s approach and identify GCs by searching for executive titles that include terms such as "general counsel", "chief legal officer", "law" and "legal". A GC is classified as one of the top executives based on whether their compensation ranks among the top five highest in the company for that year.

We construct a *General Counsel* indicator variable, assigning a '1' if the GC's total compensation ranks among the five highest executives in the firm, and a '0' otherwise. This variable serves as the key explanatory variable in our analysis. Following the approach established by Kwak *et al*. (2012), we utilize this indicator to categorize observations (establishments) into "GC observations" ("GC establishments") if they have a GC among their top management, and "non-GC observations" ("non-GC establishments") if they do not.

In our sample, on average, approximately 26% of establishments (32% of firms) have a GC in top management, which is consistent with the literature (e.g., Hopkins *et al.* (2015); Kwak *et al*., 2012). These statistics suggest that the practice of including a GC as a senior executive is not uncommon in practice.

4.3.3. Control variables

We incorporate a range of control variables into our regression models. For our baseline model, we gather data on company financial characteristics from Compustat, details on analyst coverage from The Institutional Brokers' Estimate System (I/B/E/S), institutional shareholder ownership data from Thomson-Reuters Institutional Holdings 13F database, and information on CEO-chairperson duality from ExecuComp.

Building on the insights from Cohn and Wardlaw (2016) and Charles *et al*. (2022), we recognize that financing constraints significantly influence workplace safety, as financial resources are vital for safety-related expenses and investments aimed at employee well-being. Consequently, we include variables indicative of financing constraints, such as firm size (measured by total assets), free cash flow (scaled by assets), and capital expenditures (scaled by assets). In addition, since firms with higher financial leverage tend to underinvest in health and safety programs (Moussu & Ohana, 2016), we include leverage ratio as a control variable. Moreover, employees in production roles involving physical assets are more prone to injuries compared to those in service industries, as highlighted by Cohn and Wardlaw (2016). To address this, we add asset tangibility as a control variable. The market-to-book ratio is included to represent the firm's growth rate, which could be linked to issues such as employee inexperience that may increase injury rates. Asset turnover, a measure of asset utilization, reflects potential employee workload and pressure, factors that are crucial for workplace safety (Amin *et al*., 2021; Bradley *et al*., 2022).

To further refine our model, we incorporate additional control variables that serve as proxies for various aspects of corporate governance and potentially impact workplace safety outcomes. Specifically, analyst are effective external monitors on firms (Chen, Cumming, & Hou, 2016), and the number of analysts following a firm significantly influences workplace safety (Bradley *et al.*, 2022). Consequently, we include analyst coverage as a relevant control variable in our regression analysis. In addition, we consider the institutional shareholder ownership ratio as a control variable, recognizing the significant role institutional shareholders play in corporate governance and their effectiveness in curbing managerial misconduct (e.g., Garel *et al.*, 2021; Kempf *et al.*, 2017). Furthermore, CEOs' dual roles as board chairpersons can lead to greater CEO entrenchment, influencing board monitoring effectiveness and corporate governance levels (Aktas, Andreou, Karasamani, & Philip, 2019). In addition, Haga *et al.* (2022) suggest the impact of CEO duality on workplace safety. Therefore, we include a CEO-chairperson duality indicator variable as a control variable.

4.3.4. Sample selection and descriptive statistics

Our sample comprises firms that appear in both the ExecuComp and OSHA datasets. Due to OSHA's discontinuation of the ODI data program in 2011, our sampling period extends from 2002 to 2011, aligning with the periods used in many safety-related research papers (e.g., Haga *et al.*, 2022; Qian *et al.*, 2024; Wu *et al.*, 2023). Additionally, the Sarbanes-Oxley Act of 2002 mandates that all companies have in-house general counsel (Al Mamun *et al.*, 2021), positioning our sampling period in the post-act era. Consistent with prior literature (e.g., Cohn & Wardlaw, 2016; Caskey & Ozel, 2017), we exclude heavily regulated utility (standard industrial classifications SIC code between 4900 and 4999) and financial industries (SIC code between 6000 and 6999) from the sample. The final sample includes 51,661 establishment-year observations.

Table 4.1 presents the summary statistics. Following common practice, we winsorize all continuous variables at the 1% and 99% levels to mitigate the impact of outliers. The Total Case Rate (*TCR*), which measures the injury rate per 100 full-time employees, has a mean of 7.57 cases at the establishment level. The *DART* injury rate, accounting for severe injuries, has a mean of 5.02. On average, an establishment has about

299 employees[51] and 1,936 annual working hours per employee. These statistics are consistent with prior studies (e.g., Haga *et al.*, 2022). As previously discussed in section 3.2, 26% of establishments belong to companies where the general counsel is among the top management. In addition, the median *Ln(Assets)* is 9.685, indicating that the median firm size in our sample is approximately $16 billion in total assets. Furthermore, the mean leverage ratio is 27.5%, institutional shareholders own about 68.8% of shares, and approximately 80.3% of observations have CEOs who also serve as board chairpersons.

Panel A of Table 4.2 presents the sample composition by Fama-French 12 industry classifications. We observe that the wholesale and retail sectors have the highest count of observations. The table also includes the mean *TCR* injury rate and the percentage of observations where the *General Counsel* variable equals one, for each industry. The "other" industry, which typically includes mining, construction, and transportation companies, records the highest *TCR*. Our baseline regression results remain robust even when the "other" industry observations are excluded from the sample.

In Panel B of Table 4.2, we provide an overview of the sample breakdown by year. The mean *TCR* column shows that the injury rate is considerably higher in the first few years of the sample period and noticeably lower in the second half of the sample. Specifically, the mean *TCR* was 10.40 in 2002 and 6.68 in 2011.[52] The percentage of observations with a GC in top management appears volatile in our combined sample. However, in the ExecuComp dataset, this percentage steadily increases over time, suggesting that the corporate decision to include a GC as a senior executive is relatively stable.

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[51] The natural logarithm of the number of employees in an establishment, *Ln(Employees)*, has a mean of 5.01, while the original number of employees has a mean of 299.4.

[52] The year 2011 has fewer observations than other years because OSHA ceased data collection before the end of that year. Excluding 2011 from our sample does not affect the robustness of our baseline findings.

Table 4.1: Descriptive statistics

	N	Mean	Std. Dev.	P25	Median	P75
Dependent variables						
TCR	51,661	7.574	6.553	2.682	6.016	10.660
DART	51,661	5.023	5.028	1.181	3.635	7.322
TCR Ind. Adj.	51,641	-0.007	0.963	-0.706	-0.205	0.494
Total Cases	51,661	17.688	31.896	3	8	17
KLD Safety Index	45,930	-0.351	0.555	-1	0	0
Explanatory variables						
General Counsel	51,661	0.260	0.438	0	0	1
Ln(Assets)	39,013	9.412	1.707	8.189	9.685	10.37
Leverage	39,009	0.275	0.164	0.154	0.250	0.345
Tangibility	39,012	0.359	0.191	0.194	0.322	0.528
Asset Turnover	39,013	1.356	0.747	0.884	1.220	1.581
CAPEX	38,999	0.056	0.037	0.027	0.046	0.074
Market to Book	35,159	1.998	1.004	1.214	1.703	2.492
FCF	38,162	0.089	0.072	0.042	0.083	0.137
Ln(Analysts)	51,331	2.654	0.669	2.398	2.833	3.091
Inst. Owner	35,512	0.688	0.168	0.619	0.694	0.793
CEO Duality	51,328	0.803	0.397	1	1	1
Lawyer CEO	38,842	0.180	0.384	0	0	0
Ln(CEO Tenure)	46,447	1.394	0.818	0.693	1.386	1.946
Ln(CEO Comp.)	28,723	9.082	1.034	8.705	9.137	9.529
Board Independence	44,440	0.770	0.136	0.667	0.818	0.889
Ln(Employees)	51,661	5.010	1.021	4.394	4.898	5.513
Hours per Employee	51,661	1,936	303.1	1,773	1,992	2,081
Strike	51,661	0.002	0.047	0	0	0
Shutdown	51,661	0.070	0.255	0	0	0
Seasonal	51,661	0.037	0.189	0	0	0
Disaster	51,661	0.004	0.065	0	0	0

This table displays the descriptive statistics. It includes only observations with valid *TCR* and *General Counsel* data. The sample at the establishment level consists of 51,661 observations. For detailed descriptions of the variables, refer to the 'Variable Definitions' section in the Appendix.

Table 4.2: Sample distribution

Panel A: Distribution by Industry (Fama-French 12 industry classification)

Industry	No. of Obs.	% of Obs.	Mean *TCR*	*GC* Percentage
Wholesale and Retail	16,995	32.90%	7.59	24.58%
Other -- Mining, Construction, and etc.	11,536	22.33%	10.93	23.18%
Manufacturing	11,182	21.64%	5.23	30.57%
Consumer Non-Durables	5,169	10.01%	8.49	15.90%
Consumer Durables	2,003	3.88%	7.54	29.06%
Business Equipment	1,888	3.65%	2.23	33.32%
Healthcare and Medical Equipment	1,460	2.83%	7.39	35.75%

Chemicals and Allied Products	1,167	2.26%	2.70	42.07%
Oil, Gas, and Coal	201	0.39%	2.20	30.35%
Telephone and TV Transmission	60	0.12%	2.84	66.67%
Total	51,661		7.57	25.97%

Panel B: Distribution by Year

Year	No. of Obs.	% of Obs.	Mean *TCR*	*GC* Percentage
2002	4,784	9.26	10.40	24.81%
2003	5,743	11.12	9.24	39.89%
2004	5,274	10.21	9.72	21.73%
2005	6,340	12.27	7.92	38.50%
2006	6,243	12.08	7.33	35.21%
2007	5,802	11.23	6.92	14.93%
2008	6,911	13.38	5.73	20.50%
2009	3,624	7.01	6.19	19.67%
2010	5,206	10.08	5.29	14.58%
2011	1,734	3.36	6.68	23.01%
Total	51,661		7.57	25.97%

This table displays the sample distribution by industry in Panel A and by year in Panel B. The industries are determined by the Fama-French 12 industry classification based on establishment SIC codes reported in the OSHA data. The 'Other' industry includes firms in mining, construction, transportation, building materials, and similar industries. The table also includes the average *TCR* and the percentage of observations for which the *General Counsel* indicator variable has a value of one, for each industry (Panel A) and each year (Panel B).

4.3.5. Baseline regression model

We use the following equation (4.1) in the baseline regression model for firm *i* and year *t*:

$$TCR_{i,t} = \alpha_0 + \beta_1\, General\ Counsel_{i,t} + \beta\, Control_{i,t} + Industry\ FE + Year\ FE + \varepsilon_{i,t} \qquad (4.1)$$

The baseline model is an ordinary least squares OLS regression. We also test the relationship using Poisson and Negative Binomial models in the robustness tests, and the results remain robust. *TCR* is the dependent variable of interest, and *General Counsel* is the main explanatory variable. We include relevant corporate financial and corporate governance control variables. We control for industry and year fixed effects, following prior literature (e.g., Qian, Liu, Balaji, & Crilly, 2023). Industry fixed effects help control for potentially omitted and unobserved characteristics specific to each industry, such as industry-specific safety regulations. Year fixed effects are included to account for the influence of broader economic conditions and general safety trends that affect all companies uniformly. We employ standard errors that are robust to heteroskedasticity and clustered by establishment, following the approach used by Chen *et al.* (2023). This clustering accounts for the possibility that observations within the same establishment are not independent, providing strict estimates of coefficient significance levels.

4.4. Results

4.4.1. Univariate analysis

We begin our empirical analysis by visually inspecting the relationship between general counsel (GC) and workplace safety through a simple univariate analysis. Table 4.3 compares the Total Case Rate (*TCR*) and Days Away, Restricted, or Transferred (*DART*) injury rates between establishments with a GC in top management and those without. GC establishments have a mean TCR of 6.454, while non-GC establishments show a higher mean TCR of 7.963. The difference in mean *TCR* between the two groups is -1.508, which is statistically significant at the 1% level. Similarly, the mean *DART* rate for GC establishments is 4.082, compared to 5.354 for non-GC establishments. The difference in mean *DART* rate is -1.272, also statistically significant at the 1% level. This analysis provides preliminary evidence that establishments with general counsel among top executives have significantly lower injury rates compared to those without GCs.

Table 4.3: Univariate analysis

	N	*TCR Mean*	*TCR Std. Dev.*	Difference in Mean (*t*-test Significance)
GC Establishments	13,417	6.454	5.792	-1.508 (***)
Non-GC Establishments	38,244	7.963	6.756	
	N	*DART Mean*	*DART Std. Dev.*	Difference in Mean (*t*-test Significance)
GC Establishments	13,417	4.082	4.520	-1.272 (***)
Non-GC Establishments	38,244	5.354	5.154	

This table presents injury rate statistics for GC and non-GC establishments. The mean Total Case Rate (TCR) and mean Days Away, Restricted, or Transferred (DART) rate for both groups are shown. The column on the far right highlights the difference in mean TCR and DART between the two groups. Asterisks (*, **, ***) indicate t-test statistical significance at the 10%, 5%, and 1% levels, respectively.

4.4.2. Baseline regression results

We conduct baseline regressions based on model equation (1) and present the results in Table 4.4. In Column (1), we include only the *General Counsel* indicator variable and fixed effects, without any control variables. In Column (2), we add corporate financial characteristic control variables. In Column (3), we incorporate all controls, including additional corporate governance controls. In all three columns, the coefficient for *General Counsel* is negative and statistically significant at the 1% level. This suggests that having a GC in top management is, on average, associated with lower rates of work-related injuries and illnesses. This result supports our hypothesis that incorporating GC's legal expertise into top management can benefit workplace safety levels.

Regarding economic significance, the coefficient estimate in Column (3) indicates that on average, establishments with a senior executive GC have 0.777 fewer injury cases per 100 full-time employees compared to those without. This reduction represents a

10.26%[53] decrease from the sample mean, or 11.86%[54] of one standard deviation of TCR. The magnitude of the impact of having a GC in top management is similar to the documented effects of CEO overconfidence (Chen *et al.*, 2023) and is comparable to the effect of public stock market listing (Liang *et al.*, 2023). Additionally, given that establishments in our sample have an average of about 299 employees, GC establishments would have 2.323 fewer injury cases[55] in a year on average.

[53] The 10.26% decrease is calculated as follows: coefficient -0.777 / TCR sample mean 7.574.
[54] The 11.86% is calculated as follows: coefficient -0.777 / TCR sample standard deviation 6.553.
[55] The reduction of 2.323 cases is calculated as follows: coefficient -0.777 × (299 employees / 100).

Table 4.4: Baseline model tests

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*
General Counsel	-0.368***	-0.690***	-0.777***
	(0.110)	(0.114)	(0.118)
Ln(Assets)		-0.036	0.491***
		(0.056)	(0.072)
Leverage		2.133***	0.283
		(0.380)	(0.430)
Tangibility		0.611	2.809***
		(0.630)	(0.690)
Asset Turnover		0.562***	0.573***
		(0.160)	(0.179)
CAPEX		-32.685***	-35.323***
		(2.424)	(2.722)
Market to Book		0.665***	1.059***
		(0.095)	(0.100)
FCF		-5.472***	-8.745***
		(1.046)	(1.112)
Ln(Analysts)			-1.542***
			(0.130)
Inst. Owner			-1.673***
			(0.473)
CEO Duality			-0.540***
			(0.134)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	39,039	34,460	31,184
Adjusted R-squared	0.237	0.253	0.277

This table displays the regression results for the baseline model using establishment-year observations. The dependent variable is the Total Case Rate *TCR*. The main explanatory variable of interest is the *General Counsel* indicator variable. The model incorporates industry fixed effects based on parent firms' two-digit Standard Industrial Classification (SIC) codes and year fixed effects. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.

4.4.3. Entropy balancing tests

We consider methods to address potential endogeneity concerns. Entropy balancing is a reweighting technique used to achieve covariate balance across different groups. Its main benefit is ensuring that the covariate distributions of treatment and control groups are similar, thereby reducing biases related to covariate imbalance, which can be a source of endogeneity.

In our case of entropy balancing, we distinguish treatment and control groups using the *General Counsel* indicator variable (treatment = 1, control = 0). After reweighting, the control group's covariates have mean values that are highly similar to those of the treatment group. We report the covariate statistics in Panel A of Table 4.5. We rerun the baseline model test with the weights of observations obtained from entropy balancing and report the results in Panel B of Table 4.5. The coefficient for *General Counsel* remains negative and highly significant at the 1% statistical level for the balanced sample.

We also consider propensity score matching as another technique for achieving covariate balance. However, entropy balancing is arguably advantageous from certain perspectives since it does not rely on extensive model specification to balance covariates, reducing the risk of model misspecification. Additionally, entropy balancing can preserve sample size without discarding any observations. We conduct propensity score matching[56] and report the results in Appendix C.2. The subsequent regression results remain consistently statistically significant, confirming the relationship.

[56] The matching criteria require that the treatment and control observations be in the same industry and year. The propensity score is calculated using a logit model with all baseline control variables. We adopt one-to-one nearest neighbor matching without replacement. The matching caliper is set at 0.01, as strictly as the level set by Liang *et al*. (2023), generating 1,263 matched pairs of GC establishments and non-GC establishments.

Table 4.5: Entropy balancing tests

Panel A: Matching Efficiency

	Treatment Group		Control Group Before Weighting		Control Group After Weighting	
	Mean	Variance	Mean	Variance	Mean	Variance
Ln(Assets)	9.083	1.972	9.292	2.396	9.084	2.368
Leverage	0.264	0.023	0.254	0.025	0.264	0.025
Tangibility	0.354	0.036	0.366	0.033	0.354	0.037
Asset Turnover	1.233	0.275	1.360	0.514	1.233	0.346
CAPEX	0.053	0.001	0.056	0.001	0.053	0.001
Market to Book	1.799	0.792	2.156	1.091	1.800	0.702
FCF	0.085	0.005	0.102	0.005	0.085	0.004
Ln(Analysts)	2.441	0.371	2.482	0.496	2.441	0.452
Inst. Owner	0.745	0.019	0.688	0.024	0.745	0.026
CEO Duality	0.802	0.159	0.791	0.165	0.802	0.159

Panel B: Balanced Sample Test

VARIABLES	*TCR*
General Counsel	-0.674***
	(0.122)
Baseline Controls	Yes
Industry Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	31,184
Adjusted R-squared	0.285

This table presents the regression results of the entropy balancing tests. Panel A reports the matching efficiency, with treatment and control groups distinguished by the *General Counsel* indicator variable (treatment = 1, control = 0). Mean and variance are reported for each group, and the balancing variables include all baseline control variables. Panel B provides the results of the balanced sample test, incorporating baseline controls, industry fixed effects based on parent firms' two-digit SIC codes, and year fixed effects. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.

4.4.4. Moderating variable tests

To further refine our understanding of the relationship between top management general counsel and workplace safety, we examine potential moderating variables. These tests are important for identifying the conditions under which the observed effect is amplified or diminished. Specifically, we propose and test five moderating variables: (i) information quality, (ii) labor investment efficiency, (iii) lawyer CEOs, (iv) corporate governance, and (v) agency problems.

Hope *et al*. (2022) find that higher internal information quality benefits workplace safety. Improved information quality allows managers to better quantify the cost-benefit analysis of workplace safety, increases the efficiency of investment activities aimed at enhancing workplace safety, and provides valuable information for work planning and safety-related performance measurement.

We follow the literature and employ two proxies for corporate internal information quality, including (i) the Bog index developed by Bonsall, Leone, Miller, and Rennekamp (2017), and (ii) the Bid_Ask_Spread developed by Corwin and Schultz (2012). The Bog index (*Bog_Index*) captures the plain English attributes of financial disclosures, including concise verbs and the avoidance of unnecessary jargon and complex words.[57] It provides a comprehensive assessment of the ease of understanding a disclosure, reflecting information quality. High-quality internal information systems are likely to lead to more transparent disclosures. The bid ask spread (*Bid_Ask_Spread)* is derived from daily high and low stock prices. Corwin and Schultz (2012) demonstrate that this measure outperforms several other traditional measures in estimating the bid-ask spread. Poor internal information quality

[57]We thank Samuel B. Bonsall IV, Andrew J. Leone, Brian P. Miller, and Kristina Rennekamp for making the Bog Index data available at https://kelley.iu.edu/bpm/index.html.

often results in greater information asymmetry, as management might misrepresent information, which can be detected through higher bid-ask spreads.

Labor investment efficiency refers to whether the net hiring amount of employees in a firm is optimal. Under-hiring likely leads to fewer employees and a higher workload for each employee. A higher workload is a well-documented factor leading to work injuries (Caskey & Ozel, 2017; Qian *et al.*, 2023) and is cited as one of the most common hurdles to safety in surveys (Hatfield *et al.*, 2022). Conversely, over-hiring likely means more new employees who tend to have higher injury rates since they are not familiar with the safety risks and hazards in the workplace, as documented by Bell and Grushecky (2006).

To quantify labor investment efficiency, we follow the approach of Jung *et al.* (2014) and Ee *et al.* (2022). Specifically, we measure the deviation of actual net hiring from expected net hiring to determine whether net hiring is optimal. The optimal expected net hiring is determined by factors such as sales growth, profitability, and leverage. A smaller deviation of actual net hiring from the expected level indicates better efficiency in labor investments. Jung *et al*. (2014) provide detailed explanations for constructing this variable and demonstrate the reliability of the estimates.

Lawyer CEOs, on one hand, their legal educational background already brings valuable legal knowledge and skills to the leadership team (Pham, 2020). This expertise may overlap with the general counsel's role, potentially diminishing their distinct influence on safety outcomes. On the other hand, a lawyer CEO might have a deeper understanding of the legal aspects of workplace safety, including compliance with regulations and the mitigation of legal risks associated with unsafe work environments. In this case, the CEO may be more likely to value the contributions of the general counsel, recognizing the importance of their legal expertise in driving workplace safety initiatives. The support of a lawyer CEO could enhance the general counsel's ability to influence safety outcomes. This dual possibility presents an intriguing area for empirical testing. We utilize Pham's (2020) manually collected data on CEOs' legal background.

Corporate governance involves the structures that oversee the management of a company and has important implications for business ethics (Veldman, Jain, & Hauser, 2023). Weak corporate governance may indicate deficiencies and areas needing improvement in an organization's practices. The general counsel plays a critical governance role by ensuring that the company's policies and practices comply with legal and regulatory requirements (Coffee, 2003; Hamermesh, 2012). We conjecture that when corporate governance is weaker, the general counsel can leverage their legal expertise and authority to compensate for governance gaps and have a larger impact on workplace safety.

Inspired by Anderson, Duru, and Reeb (2009) and Lang, Lins, and Maffett (2012), we construct a composite corporate governance index to proxy governance levels, acknowledging that governance is multi-dimensional and can hardly be represented by a single variable. Our composite index considers four dimensions of governance: board size, board independence, institutional shareholder ownership ratio, and analyst coverage. Researchers find that larger boards can positively impact corporate governance levels (Treepongkaruna, Kyaw, & Jiraporn, 2024). Independent board members are essential for providing unbiased oversight and ensuring that management actions align with the company's interests and ethical standards (Hambrick *et al.*, 2015; Neville, Byron, Post, & Ward, 2019). Institutional shareholders are more engaged in corporate governance practices and influence managerial decision-making (Lewellen & Lewellen, 2022). Financial analysts also play an effective external monitoring role on companies and influence governance levels (Bradley *et al.*, 2022; Jing, Keasey, Xu, & Lim, 2023).

In our composite index construction methodology, we first calculate the annual percentile rankings for each governance variable within the sample for each observation.

We then compute the simple average of the rankings of the four variables to form the initial index values, where higher values indicate better governance. For easier interpretation, we multiply these index values by negative one, so that higher values correspond to weaker governance levels. We name this composite index the *Poor Gov. Index*.

Lastly, agency problems can occur when corporate management prioritizes their private benefits over the interests of shareholders (Ferrell, Liang, & Renneboog, 2016). In regard to workplace safety, firms with agency problems may overlook the well-being interests of employees. In such cases, GCs can potentially mitigate agency costs by promoting transparency within firms (Kwak *et al*., 2012). They can also act as gatekeepers and provide governance roles, which may help constrain management actions that could jeopardize worker safety. Thus, we hypothesize that GCs in senior positions can enhance safety to a larger extent when agency problems are more prevalent.

We follow Ferrell *et al*. (2016) in using capital expenditure and dividend payout as proxies for firms' agency problems. Specifically, firms' capital expenditure decisions could serve as a means to spend excess cash on empire building and extracting managerial private benefits (Masulis, Wang, & Xie, 2009). A higher capital expenditure amount can indicate increased agency costs. On the other hand, dividend payouts can restrict the amount of cash available for managers to use for private benefit purposes (La Porta, Shleifer, & Vishny, 2000; Morck & Yeung, 2005). Thus, dividends can act as a mechanism to curb managerial agency problems. Following Ferrell *et al*. (2016), we scale capital expenditure by total assets and dividend payout by total sales.

Our approach to the moderating variable test follows the methodology of Caskey and Ozel (2017) and Wu *et al.* (2023). The regression equation below includes interaction terms between *General Counsel* and the moderating variables to indicate the significance of moderating effects:

$TCR_{i,t} = \alpha_0 + \beta_1$ *General Counsel*$_{i,t}$ $+ \beta_2$ *(General Counsel*$_{i,,t}$ $\times$ *Moderating Variable*$_{i,,t}$*)* $+ \beta_3$ *Moderating Variable*$_{i,,t}$ $+ \beta$ *Control Variables*$_{i,t}$ + *Industry FE* + *Year FE* $+ \varepsilon_{i,t}$ (4.2)

We report the test results in Table 4.6. In panel A, for ease of interpretation, we reconstruct the *Bog_Index* and *Bid_Ask_Spread* variables such that a value of one represents above-median information quality and a value of zero represents below-median information quality. The negative coefficients on the interaction terms in Panel A indicate that the association between general counsel and workplace safety is stronger in firms with higher information quality.

For Panel B, we also reconstruct the *Labor_Efficiency* variable for easier interpretation. Specifically, a value of one denotes above-median labor investment efficiency, while a value of zero denotes below-median efficiency. The negative coefficient on the interaction term between *General Counsel* and *Labor_Efficiency* suggests that the presence of general counsel is associated with a greater reduction in injury rates among firms with more efficient labor investment.

Panel C shows a significant and negative interaction term between the *General Counsel* dummy variable and the *Lawyer CEO* dummy variable, suggesting that the effect of GC on safety is stronger when the CEO has a legal educational background. This supports the hypothesis that lawyer CEOs can better utilize the legal expertise of GCs and enhance their impact on corporate safety outcomes.[58] Upon closer examination of the results, we find no evidence that lawyer CEOs directly improve safety outcomes by themselves. This may be because, unlike general counsels, CEOs have distinct managerial responsibilities and other strategic priorities.

[58] In our sample, approximately 18% of the observations feature a lawyer CEO with a law degree. Among these observations, about 12.7% also have an in-house general counsel serving as a senior executive.

In Panel D, the interaction term of *General Counsel* and the *Poor Gov. Index* is statistically significant and negative, indicating that general counsel in senior management can reduce more injuries when corporate governance is weaker, consistent with our view that GC can serve as a governance role.

In Panel E, the results suggest that the baseline effect is more pronounced in firms with higher agency problems, as proxied by greater capital expenditures and lower dividend payouts. Overall, we provide empirical evidence of the moderating effects of these variables. Conducting these tests offers deeper insights into when and why the effect of general counsel on workplace safety is stronger or weaker.

Table 4.6: Moderating variable tests

Panel A: Information Quality

VARIABLES	*TCR*	VARIABLES	*TCR*
General Counsel	-0.567***	*General Counsel*	-0.275*
	(0.145)		(0.147)
General Counsel × Bog_Index	-0.585***	*General Counsel × Bid_Ask_Spread*	-1.026***
	(0.211)		(0.164)
Bog_Index	-0.004	*Bid_Ask_Spread*	-0.117
	(0.122)		(0.133)
Baseline Controls	Yes	Baseline Controls	Yes
Industry Fixed Effects	Yes	Industry Fixed Effects	Yes
Year Fixed Effects	Yes	Year Fixed Effects	Yes
Observations	30,845	Observations	31,161
Adjusted R-squared	0.279	Adjusted R-squared	0.278

Panel B: Labor Investment Efficiency

VARIABLES	*TCR*
General Counsel	-0.357**
	(0.164)
General Counsel ×Labor_Efficiency	-0.523***
	(0.175)
Labor_Efficiency	0.112
	(0.095)
Baseline Controls	Yes
Industry Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	26,649
Adjusted R-squared	0.294

Panel C: Lawyer CEO

VARIABLES	*TCR*
General Counsel	-0.350**
	(0.150)
General Counsel × Lawyer CEO	-2.032***
	(0.403)
Lawyer CEO	0.222
	(0.395)

Panel D: Corporate Governance

VARIABLES	*TCR*
General Counsel	-1.669***
	(0.355)
General Counsel × Poor Gov. Index	-0.020***
	(0.007)
Poor Gov. Index	0.051***
	(0.005)

Baseline Controls	Yes	Baseline Controls	Yes
Industry Fixed Effects	Yes	Industry Fixed Effects	Yes
Year Fixed Effects	Yes	Year Fixed Effects	Yes
Observations	20,560	Observations	31,184
Adjusted R-squared	0.218	Adjusted R-squared	0.281

Panel E: Agency Problems

VARIABLES	*TCR*	VARIABLES	*TCR*
General Counsel	-0.463**	*General Counsel*	-1.057***
	(0.196)		(0.151)
General Counsel × *Cap. Exp.*	-6.514**	*General Counsel* × *Dividend Payout*	14.196***
	(2.890)		(4.282)
Cap. Exp.	11.905	*Dividend Payout*	15.606***
	(8.481)		(3.925)
Baseline Controls	Yes	Baseline Controls	Yes
Industry Fixed Effects	Yes	Industry Fixed Effects	Yes
Year Fixed Effects	Yes	Year Fixed Effects	Yes
Observations	31,184	Observations	31,181
Adjusted R-squared	0.277	Adjusted R-squared	0.279

This table presents the regression results of the moderating variable tests. In Panel A, *Bog_Index* and *Bid_Ask_Spread* are recoded as median-dummy variables, where a value of one indicates above-median information quality and zero otherwise. In Panel B, *Labor_Efficiency* equals one if the observation's labor investment efficiency is above the sample median, and zero otherwise. In Panel C, *Lawyer CEO* is a dummy variable equal to one if the CEO has a legal background and zero otherwise. In Panel D, we included our constructed *Poor Gov. Index*. In Panel E, *Cap. Exp.* and *Dividend Payout* serve as proxies for agency problems, and their raw values are used. Baseline controls, industry fixed effects based on parent firms' two-digit SIC codes, and year fixed effects are included. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.

4.4.5. Robustness tests

So far, we have demonstrated a relation between the presence of general counsel in senior management and improved workplace safety levels. To ensure our baseline findings are robust and not sensitive to specific model specifications, we supplement the baseline results with additional robustness tests, which are reported in Table 4.7.

Panel A incorporates additional control variables to address concerns about omitted variables. In Column (1), we add another corporate governance measure, the board independence ratio, to account for the potential effect of board monitoring on employee safety. Column (2) includes extra CEO characteristics as controls, specifically tenure and compensation. These variables help control for management entrenchment and interest alignment. Column (3) adds a *Lawyer CEO* control dummy variable, indicating whether the CEO has a legal education background, as obtained from Pham (2020). Including this variable helps isolate the specific effect of the *General Counsel* on workplace safety by controlling for the potential confounding effects of having legal expertise at the highest level of management. Column (4) includes establishment characteristics controls, following Haga *et al*. (2022), to account for workplace size, working hours, worker strikes, production shutdowns, seasonal business variations, and natural disasters. In all four columns of Panel A, the coefficient for *General Counsel* remains highly significant at the 1% statistical level, even though the number of observations is reduced. This suggests that our baseline relationship is robust to the inclusion of additional control variables.

Panel B of Table 4.7 presents the results using alternative dependent variables. The Days Away, Restricted, or Transferred (*DART*) rate measures the rate of severe injuries and is often used as an alternative to *TCR* (e.g., Wu *et al*., 2023). The *TCR Ind. Adj.* variable accounts for variations in safety across different industries, allowing for more accurate cross-industry comparisons. TCR_{t+1} represents the injury rate in the subsequent period, potentially mitigating reverse causality. The *KLD Safety Index*, based on qualitative ratings from the Kinder, Lydenberg, and Domini (KLD) rating agency, follows the methodology of Bradley *et al*. (2022). This index is constructed by subtracting the "Health and Safety Concern" indicator from the "Health and Safety Strength" indicator, and higher safety index reflects better workplace safety profiles.[59] Tests using these four dependent variables generate consistent findings, providing further evidence that having general counsel's legal expertise in top management is associated with improved workplace safety.

Panel C of Table 4.7 displays regression results that incorporate alternative fixed effects to account for potential interference from time-invariant attributes at the firm, establishment, or state level. In brief, after controlling for various alternative fixed effects, the coefficients for *General Counsel* remain statistically significant at the 5% level, reinforcing the baseline findings.

Lastly, we consider alternative regression models employed in other safety-related research papers, specifically the Poisson model and the negative binomial model (e.g., Bradley *et al*., 2022; Caskey & Ozel, 2017). These models are appropriate when the dependent variable is a count integer. Therefore, we replace the baseline dependent variable *TCR* with the total number of cases in an establishment. We also include the number of hours worked by all employees in an establishment as an exposure variable, as the count of *Total Cases* is arguably proportional to the amount of exposure (Caskey & Ozel, 2017). The main difference between these two models is that the negative binomial model allows for overdispersion, meaning the variance of the dependent variable can be greater than its mean, while the Poisson model assumes that the mean and variance of the dependent

[59] The original KLD ratings are at the parent-firm level. We assign these firm-level values to the establishments owned by the respective firms.

variable are equal. We report the relevant results in Panel D of Table 4.7, which further support the baseline relationship. Overall, the four panels in Table 4.7 demonstrate that the relationship between including general counsel in senior management and improved workplace safety remains robust across various model specifications.

Table 4.7: Robustness tests

Panel A: Additional Controls

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*	(4) *TCR*
General Counsel	-0.948***	-0.463***	-0.456***	-0.407***
	(0.117)	(0.133)	(0.147)	(0.146)
Board Indep.	-6.042***	-5.140***	-5.979***	-5.713***
	(0.546)	(0.682)	(0.726)	(0.717)
Ln(CEO Tenure)		-0.178**	-0.318***	-0.306***
		(0.089)	(0.099)	(0.098)
Ln(CEO Comp.)		-0.734***	-0.339***	-0.336***
		(0.130)	(0.119)	(0.118)
Lawyer CEO			0.661**	0.680**
			(0.300)	(0.298)
Ln(Employees)				0.032
				(0.075)
Hours per Employee				-0.002***
				(0.000)
Strike				1.145
				(1.719)
Shutdown				0.452***
				(0.174)
Seasonal				0.835*
				(0.441)
Disaster				-1.218***
				(0.305)
Baseline Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	26,485	13,138	8,809	8,809
Adjusted R-squared	0.287	0.311	0.206	0.213

Panel B: Alternative Dependent Variables

VARIABLES	(1) *DART*	(2) *TCR Ind. Adj.*	(3) TCR_{t+1}	(4) *KLD Safety Index*
General Counsel	-0.558***	-0.077***	-1.140***	0.082***
	(0.087)	(0.020)	(0.181)	(0.009)
Baseline Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	31,184	31,175	15,332	28,061
Adjusted R-squared	0.294	0.048	0.273	0.314

Panel C: Alternative Fixed Effects

VARIABLES	(1) *TCR*	(2) *TCR*	(3) *TCR*	(4) *TCR*
General Counsel	-0.223**	-0.225**	-0.202**	-0.202**
	(0.095)	(0.095)	(0.095)	(0.095)
Baseline Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm	Firm	Establishment	Establishment
Fixed Effects	Year	Year	Year	Year
Fixed Effects		State		State
Observations	31,141	31,141	27,699	27,699
Adjusted R-squared	0.366	0.379	0.650	0.649

Panel D: Alternative Models

VARIABLES	Poisson (1) *Total Cases*	Poisson (2) *Total Cases*	Negative Binomial (3) *Total Cases*	Negative Binomial (4) *Total Cases*
General Counsel	-0.077***	-0.045**	-0.078***	-0.042***
	(0.029)	(0.021)	(0.019)	(0.014)
Baseline Controls	Yes	Yes	Yes	Yes
Fixed Effects	Industry	Firm	Industry	Firm
Fixed Effects	Year	Year	Year	Year
Exposure Variable	Num_Hours	Num_Hours	Num_Hours	Num_Hours
Observations	31,186	31,186	31,186	31,186
Pseudo R-squared	0.274	0.387	0.051	0.081

This table presents the regression results of the robustness tests, including additional control variables (Panel A), alternative dependent variables (Panel B), alternative fixed effects (Panel C), and alternative regression models (Panel D). All regressions include the baseline control variables listed in Column (3) of Table 4.4. The coefficients of the baseline control variables are not reported for brevity. Industry fixed effects are based on parent firms' two-digit SIC codes, and state fixed effects are based on establishment locations. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.

4.4.6. Alternative samples

We consider alternative workplace safety samples in addition to our baseline dataset. While we focused on the OSHA 2002-2011 dataset in the previous tests, we now employ the OSHA 2016-19 dataset and the Violation Tracker dataset.

Since 2016, OSHA has required certain establishments that meet size and industry criteria to report their workplace injury and illness information through the Injury Tracking Application (ITA) program. We analyze the period between 2016 and 2019 to mitigate the impact of the subsequent COVID-19 pandemic on reported workplace illness cases. This OSHA data program is also collected at the establishment level, and we match the establishments to listed companies based on their names using Caskey and Ozel's (2017) linking file, similar to the approach used for the baseline data. The number of observations each year in the newer sample is greater than in the previous 2002-2011 sample because the newer program is a mandatory requirement for certain establishments and not a periodic survey. We reran the regression using the OSHA 2016-2019 dataset, incorporating several additional control variables used in the previous robustness test to alleviate potential omitted variable bias.[60] We report the results in Panel A of Table 4.8. The results are consistent with the baseline finding that having GC legal expertise in top management is associated with a lower injury and illness rate on average.

The second alternative sample we consider is the Violation Tracker dataset produced by Good Jobs First. This dataset includes a comprehensive record of corporate violations in the U.S. that were penalized by federal regulatory agencies, covering areas such as environmental, consumer protection, and workplace safety. This Violation Tracker

[60] Unlike the period from 2002 to 2011, OSHA no longer reports data on establishments' worker strikes, facility shutdowns, seasonal businesses, and natural disasters from 2016 onwards.

has been employed by several researchers in their publications (e.g., Aggarwal, 2023; Chircop *et al.*, 2023; Raghunandan & Rajgopal, 2022; Zaman, 2024). For our analysis, we focus on safety-related violations and construct a parent-firm level variable, *Ln(#Safety Violations)*, representing the number of safety violations where the resulting penalty amount exceeds $100,000 USD. This threshold allows us to gauge the effect on significant safety-related violations, facilitating for meaningful interpretations. We report the results in Panel B of Table 4.8. The coefficient for *General Counsel* is significantly negative, indicating an association with fewer safety violations. This result further reinforces the view that a GC in top management contributes to fostering a corporate culture that emphasizes regulatory compliance.

Table 4.8: Alternative datasets

Panel A: OSHA 2016-2019 Dataset		Panel B: Violation Tracker Dataset	
VARIABLES	*TCR*	VARIABLES	*Ln(#Safety Violations)*
General Counsel	-0.747***	*General Counsel*	-0.035***
	(0.078)		(0.005)
Board Indep.	-0.081	*Board Indep.*	0.254***
	(0.179)		(0.018)
Ln(CEO Tenure)	0.510***	*Ln(CEO Tenure)*	-0.012***
	(0.042)		(0.003)
Ln(CEO Comp.)	-0.548***	*Ln(CEO Comp.)*	-0.037***
	(0.060)		(0.004)
Ln(Assets)	0.118***	*Ln(Assets)*	0.006***
	(0.036)		(0.002)
Leverage	1.126***	*Leverage*	-0.123***
	(0.234)		(0.014)
Tangibility	-1.384***	*Tangibility*	0.133***
	(0.355)		(0.021)
Asset Turnover	0.956***	*Asset Turnover*	-0.028***
	(0.069)		(0.004)
CAPEX	3.728*	*CAPEX*	-0.473***
	(2.136)		(0.141)
Market to Book	-0.437***	*Market to Book*	0.018***
	(0.045)		(0.003)
FCF	5.771***	*FCF*	-0.245***
	(0.619)		(0.032)
Ln(Analysts)	0.096**	*Ln(Analysts)*	0.020***
	(0.042)		(0.005)
Inst. Owner	-0.592***	*Inst. Owner*	0.026**
	(0.157)		(0.013)
CEO Duality	-0.192**	*CEO Duality*	0.035***
	(0.088)		(0.006)
Industry Fixed Effects	Yes	Industry Fixed Effects	Yes
Year Fixed Effects	Yes	Year Fixed Effects	Yes
Observations	73,034	Observations	10,952
Adjusted R-squared	0.210	Adjusted R-squared	0.125

This table presents the results of the alternative dataset tests, using OSHA 2016-2019 data (Panel A) and Good Job First's Violation Tracker data (Panel B). Both regressions include the control variables listed in Column (2) of Panel A of Table 4.7. Industry fixed effects are based on parent firms' two-digit SIC codes. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.

4.5. Discussions

Heineman (2016) and DeMott (2005) argue that the role of general counsels (GCs) extends far beyond leading the legal department, positioning them as guardians of their organizations and catalysts for transforming corporate culture through a focus on regulatory compliance. However, the inclusion of GCs in top management teams has sparked debate. Some scholars suggest that as senior executives, GCs may face pressure to align with management interests and tolerate aggressive or unethical behaviors (Brooks, Hairston, Njoroge, & Ryou, 2020; Ham & Koharki, 2016). Despite these challenges, senior GCs are often committed to upholding the law and minimizing litigation risks (Hopkins *et al.*, 2015; Hsu & Liu, 2024). Building on this discussion, our research findings suggest that senior executive GCs actively contribute to workplace safety, offering a nuanced perspective on their broader impact on organizational outcomes.

In the context of maintaining workplace safety, GCs arguably face no pressure from peer senior executives to undermine worker safety. Low rates of workplace injuries and illnesses can provide top executives with private benefits of better reputation (Barnea & Rubin, 2010). Financially aligned executives also prioritize worker safety to avoid potential wealth losses (Wu *et al*., 2023). Moreover, mitigating legal and regulatory risks is a primary duty of GCs. Unsafe workplaces can lead to regulatory penalties and potential lawsuits, jeopardizing GCs' job security. Aggarwal (2023) reveals that GCs who are dismissed from their positions spend an average of about four years subsequently unemployed. This highlights the personal career stakes GCs have in maintaining workplace safety. Additionally, a survey report by the Association of Corporate Counsel (2024) suggests that GCs are often in charge of corporate ethics functions. Parboteeah and Kapp (2008) find that a principled ethical climate plays a crucial role in influencing safety enhancing behaviors and outcomes. GCs’ emphasis on adherence to rules and procedures helps to ensure a safe work environment and the physical well-being of employees, leading to improved organizational outcomes.

However, it is important to acknowledge that there is no definitive empirical evidence suggesting that legal professionals inherently possess higher personal ethical standards. As Loacker (2023) points out, personal ethical standards among lawyers can vary significantly and are influenced by situational factors. Similarly, Kipnis (1991) argues that the ethical responsibilities of lawyers should be understood in the context of their professional roles, rather than as reflections of personal morality. On the other hand, Bagley *et al.* (2010) find that legal education enables managers to incorporate more ethical considerations into their managerial behavior, and research by (Mazar, Amir, & Ariely, 2008) suggests that legal knowledge makes individuals less likely to engage in unethical conduct. Given these findings, improving workplace safety arguably does not conflict with legal professionals' personal ethical values and, more importantly, is consistent with their professional responsibilities.

4.6. Conclusions

This study empirically examines the impact of incorporating general counsel’s (GC’s) legal expertise into top management on workplace safety. The findings reveal a significant relationship: top management GCs are linked to lower rates of work-related injuries and illnesses. This relationship remains robust across various dependent variables, fixed effects, model specifications, and alternative samples. This effect is particularly pronounced in firms with higher information quality, greater labor investment efficiency, lawyer CEOs, weaker corporate governance, and more severe agency problems.

Furthermore, firms with GCs in top management are associated with fewer safety-related regulatory violations.

Despite these robust findings, the study is not without limitations. The analysis is based on a U.S. sample, which may limit the generalizability of the results to other regions with differing regulatory and governance environments. Additionally, while various econometric tests are employed to address causality concerns, the possibility remains that unobserved factors may simultaneously influence both workplace safety and the inclusion of GCs in top management. Nevertheless, these tests mitigate causality concerns to a reasonable extent.

This research contributes to the literature by demonstrating the strategic value of GCs in executive roles, highlighting their influence on workplace safety beyond traditional legal responsibilities. The findings provide evidence of the governance role of senior executive GCs, offering practical insights into structuring corporate leadership. Moreover, the study underscores the potential economic and social benefits of leveraging in-house legal expertise to foster safer and healthier work environments.

Chapter Five - Conclusion

In this chapter, the thesis wraps up by outlining the key discoveries and their significance within each of the three essays discussed in Section 5.1. Furthermore, it proposes potential avenues for future research in Section 5.2.

5.1 Major findings and implications

In this section, we provide a summary of the major findings for each essay in this thesis. We also discuss the potential economic implications for investors, professionals, and financial market regulators.

5.1.1 Essay one

Our study examines how CEOs' general managerial skills influence workplace safety. We find that firms led by generalist CEOs experience fewer workplace injuries, illnesses, and safety-related penalties. These CEOs improve safety by optimizing labor investments, reducing employee workloads, and enhancing information quality. The positive impact is especially pronounced in firms facing market competition or financial constraints. By prioritizing employee well-being, generalist CEOs help mitigate negative effects on innovation, productivity, and firm value.

Our findings offer significant practical implications for executive hiring and leadership development. Companies seeking to maintain high standards of workplace safety should prioritize candidates with diverse managerial backgrounds, as their broad skill sets equip them to effectively address complex challenges while fostering a culture of workplace safety. Furthermore, leadership training programs should focus on developing versatile managerial skills, enabling executives to integrate safety considerations into strategic decision-making processes. By investing in leaders with generalist expertise, companies can not only enhance workplace safety but also drive stronger economic performance and achieve more sustainable organizational outcomes.

5.1.2 Essay two

We find a significant link between distracted shareholders and increased workplace injuries and illnesses. Under reduced shareholder monitoring, we observe lower safety-related expenditures, increased employee workloads, and more engagement in real earnings management. These actions are consistent with arguments by Kempf *et al.* (2017) that managers tent to misbehave under looser shareholder monitoring. Additionally, we identify corporate governance and market competition as factors moderating the relationship.

This second essay highlights the ethical implications of managerial short-termism during periods of reduced shareholder monitoring. It also underscores the critical role and potential weakness of shareholder oversight in companies. These findings suggest the need for alternative corporate governance mechanisms. For instance, oversight by regulatory bodies such as the U.S. OSHA agency is crucial to ensuring that companies uphold safety standards. Moreover, employee whistleblower protection programs that enable workers to report safety standard violations are also beneficial (Johnson, Schwab, & Koval, 2022). Additionally, media coverage and social media are important factors in influencing managerial actions (Heese & Pacelli, 2023; Heese *et al.*, 2022). Overall, our findings have significant implications for corporate governance, managerial ethics, and employee well-being. We advocate for stronger monitoring and governance frameworks.

5.1.3 Essay three

Research on the impact of top management team composition on corporate ethical performance is limited. This paper addresses this gap. The findings show that including general counsel in top management significantly reduces workplace injuries and illnesses. The effect is particularly pronounced in firms with higher information quality, greater labor investment efficiency, lawyer CEOs, weaker corporate governance, and more severe agency problems.

This suggests that integrating legal expertise into senior management can potentially strengthen corporate oversight and mitigate operational risks related to workplace safety. These results have practical implications for structuring executive teams to improve governance and employee well-being, encouraging companies to prioritize legal expertise in fostering safer work environments.

5.2 Future areas of research

This thesis explores determinants of workplace safety mainly from a corporate leadership and governance perspectives. Regarding the senior management’s effects on safety outcomes, CEOs arguably have strategic influences and the inclusion of general counsels in top management teams also have significant effects. Other senior management executives are potentially crucial, such as chief risk officers (CRO), who have managerial duties to mitigate operational risks (Li, Lam, Ho, & Yeung, 2022). CROs potential impact on workplace safety is overlooked, future research could examine how having a CRO or CROs' characteristics impact on workplace safety.

The thesis demonstrates that distracted shareholders can lead to worsen worker safety, highlighting the importance of governance efforts. Corporate governance and monitoring methods have imperfections from time to time. Future research may explore the effectiveness of more governance mechanisms, such as the presence of employees on the board or the appointment of a risk management committee. The current literature on workplace safety has largely overlooked the role of the risk committees.

Regarding the economic consequences of worker safety, the current literature remains relatively limited. One promising direction is to examine how workplace safety directly influences employee turnover rates, taking into account the costs of recruitment and the productivity losses associated with employee churn. By quantifying these costs, researchers can provide clearer insights into the hidden financial burden of neglecting worker safety.

Another valuable area of inquiry lies in understanding how workplace safety shapes a company's brand image and reputation. In an era where CSR and ethical practices are under increasing scrutiny from the public, firms that fail to uphold safety standards may face reputational damage that ultimately affects market performance and stakeholder trust.

Beyond internal outcomes, future research could delve into how key external stakeholders perceive and respond to a firm's commitment to workplace safety. Stakeholders such as auditors, suppliers, and creditors may incorporate a company's safety record into their risk assessments, pricing strategies, or partnership decisions. Investigating these dynamics could shed light on the extent to which workplace safety influences external evaluations and, in turn, the broader strategic and financial outcomes for the firm.

Beyond these areas, researchers could explore broader financial implications, such as how improved safety measures influence operational efficiency and long-term profitability. These avenues not only offer a richer picture of the economic impact of safety practices but also reinforce the idea that workplace safety is not merely a compliance issue, but a strategic asset with far-reaching consequences across the corporate ecosystem.

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Appendix A for essay one

- Appendix A.1: Variable definitions
- Appendix A.2: Sample information by industries
- Appendix A.3: PSM matching controls test
- Appendix A.4: Matching efficiency of entropy balancing matching
- Appendix A.5: First-difference tests
- Appendix A.6: The deviations of TCR across establishments

Appendix A.1 Variable definitions

Variables	Descriptions	Sources
Workplace injury variables		
TCR	Establishment-level TCR is the total number of injury and illness cases divided by the number of hours worked by all employees in a given establishment-year, and then multiplied by 200,000. Firm-level TCR is defined as the simple mean of its reported establishments' values.	OSHA
DART	Establishment-level DART is the number of injury and illness cases resulting in days away from work, job restriction or transfer, divided by the number of hours worked by all employees in a given establishment-year, and multiplied by 200,000. Firm-level DART is defined as the simple mean of its reported establishments' values.	OSHA
TCR Ind. Adj.	The industry adjusted TCR is subtracting the yearly industry mean TCR from the original TCR, and then divided by the yearly industry standard deviation.	OSHA
Generalist CEO variables		
General Ability Index (GAI)	An index based on five variables that measure a CEO's past work experiences: number of positions(X_1), number of firms(X_2), number of industries(X_3), CEO experience dummy(X_4), and conglomerate experience dummy(X_5). ($GAI_{i,t} = 0.268*X_{1i,t} + 0.312*X_{2i,t} + 0.309*X_{3i,t} + 0.218*X_{4i,t} + 0.153*X_{5i,t}$)	BoardEx; Custódio *et al*. (2013)
GAI Median Dummy	A dummy variable equals one if the GAI is above the yearly median, and zero otherwise.	BoardEx; Custódio *et al*. (2013)
GAI Industry Adjusted	A variable calculated by subtracting the yearly industry mean from the original GAI index, and then divided by the yearly industry standard deviation.	BoardEx; Custódio *et al*. (2013)
Firm baseline financial control variables		
Ln(Assets)	Natural logarithm of total assets (at).	Compustat
Leverage	Total debt divided by total assets (dt/at).	Compustat
Tangibility	Net property, plant, and equipment divided by total assets (ppent/at).	Compustat
Sales/Assets	Total sales scaled by total assets (sale/at).	Compustat
CAPEX/Assets	Capital expenditures scaled by total assets (capx/at).	Compustat
Market to Book	Market value of assets divided by book value of assets. Market value of assets equals market value of equities plus total liabilities plus liquidating value of preferred stock minus net deferred tax liability ((mkvalt+lt+pstkl-txndbl)/at) (Caskey & Ozel, 2017)	Compustat
FCF/Assets	Free cash flow scaled by total assets. Free cash flow equals operating income before depreciation minus interest expense minus deferred income tax minus capital expenditures ((oibdp - xint - txdi - capx)/at) (Bradley *et al*., 2022)	Compustat

Cash/Assets	Cash and short-term investments scaled by total assets (che/at).	Compustat
Dividends/Assets	Cash dividends to common shareholders scaled by total assets (dvc/at).	Compustat
Establishment control variables		
Ln(Employees)	Natural logarithm of number of employees working in a given establishment-year.	OSHA
Hours per Employee	Annual hours worked by all employees divided by number of employees in a given establishment-year.	OSHA
Strike	Indicator variable equals one if there was a strike in a given establishment-year, and zero otherwise.	OSHA
Shutdown	Indicator variable equals one if there was a facility shutdown in a given establishment-year, and zero otherwise.	OSHA
Seasonal	Indicator variable equals one if seasonal workers are employed in a given establishment-year, and zero otherwise.	OSHA
Disaster	Indicator variable equals one if there was a natural disaster in a given establishment-year, and zero otherwise.	OSHA
CEO characteristics control variables		
Ln(CEO Age)	Natural logarithm of CEO's age in a given year.	ExecuComp
Ln(CEO Tenure)	Natural logarithm of CEO's tenure in the current firm in a given year.	ExecuComp
Ln(CEO Comp.)	Natural logarithm of CEO's annual total compensation reported in SEC filings in a given year.	ExecuComp
CEO Gender	A dummy variable equals one if the CEO is female, and zero otherwise.	ExecuComp
CEO Duality	A dummy variable equals one if the CEO is also the chairman of the board in a given year, and zero otherwise.	ExecuComp
Corporate governance and culture control variables		
Board Independence	Percentage of independent members on the board.	RiskMetrics
Board Size	Natural logarithm of one plus the number of board members.	RiskMetrics
IOR	The ratio of shares owned by institutional shareholders in a firm.	Thomson Reuters 13F
Takeover Index	A composite measure of the legal environment's restrictiveness on corporate takeovers across U.S. states. Higher values indicate a more restrictive takeover environment.	Cain *et al.* (2017)
Corporate Culture	Sum of the five cultural dimensions of integrity, teamwork, innovation, respect, and quality.	Li *et al.* (2021)
Other variables		
Safety Index	Following Bradley *et al*. (2022), the Safety Index is derived from KLD qualitative ratings. It is calculated by subtracting the "Health and Safety Concern" indicator	MSCI/KLD

	variable from the "Health and Safety Strength" indicator variable. The Safety Index can have values of 1, 0, or -1, with higher values indicating better safety profiles.	
Ln(Analyst)	Natural logarithm of one plus the average number of analysts following the firm in a given year.	I/B/E/S
Ln(Delta)	Natural logarithm of CEOs' wealth change to 1% change in stock price (Core & Guay, 2002).	ExecuComp CRSP
Product Market Fluidity	Measure of market competition. The variable is derived using product textual descriptions.	Hoberg *et al.* (2014)
KZ Index	Kaplan and Zingales (KZ) index is a measure of financing constraint. Following Lamont *et al.* (2001), the variable is calculated based on the following formula in Compustat database: (-1.002 * (dp+ib) / at) + (3.139 * (dltt+dlc) / at) + (0.283 * Tobin's Q) - (39.368 * (dvc+dvp) / at) - (1.315 * (che/at)).	Compustat
Inv_Eff	A measure of labor investment efficiency. Inv_Eff = abnormal net hire × -1. Following Jung *et al.* (2014) and Ee *et al.* (2022), abnormal net hire is the absolute difference between actual and expected net hiring. Net hiring is the percentage change in the number of employees. The formula for calculating the expected level of net hiring and the details of this measure is available in the data section of Jung *et al.*'s (2014) paper. For easier interpretation, our inverse measure is multiplying their original efficiency measure, abnormal net hire, by negative one, so that a positive regression coefficient now indicates better labor investment efficiency.	Compustat
Inv_Eff Ind. Adj.	Industry adjusted measure of labor investment efficiency, which is calculated as the original Jung *et al.*'s (2014) abnormal net hire value minus the yearly industry mean, divided by the yearly industry standard deviation, and then multiplied by negative one. For our inverse measure, a positive regression coefficient indicates better labor investment efficiency.	Compustat
Ln(Production per Employee)	Measure of employee workload. Natural logarithm of production divided by the number of employees. Production is cost of goods sold minus inventory decrease. Compustat: Ln((cogs-invch)/emp).	Compustat, Caskey and Ozel (2017)
Ln(Revenue per Employee)	Measure of employee workload. Natural logarithm of sales revenue divided by the number of employees. Compustat: Ln(sale/emp).	Compustat, Caskey and Ozel (2017)
High-Low Spread	Proxy for information quality, developed by Corwin and Schultz (2012). Higher high-low spread indicates higher information asymmetry and lower information quality. The spread is estimated from daily high and low stock prices.	Corwin and Schultz (2012)

FSD Score	Proxy for information quality. FSD Financial Statement Divergence score is created by Amiram *et al.* (2015). The measure captures the divergence from a theoretical distribution posited by Benford's Law. Higher FSD score indicates lower information quality.	Amiram *et al*. (2015)
Ln(Patents)	Measure of innovation output. Natural logarithm of one plus the number of patents in a firm-year. The patents are recorded based on the patent filing date.	Kogan *et al.* (2017), Google Patents
Total Factor Productivity	Measure of productivity developed by İmrohoroğlu and Tüzel (2014). Higher total factor productivity value suggests higher firm-level productivity.	İmrohoroğlu and Tüzel (2014)
Tobin's Q	Measure of firm value. Market value of shares plus book value of total liabilities, then divided by book value of total assets (Custódio *et al*., 2013; Hu & Liu, 2015). The formula for calculation in Compustat is: Tobin's Q = (at - ceq - txdb + (csho * prcc_f)) / at.	Compustat
Ln(Penalty Amount/Employees)	Sum of safety-related and healthcare related penalty amount within a firm-year, divided by the number of employees, and then taking natural log.	Good Jobs First's Violation Tracker

Appendix A.2: Sample information by industries

Fama-French 12 Industries	Number of Observations	TCR Avg.	GAI Avg.
Wholesale & Retail	19173	7.80	0.18
Other	13881	10.72	-0.07
Manufacturing	13324	4.78	0.25
Consumer Non-Durables	6667	8.91	0.11
Healthcare	5022	10.50	-0.01
Business Equipment & Software	2603	2.09	0.16
Consumer Durables	2063	6.65	0.25
Chemicals	1478	2.56	0.42
Energy	229	2.12	0.05
Telecommunication	90	2.81	0.68
Total	64530		

This table lists the number of establishment-year observations in our sample by Fama French 12 industry classifications, along with their TCR total case rate averages and GAI general ability index averages. The 'Other' industry typically consists of mining, construction, transportation, and other businesses. There is a total of 64,530 establishment-year observations in our sample which have valid TCR and GAI values.

Appendix A.3: PSM matching controls test

VARIABLES	*General Ability Index*
Ln(Assets)	0.139***
	(0.013)
Leverage	0.398***
	(0.105)
Tangibility	-0.427***
	(0.123)
Sales/Assets	-0.039
	(0.024)
CAPEX/Assets	-1.546***
	(0.560)
Market to Book	-0.013
	(0.027)
FCF/Assets	-0.451
	(0.276)
Cash/Assets	0.090
	(0.157)
Dividends/Assets	1.257
	(0.876)
Ln(Analyst)	0.033
	(0.027)
Industry Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	3,948
Adjusted R-squared	0.122

This table presents the OLS regression results of regressing the GAI General Ability Index on all the baseline control variables. The significant control variables are subsequently used as the matching variables in the propensity score matching in Table 2.3. The explanatory variables are all the baseline control variables. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Detailed descriptions of the variables are available in Appendix A.1.

Appendix A.4: Matching efficiency of entropy balancing matching

Panel A: Establishment level

Variables	*Treatment*			*Control - Before Matching*			*Control - After Matching*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Mean	Variance	Skewness	Mean	Variance	Skewness	Mean	Variance	Skewness
Ln(Assets)	9.967	2.129	-0.264	8.823	1.935	-0.499	9.967	0.934	-0.489
Leverage	0.245	0.019	0.565	0.237	0.022	0.685	0.245	0.017	0.639
Tangibility	0.392	0.034	-0.197	0.412	0.035	-0.086	0.392	0.036	-0.108
Sales/Assets	1.331	0.358	0.564	1.405	0.372	1.335	1.331	0.458	1.575
CAPEX/Assets	0.053	0.001	0.629	0.063	0.002	0.793	0.053	0.001	1.148
Market to Book	1.845	0.591	0.855	1.613	0.409	1.375	1.845	0.647	1.101
FCF/Assets	0.090	0.004	-0.655	0.071	0.003	-0.164	0.090	0.003	0.416
Cash/Assets	0.068	0.004	2.024	0.071	0.005	2.357	0.068	0.003	1.498
Dividends/Assets	0.023	0.000	1.032	0.014	0.000	1.979	0.023	0.000	1.047
Ln(Analysts)	2.717	0.349	-1.401	2.390	0.599	-1.266	2.717	0.323	-1.886

Panel B: Firm level

Variables	*Treatment*			*Control - Before Matching*			*Control - After Matching*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Mean	Variance	Skewness	Mean	Variance	Skewness	Mean	Variance	Skewness
Ln(Assets)	8.468	2.441	0.294	7.680	2.325	0.492	8.468	2.678	0.258
Leverage	0.245	0.023	0.630	0.210	0.026	0.746	0.245	0.027	0.661
Tangibility	0.262	0.027	0.883	0.286	0.036	0.812	0.262	0.033	0.977
Sales/Assets	1.106	0.363	1.941	1.260	0.535	1.292	1.106	0.492	1.641
CAPEX/Assets	0.041	0.001	1.852	0.047	0.001	1.555	0.041	0.001	1.800
Market to Book	1.627	0.511	1.533	1.655	0.527	1.376	1.627	0.519	1.501
FCF/Assets	0.075	0.004	-0.295	0.076	0.005	-0.334	0.075	0.005	-0.276
Cash/Assets	0.107	0.011	1.476	0.115	0.013	1.384	0.107	0.012	1.544
Dividends/Assets	0.014	0.000	1.833	0.013	0.000	2.101	0.014	0.000	1.839
Ln(Analysts)	2.269	0.476	-0.759	2.048	0.658	-0.671	2.269	0.588	-0.866

This table presents the matching efficiency of entropy balancing matching, which relates to the entropy balancing tests reported in Table 2.4. Panel A and panel B report the establishment-level and firm-level statistics respectively. Mean, variance, and skewness are reported for each group. The treatment and control groups are distinguished by the GAI Median Dummy. The balancing variables are all the control variables. The mean of the control observations after matching is the same as the treatment. Detailed descriptions of the variables are available in Appendix A.1.

Appendix A.5: First-difference tests

VARIABLES	(1) *△TCR Ind. Adj.*	(2) *△TCR Ind. Adj.*	(3) *△TCR Ind. Adj.*
△GAI Ind. Adj.	-0.081***	-0.067**	-0.065**
	(0.029)	(0.028)	(0.028)
Controls:			
△Ln(Assets)	0.174	0.126	0.147
	(0.121)	(0.122)	(0.116)
△Leverage	-0.224	-0.315	-0.239
	(0.288)	(0.289)	(0.282)
△Tangibility	0.251	0.156	0.030
	(0.566)	(0.563)	(0.571)
△Sales	0.022	-0.031	0.070
	(0.122)	(0.121)	(0.114)
△CAPEX	-0.456	-0.216	0.241
	(0.996)	(1.022)	(0.988)
△Market to Book	0.106*	0.075	0.028
	(0.059)	(0.060)	(0.057)
△FCF	-0.033	0.042	0.085
	(0.452)	(0.444)	(0.445)
△Cash	-0.153	-0.057	-0.078
	(0.351)	(0.351)	(0.347)
△Dividends	-0.636	-0.746	-0.493
	(1.798)	(1.766)	(1.751)
△Ln(Analysts)	-0.014	-0.014	-0.030
	(0.055)	(0.055)	(0.054)
Model Level	Firm Level	Firm Level	Firm Level
Industry Fixed Effects	Yes	No	No
Year Fixed Effects	Yes	Yes	No
Observations	2,629	2,638	2,638
Adjusted R-squared	0.023	0.004	-0.001

This table presents the regression results of the first difference tests. The first difference is calculated as the current period values minus the previous period values. The dependent variable is the change in the industry-adjusted TCR injury rate. The main explanatory variable of interest is the change in the industry-adjusted general ability index. The control variables are all first difference values. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Descriptions of the variables are available in Appendix A.1.

Appendix A.6: The deviations of TCR across establishments

VARIABLES	(1) *TCR Standard Deviation*	(2) *TCR Standard Deviation*
GAI Median Dummy	-0.356***	
	(0.105)	
General Ability Index		-0.262***
		(0.055)
Controls:		
Ln(Assets)	-0.065	-0.055
	(0.051)	(0.051)
Leverage	0.317	0.326
	(0.392)	(0.389)
Tangibility	0.224	0.201
	(0.495)	(0.494)
Sales/Assets	0.129	0.125
	(0.102)	(0.102)
CAPEX/Assets	-7.203***	-7.457***
	(2.383)	(2.385)
Market to Book	-0.194*	-0.202*
	(0.110)	(0.110)
FCF/Assets	-0.316	-0.304
	(1.088)	(1.087)
Cash/Assets	-0.591	-0.552
	(0.725)	(0.725)
Dividends/Assets	8.192***	8.507***
	(3.037)	(3.034)
Ln(Analyst)	-0.083	-0.080
	(0.106)	(0.106)
Model Level	Firm Level	Firm Level
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	2,788	2,788
Adjusted R-squared	0.228	0.230

This table presents the regression results of the establishment TCR's deviation tests at the firm-level. The dependent variable is the standard deviation of establishments' TCR injury rates within a given firm-year. Industry fixed effects based on two-digit SIC and year-fixed effects are included. Robust standard errors are reported in parenthesis. *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels. Descriptions of the variables are available in Appendix A.1.

Appendix B for essay two

- Appendix B.1: Variable definitions
- Appendix B.2: Establishment information by industry
- Appendix B.3: Matching efficiency of propensity score matching
- Appendix B.4: Matching efficiency of entropy balancing

Appendix B.1 Variable definitions

Variables	Descriptions	Sources
Establishment-level workplace injury variables		
TCR	Total Case Rate, is the total number of reported injury and illness cases divided by the total number of hours worked by all employees in a given establishment-year and multiplied by 200,000.	OSHA
DART	The number of severe injury and illness cases resulting in being away from work, job restriction or transfer, divided by the total number of hours worked by all employees in a given establishment-year, and multiplied by 200,000.	OSHA
SumCases	The total number of injury and illness cases in a given establishment-year.	OSHA
Firm-level workplace injury variables		
TCR	Simple average of reported establishment *TCR* in a given firm-year.	OSHA
DART	Simple average of reported establishment *DART* in a given firm-year.	OSHA
SumCases	Simple average of reported establishment *SumCases* in a given firm-year.	OSHA
Shareholder distraction variables		
Shareholder Distraction	Institutional shareholder distraction variable is derived following Kempf *et al*. (2017), using exogenous shocks to unrelated industries in an institutional investor's portfolio.	13F filings; Kempf *et al*. (2017)
Distraction_Med	An alternative distraction measure used in robustness tests. *Distraction_Med* is the median of original quarterly institutional shareholder distraction values.	13F filings; Kempf *et al*. (2017)
Firm baseline financial control variables		
IOR	Institutional ownership ratio refers to the percentage of shares held by institutional investors.	Thomson Reuters 13F
Ln(Assets)	Natural logarithm of total assets (at) at beginning of period.	Compustat
Leverage	End-of-period total debt divided by beginning-of-period total assets (dt/at).	Compustat
Tangibility	End-of-period net property, plant, and equipment divided by beginning-of-period total assets (ppent/at).	Compustat
Sales/Assets	Current period total sales scaled by beginning-of-period total assets (sale/at).	Compustat
CAPEX/Assets	Current period capital expenditures scaled by beginning-of-period total assets (capx/at).	Compustat
Market to Book	End-of-period market value of assets divided by beginning-of-period book value of assets. Market value of assets equals to the sum of market value of equities, total liabilities, and liquidating value of preferred stock, less net deferred tax liability ((mkvalt+lt+pstkl-txndbl)/at) (Caskey & Ozel, 2017)	Compustat

FCF/Assets	Current period free cash flow scaled by beginning-of-period total assets. Free cash flow is operating income before depreciation less interest expenses less deferred income tax less capital expenditures ((oibdp-xint-txdi-capx)/at) (Bradley *et al*., 2022).	Compustat
Cash/Assets	End-of-period cash and short-term investments scaled by beginning-of-period total assets (che/at).	Compustat
Establishment-level characteristics control variables		
Ln(Employees)	Natural logarithm of total number of employees in a given establishment-year.	OSHA
Hours per Employee	Total hours worked by all employees divided by the total number of employees in a given establishment-year.	OSHA
Strike	Dummy variable which equals to one if there was a worker strike in a given establishment-year, and zero otherwise.	OSHA
Shutdown	Dummy variable which equals to one if there was a workplace shutdown in a given establishment-year, and zero otherwise.	OSHA
Seasonal	Dummy variable which equals to one if the establishment employs seasonal workers in a given establishment-year, and zero otherwise.	OSHA
Disaster	Dummy variable which equals to one if there was a natural disaster happened in a given establishment-year, and zero otherwise.	OSHA
Firm-level characteristics control variables		
Ln(Employees)	Average of reported establishment *Ln(Employees)* in a given firm-year.	OSHA
Hours per Employee	Average of reported establishment *Hours per Employee* in a given firm-year.	OSHA
Strike	Average of reported establishment *Strike* dummy variables in a given firm-year, which takes continuous value from 0 to 1.	OSHA
Shutdown	Average of reported establishment *Shutdown* dummy variables in a given firm-year, which takes continuous value from 0 to 1.	OSHA
Seasonal	Average of reported establishment *Seasonal* dummy variables in a given firm-year, which takes continuous value from 0 to 1.	OSHA
Disaster	Average of reported establishment *Disaster* dummy variables in a given firm-year, which takes continuous value from 0 to 1.	OSHA
Additional corporate governance control variables		
Board Independence	Percentage of independent members on the board.	RiskMetrics
Board Size	Natural logarithm of one plus the number of board members.	RiskMetrics
CEO Duality	An indicator variable equals one if the CEO is also the chairperson of the board, and zero otherwise.	ExecuComp

Analysts	Natural logarithm of one plus the average number of analysts following the firm.	I/B/E/S
Takeover Index	A composite measure of the restrictiveness of legal environment on corporate takeovers across U.S. states. Higher value indicates a more restrictive takeover environment.	Cain *et al.* (2017)
Governance Index	A measure of corporate governance quality based on 24 governance provisions that restrict shareholder rights and increase managerial control. A lower *Governance Index* reflects stronger shareholder rights and better governance.	Gompers *et al.* (2003)
Other variables		
Safety Expenditures	Following Caskey and Ozel (2017) and Roychowdhury (2006), safety expenditure is derived from the residual term of a model that estimates discretionary expenses. Higher *Safety Expenditures* value indicates more safety-related expenditures.	Compustat
Ln(Production/ Emp)	Measure of employee workload, following Caskey and Ozel (2017). It is natural logarithm of total production divided by the number of employees in a given firm-year. Production is cost of goods sold minus inventory decrease, or plus inventory increase. Compustat: Ln((cogs-invch)/emp). Higher value indicates heavier workload.	Compustat
Real Earnings Management	Following Cohen and Zarowin (2010), this earnings management measure is based on aggregate of abnormal operating cashflows and abnormal discretionary expenses. Higher value indicates more real earnings management.	Compustat
Board Independence	Percentage of independent unaffiliated members on the board in a given firm-year.	RiskMetrics
CEO Chairperson Duality	A dummy variable that equals one if the CEO is also the chairperson of the board in a given firm-year, and zero otherwise.	Execucomp
Product Market Fluidity	Following Hoberg *et al*. (2014), our market competition is proxied by product market fluidity. They derive fluidity measure using product textual descriptions. Detailed descriptions are available in the data section of Hoberg *et al*. (2014)'s paper.	Hoberg *et al.* (2014)
Ind. Adj. Product Market Fluidity	The industry adjusted product market fluidity is the original value minus the yearly industry mean, and then divided by the yearly industry standard deviation.	Hoberg *et al*. (2014)
Tobin's Q	Proxy of firm value. Following Hadlock and Pierce (2010), the formula for calculating in Compustat is: (at-ceq-txdb+(csho*prcc_f))/ at	Compustat
High Distraction	An indicator variable that equals one if the observation is in the top tertile of overall sample, and zero if in the bottom tertile.	13F Filings, Kempf *et al*. (2017)
Safety Violation Dummy	An indicator variable that equals one if the firm has a safety-related violation in a given year, and zero otherwise.	Violation Tracker

Appendix B.2: Establishment information by industry

Fama-French 12 Industries	Number of Obs.	*TCR* Mean	*Distraction* Mean
Manufacturing	11,050	4.547	0.164
Other	10,465	10.822	0.165
Consumer Non-Durables	7,982	9.973	0.161
Wholesale & Retail	5,993	8.351	0.176
Healthcare	4,280	10.428	0.151
Business Equipment & Software	2,339	3.182	0.148
Consumer Durables	1,919	8.675	0.191
Chemicals	1,570	3.127	0.176
Energy	462	4.838	0.156
Telecommunication	367	4.863	0.163
Total	46,427		

This table categorizes establishment-year observations in our sample based on Fama French 12 industry classifications. The table lists the number of observations, total case rate (*TCR*) average values, and shareholder distraction mean values associated with each industry. The “other” industry includes mining, construction, transportation, and other businesses. There is a total of 46,427 establishment-year observations in our sample with valid shareholder distraction values.

Appendix B.3: Matching efficiency of propensity score matching

Panel A: Establishment Level

	Before Matching			After Matching		
	(1)	(2)	(2)-(1)	(3)	(4)	(4)-(3)
VARIABLES	Treatment	Control	Diff.	Treatment	Control	Diff.
IOR	0.707	0.726	0.020***	0.735	0.739	0.004
Ln(Assets)	9.253	8.895	-0.358***	8.746	8.719	-0.026
Leverage	0.284	0.277	-0.007***	0.298	0.301	0.003
Tangibility	0.391	0.360	-0.030***	0.286	0.280	-0.006
Asset Turnover	1.479	1.312	-0.167***	1.147	1.164	0.017
CAPEX/Assets	0.058	0.055	-0.002***	0.039	0.040	0.001
Market to Book	1.942	1.916	-0.026***	1.744	1.820	0.076***
FCF/Assets	0.086	0.086	-0.001	0.092	0.092	-0.000
Cash/Assets	0.083	0.096	0.013***	0.080	0.079	-0.001
Ln(Num_Employees)	5.033	4.960	-0.073***	5.087	5.115	0.028
Hours per Employee	1901	1934	33.23***	2075	2043	-31.29***
Strike	0.003	0.002	-0.001***	0.004	0.004	0.000
Shutdown	0.069	0.079	0.010***	0.173	0.152	-0.021**
Seasonal	0.043	0.028	-0.015***	0.043	0.062	0.019***
Disaster	0.006	0.006	0.000	0.009	0.013	0.004

Panel B: Firm Level

	Before Matching			After Matching		
	(1)	(2)	(2)-(1)	(3)	(4)	(4)-(3)
VARIABLES	Treatment	Control	Diff.	Treatment	Control	Diff.
IOR	0.756	0.768	0.013**	0.764	0.756	-0.008
Ln(Assets)	8.118	7.842	-0.276***	8.104	7.978	-0.126
Leverage	0.266	0.253	-0.013**	0.269	0.250	-0.019
Tangibility	0.311	0.283	-0.028***	0.270	0.261	-0.010
Asset Turnover	1.382	1.168	-0.214***	1.153	1.162	0.009
CAPEX/Assets	0.050	0.050	-0.000	0.041	0.042	0.001
Market to Book	1.837	1.989	0.151***	1.846	1.791	-0.056
FCF/Assets	0.089	0.087	-0.001	0.094	0.092	-0.002
Cash/Assets	0.103	0.148	0.045***	0.100	0.101	0.001
Ln(Num_Employees)	5.379	5.392	0.013	5.470	5.428	-0.043
Hours per Employee	1994	2020	25.50	2025	2007	-18.24
Strike	0.004	0.002	-0.001	0.001	0.001	0.001
Shutdown	0.109	0.132	0.023***	0.140	0.132	-0.008
Seasonal	0.036	0.030	-0.006	0.030	0.031	0.001
Disaster	0.006	0.006	0.000	0.007	0.005	-0.002

This table presents the matching efficiency of propensity score matching tests reported in Table 3.3. Panels A and B report establishment-level and firm-level statistics, respectively. Treatment and control groups' variables' mean values and their differences are reported. Treatment and control groups are separated by annual median of *distraction*. *, **, and *** indicate t-test statistical significance at 10%, 5%, and 1% levels.

Appendix B.4: Matching efficiency of entropy balancing

Panel A: Establishment Level						
	Treatment		Control before Matching		Control after Matching	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Mean	Variance	Mean	Variance	Mean	Variance
IOR	0.725	0.020	0.731	0.031	0.725	0.029
Ln(Assets)	9.178	1.708	8.901	2.164	9.178	2.014
Leverage	0.277	0.024	0.273	0.032	0.277	0.030
Tangibility	0.379	0.035	0.359	0.033	0.379	0.034
Asset Turnover	1.398	0.513	1.295	0.406	1.398	0.588
CAPEX/Assets	0.055	0.001	0.055	0.001	0.055	0.001
Market to Book	1.951	0.840	1.920	1.114	1.951	1.143
FCF/Assets	0.090	0.004	0.088	0.004	0.090	0.004
Cash/Assets	0.083	0.006	0.094	0.008	0.083	0.006
Ln(Num_Employees)	4.990	1.245	4.943	1.047	4.990	1.082
Hours per Employee	1916	138825	1935	130580	1916	135737
Strike	0.003	0.003	0.002	0.002	0.003	0.003
Shutdown	0.071	0.067	0.078	0.072	0.071	0.067
Seasonal	0.037	0.035	0.027	0.027	0.037	0.035
Disaster	0.006	0.005	0.006	0.006	0.006	0.005

Panel B: Firm Level						
	Treatment		Control before Matching		Control after Matching	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Mean	Variance	Mean	Variance	Mean	Variance
IOR	0.757	0.031	0.771	0.036	0.757	0.036
Ln(Assets)	8.103	2.053	7.837	2.182	8.102	2.311
Leverage	0.265	0.030	0.256	0.043	0.265	0.038
Tangibility	0.315	0.036	0.290	0.042	0.315	0.044
Asset Turnover	1.356	0.585	1.166	0.463	1.355	0.684
CAPEX/Assets	0.050	0.001	0.050	0.002	0.050	0.001
Market to Book	1.830	0.839	1.986	1.055	1.832	0.775
FCF/Assets	0.089	0.006	0.088	0.007	0.089	0.006
Cash/Assets	0.101	0.010	0.143	0.020	0.102	0.011
Ln(Num_Employees)	5.367	0.925	5.391	1.000	5.368	0.932
Hours per Employee	1997	65844	1999	68493	1997	68613
Strike	0.004	0.002	0.002	0.001	0.004	0.002
Shutdown	0.106	0.044	0.132	0.071	0.106	0.051
Seasonal	0.037	0.019	0.025	0.014	0.037	0.022
Disaster	0.007	0.002	0.005	0.002	0.007	0.003

This table presents the matching efficiency of entropy balancing matching tests reported in Table 3.4. Panels A and B report establishment-level and firm-level statistics, respectively. Variables' mean and variance are reported for each group. Treatment and control groups are separated by annual median of *distraction*. The balancing variables are all the control variables. *, **, and *** indicate *t*-test statistical significance at 10%, 5%, and 1% levels.

Appendix C for essay three

Appendix C.1 Variable definitions

Variables	Descriptions
TCR	The Total Case Rate (*TCR*) is calculated by dividing the total number of injury and illness cases by the total hours worked by all employees within a specific establishment-year. This result is then multiplied by 200,000 to represent the injury rate per 100 full-time workers. (Source: OSHA)
DART	The Days Away, Restricted, or Transferred (*DART*) rate is calculated by dividing the number of injury and illness cases that result in days away from work, job restriction, or transfer by the total hours worked by all employees in a specific establishment-year. This figure is then multiplied by 200,000 to represent the injury rate per 100 full-time workers. (Source: OSHA)
TCR Ind. Adj.	The industry-adjusted Total Case Rate (*TCR Ind. Adj.*) is calculated by first subtracting the annual industry mean *TCR* from the original *TCR*. This result is then divided by the annual industry standard deviation. (Source: OSHA)
KLD Safety Index	The KLD Safety Index is calculated as the KLD "Health and Safety strength" indicator variable minus the KLD "Health and Safety concern" indicator variable. The strength variable is assigned a value of one for a positive rating and zero otherwise. Conversely, the concern variable is assigned a value of one for a negative rating and zero otherwise. Consequently, the KLD Safety Index can have values of -1, 0, or 1. (Source: MSCI KLD)
Total Cases	The total count of injury and illness cases within a specific establishment over the course of a year. (Source: OSHA)
Ln(#Safety Violations)	Natural logarithm of the number of safety-related violations with penalty amounts exceeding $100,000 USD. (Source: Violation Tracker)
General Counsel	An indicator variable that is assigned a value of one if the compensation of a firm's general counsel ranks among the top five highest among the firm's executives for the year, and zero otherwise. (Source: ExecuComp)
Ln(Assets)	Natural logarithm of total assets at the beginning of the period, which reflects firm size. (Source: Compustat)
Leverage	Ratio of total debt to total assets. (Source: Compustat) (Formula: dt/at)
Tangibility	Ratio of net property, plant, and equipment to total assets. (Source: Compustat) (Formula: ppent/at)
Asset Turnover	Ratio of total sales to total assets. (Source: Compustat) (Formula: sale/at)
CAPEX	Capital expenditures as a proportion of total assets. (Source: Compustat) (Formula: capx/at)

Market to Book	Market-to-book ratio is a proxy for firm growth. It is the market value of assets divided by their book value. The market value is calculated as the sum of the market value of equities, total liabilities, and the liquidating value of preferred stock, minus the net deferred tax liability (Caskey & Ozel, 2017). (Source: Compustat) (Formula: (mkvalt+lt+pstkl-txndbl)/at)
FCF	Free cash flow as a proportion of total assets, calculated as operating income before depreciation minus interest expense, deferred income tax, and capital expenditures, and then divided by total assets (Bradley *et al*., 2022). (Source: Compustat) (Formula: (oibdp – xint – txdi – capx)/at)
Ln(Analysts)	Natural logarithm of one plus the average number of analysts following the firm in a year. (Source: I/B/E/S)
Inst. Owner	The percentage of shares held by institutional shareholders in a firm. (Source: Thomson Reuters 13F)
CEO Duality	An indicator variable set to one if the CEO also serves as the chairperson of the board in a specific firm-year, and zero otherwise. (Source: ExecuComp)
Lawyer CEO	An indicator variable that takes a value of one if the CEO of a firm has a law degree, and zero otherwise. (Source: Pham (2020))
Ln(CEO Tenure)	Natural logarithm of the CEO's tenure at the current firm during a specified year. (Source: ExecuComp)
Ln(CEO Comp.)	Natural logarithm of the CEO's total annual compensation as reported in SEC filings for a specified year. (Source: ExecuComp)
Board Indep.	Percentage of independent, unaffiliated board members in a specified firm-year. (Source: RiskMetrics)
Ln(Employees)	Natural logarithm of the number of employees in a specified establishment-year. (Source: OSHA)
Hours per Employee	Annual hours worked, divided by the number of employees, in a specified establishment-year. (Source: OSHA)
Strike	An indicator variable set to one if there was a strike during a specified establishment-year, and zero otherwise. (Source: OSHA)
Shutdown	An indicator variable set to one if there was a facility shutdown during a specified establishment-year, and zero otherwise. (Source: OSHA)
Seasonal	An Indicator variable set to one if seasonal workers were employed during a specified establishment-year, and zero otherwise. (Source: OSHA)
Disaster	An indicator variable set to one if a natural disaster occurred during a specified establishment-year, and zero otherwise. (Source: OSHA)
Bog_Index	Bonsall *et al.* (2017) created the Bog Index to quantify the readability of financial disclosures by measuring attributes such as active voice, concise words, and the exclusion of unnecessary jargon and complex terms. A higher Bog Index score suggests a lower and less transparent corporate information quality. We construct a median dummy variable, *Bog_Index*, that takes the value of one if the observation's Bog Index is lower than the sample

	median, indicating higher information quality than the sample median, and zero otherwise. (Source: Bonsall *et al*. (2017))
Bid_Ask_Spread	A proxy for the information quality, as developed by Corwin and Schultz (2012), uses the high-low spread derived from daily stock prices. A wider high-low spread indicates wider bid-ask spread, greater information asymmetry, and a poorer information quality. We construct a median dummy variable, *Bid_Ask_Spread,* that takes the value of one if the observation's high-low spread is lower than the sample median, indicating higher information quality than the sample median, and zero otherwise. (Source: Corwin and Schultz (2012))
Labor_Efficiency	Labor investment efficiency is estimated using the methods described by Jung *et al*. (2014) and Ee *et al*. (2022). They create an abnormal net hire variable, representing the absolute difference between the actual net hiring and the expected net hiring. Net hiring is defined as the percentage change in the number of employees. The methodology for calculating the expected net hiring level is detailed in the data section of Jung *et al*.'s (2014) paper. A higher value of abnormal net hire suggests lower efficiency in labor investment. Additionally, we use a median dummy variable, *Labor_Efficiency*, which is assigned a value of one if an observation's abnormal net hire is below the sample median, indicating higher efficiency, and zero otherwise. (Source: Compustat)
Poor Gov. Index	An equal-weighted composite index that proxies corporate governance levels, inspired by Anderson *et al*. (2009) and Lang *et al*. (2012). The index is the simple average of the annual percentile rankings of four variables: board size, board independence ratio, institutional shareholder ownership ratio, and analyst coverage. The index value is multiplied by negative one so that higher values indicate weaker governance.
Cap. Exp.	Capital expenditure, used as a proxy for agency problems following Ferrell, Liang, and Renneboog (2016). It is calculated as capital expenditure divided by total assets. (Source: Compustat)
Dividend Payout	A proxy for agency problems, following Ferrell *et al*. (2016). It is calculated as the dividend amount divided by total sales. (Source: Compustat)

Appendix C.2: Propensity score matching tests

VARIABLES	*TCR*
General Counsel	-0.976***
	(0.246)
Ln(Assets)	0.340**
	(0.156)
Leverage	1.873**
	(0.849)
Tangibility	3.466**
	(1.436)
Asset Turnover	0.758**
	(0.360)
CAPEX	-31.550***
	(7.006)
Market to Book	0.638**
	(0.281)
FCF	-0.878
	(2.870)
Ln(Analysts)	-1.398***
	(0.356)
Inst. Owner	0.104
	(1.076)
CEO Duality	-0.449
	(0.313)
Industry Fixed Effects	Yes
Year Fixed Effects	Yes
Observations	2,526
Adjusted R-squared	0.259

This table presents the results of propensity score matching tests. treatment and control groups distinguished by the *General Counsel* indicator variable (treatment = 1, control = 0). The matching criteria require that the treatment and control observations be in the same industry and year. The propensity score is calculated using a logit model without replacement. The matching variables include all baseline control variables. The matching caliper is set at 0.01, generating 1,263 matched pairs. Baseline controls, industry fixed effects based on parent firms' two-digit SIC codes, and year fixed effects are included in the regression model. Robust standard errors, clustered by establishment, are shown in parentheses. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. For detailed descriptions of the variables, please refer to the appendix.