



國立臺灣大學管理學院財務金融研究所

碩士論文

Department of Finance

College of Management

National Taiwan University

Master's Thesis

CEO 的工作機會是否影響其外部董事職位？

以自然實驗為例

Do CEOs' job opportunities affect their outside directorships?

Evidence from a natural experiment

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中華民國 114 年 01 月

January, 2025

國立臺灣大學碩士學位論文
口試委員會審定書

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directorships? Evidence from a natural experiment

本論文係陳思穎君（學號 R10723015）在國立臺灣大學
財務金融研究所完成之碩士學位論文，於民國114年1月8日
承下列考試委員審查通過及口試及格，特此證明

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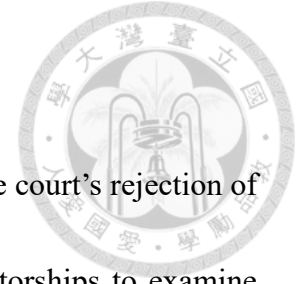
摘要



本文研究美國州法院駁回不可避免揭露原則（Inevitable Disclosure Doctrine, IDD）與 CEO 擔任外部董事的因果關係，以檢視外部就業機會是否作為 CEO 提升聲譽的動機。儘管基線迴歸未能支持此關係，但當 CEO 較年輕或任期較短時，州法院駁回 IDD 對其外部董事席次有顯著的正面影響。這種效應在 CEO 為較小或較年輕的公司工作時也會成立，但需要較長的時間才會顯現。沒有證據表示公司或產業的成長機會影響 CEO 在 IDD 被駁回後的外部董事席次。總體而言，實證證據支持就業機會假設，顯示渴望向上流動與提升聲譽的 CEO 在 IDD 被駁回後，會增加更多外部董事席次。

關鍵字：不可避免揭露原則（IDD）、外部董事席次、勞動市場流動性、就業機會、CEO 聲譽

Abstract



This paper studies the causal relationship between the U.S. state court's rejection of the Inevitable Disclosure Doctrine (IDD) and CEOs' outside directorships to examine whether job opportunities affect CEOs' incentives to elevate their reputation. Though the baseline regression fails to support this relation, the positive effect of IDD rejection on CEOs' outside directorships is significant when they are younger or shorter-tenure. This effect also holds but takes longer to appear when CEOs work for smaller or younger firms. No evidence suggests that growth opportunities in firms or industries impact CEOs' outside board seats after the IDD rejection. Overall, the empirical evidence supports the job opportunity hypothesis, showing that CEOs eager for upward mobility and reputation enhancement increase their outside directorships more following the IDD rejection.

Keywords: Inevitable Disclosure Doctrine (IDD), Outside directorship, Labor market mobility, Job opportunity, CEO reputation

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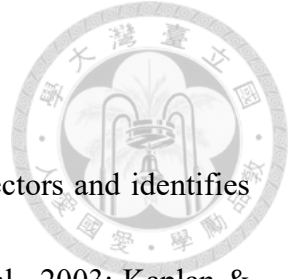


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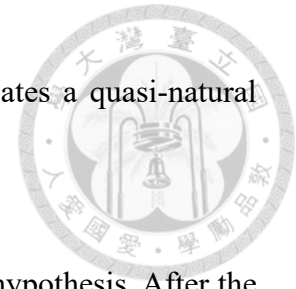


1. Introduction

Prior literature explores the demand and supply of outside directors and identifies the connection between reputation and directorships (e.g. Ferris et al., 2003; Kaplan & Reishus, 1990). Though some studies imply that managers serve as outside directors to acquire the personal reputation benefit, little has been done to investigate whether they take on more outside board seats due to the increased demand for reputation (Fahlenbrach et al., 2010; Knyazeva et al., 2013). Hence, I use the rejection of the inevitable disclosure doctrine (IDD) to proxy an increase in outside job opportunities and examine whether it provides chief executive officers (CEOs) with the incentive to enhance their reputations by holding more outside directorships.

The IDD is a common law in the U.S. that protects firms' trade secrets from potential leakage by former employees, and state courts can determine its recognition or rejection. The IDD is considered powerful since it aims to prevent "threatened misappropriation" rather than punish committed leakage of trade secrets (Klasa et al., 2018); it is neither geographically restricted nor requires covenants not to compete (CNC) or nondisclosure agreements (NDA) to be covered in the employment contract (Chen et al., 2021; Chen et al., 2022). Moreover, the IDD is also a favorable exogenous variable because it is hard for a firm headquartered in that state to influence the decisions of state court judges, and the staggered rejection can minimize possible omitted variables from a single event

(Klasa et al., 2018; Li et al., 2022; Na, 2020). Thus, the IDD creates a quasi-natural environment for my experiment.



I use the IDD to test my main hypothesis, the job opportunity hypothesis. After the state court rejects the IDD, which increases labor market mobility and job opportunities due to the loosened trade secret protection, CEOs will obtain more outside directorships to elevate their reputation as they seek to acquire better CEO appointments. I further posit that this positive relation between the IDD rejection and CEOs' outside directorships will be strengthened when CEOs are younger or shorter-tenure, working in smaller or younger firms, or taking office in firms or industries with higher growth opportunities, because they are more likely to have a greater desire for outside job opportunities or reputation enhancement than the others.

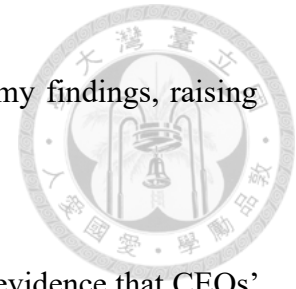
On the other hand, the IDD rejection raises the potential threat of trade secret leakage, which may result in a more competitive market and decrease the spare time CEOs can utilize (Klasa et al., 2018; Li et al., 2018). Therefore, there is an opposite hypothesis, the competitive threat hypothesis, that predicts CEOs will sit on fewer outside boards after the IDD rejection due to a lack of spare time. Besides, the negative effect of IDD rejection on outside directorships may also be reinforced for younger or junior CEOs, those leading smaller or younger firms, or those in firms or industries with higher growth opportunities, as they may require more time to address competitive threats.



Since the effect of IDD rejection may take a while to appear, I use CEOs' outside directorships one year and three years later to form two samples, and the total firm-year observations are 12,519 and 11,679, respectively. The baseline regression results are very insignificant in both samples, and so are the results of tests on CEOs in firms or industries with high growth opportunities. However, I find a significantly positive effect of IDD rejection on CEOs' outside directorships for younger or junior CEOs. A positive effect of IDD rejection also appears for CEOs of smaller or younger firms but is only significant on CEOs' outside directorships three years later. These findings suggest that CEOs hold more outside board seats following the IDD rejection when they are more concerned about their outside opportunities or reputation, supporting the job opportunity hypothesis. Instead, no evidence is consistent with the competitive threat hypothesis.

I apply two robustness tests to ensure the validity of my results that are significant. First, I examine whether the changes in CEOs' outside directorships happened after the IDD rejection year. In all regression results, there are significant coefficients for variables proxying the years after IDD rejection, indicating that CEOs' outside directorships change due to the IDD rejection. Second, I replace the IDD rejection with the IDD adoption and expect the opposite results since the increased protection of trade secrets reduces CEOs' job opportunities. Though the result for shorter-tenure CEOs is less significant, they are all contrary to those using the IDD rejection, showing the consistency of the effect on

CEOs' outside directorships. Overall, the robustness tests solidify my findings, raising reliability to the job opportunity hypothesis.



This paper makes three contributions. First, it offers empirical evidence that CEOs' job opportunity concerns affect their quest for reputation enhancement. Prior research mentions CEO's job opportunities to explain their decision-making regarding their firms (Ali et al., 2019; Li et al., 2022) or to discuss the change in their compensation structure (Chen et al., 2022; Na, 2020). Little has connected it to CEOs' reputations. Besides, while Ali et al. (2019) and Li et al. (2022) contend that CEOs with high revealed ability possess job opportunity concerns in states adopting IDD, my findings manifest that CEOs with unrevealed ability or less visibility also seek to realize job opportunities after the IDD rejection, supplementing the inadequacies of their theory.

Second, this paper is the first to examine the change to labor laws with the change in CEOs' outside directorships. Prior study mainly focuses on the relationship between the IDD and corporate policies, such as capital structure (Klasa et al., 2018), corporate disclosure (Ali et al., 2019; Li et al., 2018), corporate social responsibility (CSR) policy (Flammer & Kacperczyk, 2019), tax avoidance (Ding et al., 2021; Li et al., 2022), and CEO compensation (Chen et al., 2022; Na, 2020). Thus, this paper broadens the scope of research on the impact of IDD and provides a new direction for future studies of labor laws, contributing to the literature on labor market mobility.



Third, this paper supports the argument that CEOs increase their outside board seats for personal benefits (Fahlenbrach et al., 2010; Knyazeva et al., 2013). Although Booth and Deli (1996) state that CEOs sit on outside boards for the interests of their firms, my studies indicate that CEOs hold more outside directorships as their outside opportunities arise. This finding may be helpful to boards as it can be an agency problem if CEOs fail to balance their time and effort between their firms and outside directorships.

The remaining sections of this paper are organized as follows. Section 2 reviews the literature on the IDD and CEOs' outside directorships and develops hypotheses. Section 3 describes regression models and samples. Section 4 reports empirical regression results. Section 5 concludes and interprets the findings.

2. Literature Review and Hypotheses Development

2.1. Inevitable disclosure doctrine and outside employment opportunities

The inevitable disclosure doctrine (IDD), a state-based common law, aims to protect firms' trade secrets, which are confidential information that provides valuable advantages to firms and takes efforts to preserve (Klasa et al., 2018; Na, 2020). The core concept of IDD is "threatened misappropriation." When a former employee with access to the firm's trade secrets acquires a similar position in a competitor firm, the former employer can request the state court to restrict him from taking office in that firm or position. Under the IDD, the firm does not need to provide evidence of actual leakage of trade secrets by its



former employee. If the firm can prove that its former employee has been exposed to its trade secrets, and he will inevitably disclose them due to his position in the new firm, and this trade secret leakage can cause severe damage to its profits and competitive advantage, then the state court can issue an injunction restraining its former employee from accepting such employment (Chen et al., 2022; Godfrey, 2004; Na, 2020).

Besides the IDD, there are also many measures employers can apply to protect their trade secrets, such as covenants not to compete (CNC) and nondisclosure agreements (NDA). However, the IDD is perceived to be more powerful than CNC and NDA (Ali et al., 2019; Chen et al., 2022; Klasa et al., 2018). Klasa et al. (2018) propose some major differences between the IDD and the other two. First, the IDD prevents firms from the threatened misappropriation of trade secrets, so state courts can issue injunctions without any evidence of trade secret disclosure. On the contrary, firms must detect and prove a breach of CNC or NDA by their employees to protect their trade secrets. Second, the IDD is generally free from geographical restrictions. A firm can enforce IDD even though its former employee is recruited by firms located in another state, regardless of the rejection of IDD in that state. In contrast, the enforcement of CNC or NDA is geographically limited, often within a city, a county, or a specific radius around the place of business (Chen et al., 2021; Na, 2020). Finally, even if CNC or NDA is not included in the employment contract, the state court can still issue an injunction based on the IDD.



Considering that there is no consistent standard across states on the applicability of the IDD, when judges determine whether the IDD is enforceable in a lawsuit, they often refer to prior case law as well as weigh employers' interest in preserving trade secrets against employees' freedom to choose their jobs (Godfrey, 2004; Na, 2020). Because precedent IDD cases can influence judges' decisions, once a judge recognizes the IDD in a lawsuit, firms located in that state may reasonably expect that that the state court is more likely to adopt the IDD in future lawsuits, thus creating a more restrictive labor market environment. Conversely, if a state court rules against IDD in a lawsuit, the labor market in that state may have higher mobility in the future. In addition to the above, some states have no precedent for IDD judgments, making it impossible to define whether the labor market in that state is restricted by the IDD (Godfrey, 2004).

Recent studies demonstrate the negative causation between the adoption of IDD and labor market mobility, which affects employees outside job opportunities (Chen et al., 2022; Klasa et al., 2018; Li et al., 2022). Klasa et al. (2018) reveal that the recognition of IDD restricts the mobility of employees possessing trade secrets to competitor firms. Chen et al. (2022) and Li et al. (2022) discover that the likelihood of voluntary CEO turnover decreases after the adoption of IDD. Likewise, when a state court rejects the IDD, restrictions will loosen on employees with trade secrets in that state, which in turn increases labor market mobility and employees outside job opportunities (Flammer &

Kacperczyk, 2019; Na, 2020). Flammer and Kacperczyk (2019) argue that corporate social responsibility (CSR) plays a role in minimizing knowledge leakage and employee job-hopping after the IDD rejection. Na (2020) identifies that firms apply less relative performance evaluation in CEO pay to retain talent after the IDD rejection.¹

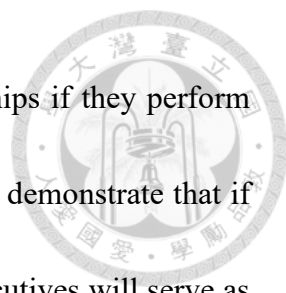
2.2. CEOs' outside directorships and their reputation

According to Mace (1986), CEOs are in high demand in the labor market for outside directors.² From the demand side of outside directorships, appointing firms value their director candidates' reputation, experience, and expertise. Fahlenbrach et al. (2010) find that firms hire CEOs as outside directors for their prestigious names and titles, which can credibly certify the firms' value. Cai et al. (2020) note that CEOs at firms with better CSR commitments hold more outside directorships, revealing the importance of reputation. On the other hand, Harford and Schonlau (2013) find that CEOs with acquisition experience are more likely to gain a board seat after retirement, regardless of whether the acquisition benefits their firm, signaling the impact of experience on the outside director labor market.

A vast amount of literature provides evidence of the positive correlation between CEO performance and the number of outside directors they own. Brickley et al. (1999)

¹ Though Na (2020) reveals that IDD rejection affects CEOs' pay structure, there is no evidence that firms increase CEOs' total compensation after IDD rejection. Na (2020) finds that CEOs' total pay is higher in states adopting IDD, while Chen et al. (2022) note that IDD adoption does not change CEOs' pay levels.

² The quote from a CEO interviewed by Mace (1986): 'As head of my company I get a considerable number of invitations to serve as an outside board member [...] I just can't take on any more. But when I suggest one or more of our key vice presidents, the matter is dropped, and neither the vice presidents nor I ever hear from them again. [...] Now, some companies have to accept less – they just don't draw the top names. But you'd be surprised at how, whatever their position, they always shoot for the top man.'



argue that retired CEOs are more likely to obtain outside directorships if they perform well in office. Ferris et al. (2003), Yermack (2004), and Fich (2005) demonstrate that if firms deliver superior financial performance, their directors and executives will serve as directors in more firms, and Fich (2005) further shows that firms' stock price is higher after appointing CEOs as outside directors. Lanis et al. (2019) present that CEOs of firms participating in less aggressive tax avoidance take on more outside directorships. Instead, poorly performed CEOs, such as those who reduce their firms' dividends (Kaplan & Reishus, 1990), have worked in an acquired firm (Harford, 2003), or are associated with financial fraud (Fich & Shivdasani, 2007), are less likely to earn outside board seats.

From the supply side of outside directorships, CEOs appointed as outside directors seek to secure reputation, social network, and visibility from their appointing firms. When sitting on boards of other firms, CEOs will not receive higher salaries than other board members (Fahlenbrach et al., 2010), suggesting that monetary compensation can hardly attract them to accept outside directorships. Mace (1986) considers outside directors a source of prestige. Kaplan and Reishus (1990) claim that outside directorships can bring visibility and connections to managers, creating their business and career opportunities in the future. Fahlenbrach et al. (2010) and Knyazeva et al. (2013) both manifest that CEOs tend to join boards of larger and older firms, which offer greater reputation, more visibility, and better networking and career opportunities.



Overall, CEOs' outside directorships are highly correlated and entangled with their reputation. Holding an outside directorship can signal CEOs' prestige and competence (Fama & Jensen, 1983) since appointing firms may leverage reputable outside directors to certify their good performance and enhance their market value (Fahlenbrach et al., 2010; Fich, 2005). At the same time, CEOs can derive higher prestige from their outside directorships, which is a key consideration in their decisions to accept the appointment (Fahlenbrach et al., 2010; Knyazeva et al., 2013).

2.3. Hypotheses development

In this paper, I would like to examine whether the IDD rejection positively impacts CEOs' outside directorships. When the state court rejects IDD, employees' outside job opportunities increase, which may incentivize CEOs to elevate their reputation by serving on more outside boards.³ Graham et al. (2005) discuss the importance of upward mobility on top executives' decisions, indicating that outside job opportunities are among the main considerations in CEOs' behavior.⁴ Ali et al. (2019) and Li et al. (2022) also argue that competent managers are concerned about their career potential and outside opportunities.

³ An alternative explanation is that the rejection of IDD increases CEOs' outside directorships because CEOs no longer need to worry that they may be sued by their own companies for leaking trade secrets when serving as outside directors. However, almost all IDD precedents are against former employees, and no IDD lawsuit is against a company's current employee for serving as an outside director of another company. Thus, this alternative explanation is not convincing.

⁴ After their interviews with executives, Graham et al. (2005) report that they may be motivated by career concerns rather than short-term salary to hit the earnings target: 'Most CFOs feel that their inability to hit the earnings target is seen by the executive labor market as a "managerial failure." Repeatedly failing to meet earnings benchmarks can inhibit the upward or intra-industry mobility of the CFO or CEO.'



I use the term “reputation” to include the major benefits a CEO could receive as an outside director, such as signaling expertise, broadening visibility, and expanding social networks (Fahlenbrach et al., 2010; Kaplan & Reishus, 1990; Knyazeva et al., 2013). A CEO’s reputation seems to improve with highly-revealed expertise, broaden with greater visibility, and become more valuable with a wider social network. Also, Kaplan and Reishus (1990) contend that the number of outside directorships held by executives might indicate their reputational capital, suggesting a strong connection between CEOs’ outside directorships and their reputations. Moreover, the number of outside directorships is the most commonly used proxy for individual reputation in previous literature (Fich & Shivdasani, 2007; Lanis et al., 2019; Srinivasan, 2005; Wu, 2004).

Following prior studies, I use the staggered rejection of IDD to proxy the increase of outside job opportunities (Chen et al., 2022; Flammer & Kacperczyk, 2019; Na, 2020). The IDD rejection is perceived as an exogenous shock since state judges are considered independent of the federal and state governments, and their decisions are less likely to be impacted by political pressure and lobbying (Klasa et al., 2018; Na, 2020). Hardly can firms headquartered in that state influence or predict the judgment of a lawsuit in advance, making the IDD rejection an ideal quasi-natural experiment. In addition, IDD rejections are staggered and affect different firms each time, which largely mitigates concerns about possible omitted variables since they are not just a single event (Li et al., 2022; Na, 2020).



Besides the outside job opportunity hypothesis, recent studies also propose other explanations for changes in labor market mobility and CEO behavior. Kłasa et al. (2018) and Li et al. (2018) reveal that IDD adoption can help minimize firms' competitive threats due to its nature of protecting against threatened misappropriation. Thus, once the IDD is rejected, firms are exposed to threats of trade secret leakage, and CEOs may need to put extra effort into protecting their firms' proprietary information (Flammer & Kacperczyk, 2019). Since CEOs will evaluate the cost of their time as outside directors against the reputational benefits they receive (Booth & Deli, 1996; Fahlenbrach et al., 2010; Fich, 2005; Knyazeva et al., 2013), I reason that they will hold fewer outside directorships in that they have to devote their time to their firms to address the threat of diminished trade secret protection. Under this competitive threat hypothesis, when the state court rejects the IDD, the number of CEOs' outside directorships decreases due to a lack of spare time.

In sum, according to the job opportunity hypothesis, which is my main assumption, IDD rejection will encourage CEOs working in that state to sit on more outside boards to enhance their reputation and gain attractiveness. On the contrary, the competitive threat hypothesis predicts that after IDD rejection, CEOs hold fewer outside directorships due to a lack of spare time. Thus, there are two opposite hypotheses:

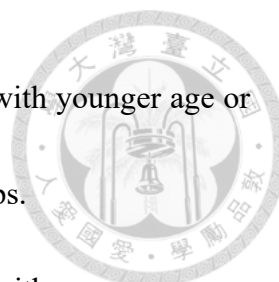
H1a. Following the rejection of IDD by the state court, CEOs in that state will take on more outside directorships.

H1b. Following the rejection of IDD by the state court, CEOs in that state will keep fewer outside directorships.



If the job opportunity hypothesis stands, I expect the positive relation between IDD rejection and the number of CEOs' outside directorships to become stronger when CEOs are younger or have shorter tenures in their firms. Gibbons and Murphy (1992) and Chen et al. (2022) claim that younger or shorter-tenure CEOs have more career concerns and pay more attention to prospects of the external labor market, while Na (2020) reveals that CEOs close to retirement age have little mobility. Furthermore, Ali and Zhang (2015) and Li et al. (2022) indicate that the market is more unsure about CEOs' abilities in their early years of service in firms. As a result, if outside job opportunities enlarge, both young and short-tenure CEOs have increased incentives to serve as outside directors since it is an effective medium to gain their reputation and signal their competence.

Instead, if the competitive threat hypothesis is followed, younger or shorter-tenure CEOs may require more time to cope with the decreased trade secrets protection as they may have less experience or familiarity with their firms. Moreover, Booth and Deli (1996) contend that CEOs approaching retirement will gradually pass the rein to their successors, making them more likely to be available when facing competitive threats. Hence, after IDD rejection, both younger and shorter-tenure CEOs probably reduce the number of their outside directors due to the lack of time. To sum up, there are two opposite hypotheses:



H2a. Following the rejection of IDD by the state court, CEOs with younger age or shorter tenure in that state will take on more outside directorships.

H2b. Following the rejection of IDD by the state court, CEOs with younger age or shorter tenure in that state will keep fewer outside directorships.

In the same vein, I expect the positive relation between the IDD rejection and CEOs' outside directorships to become stronger for CEOs working in smaller or younger firms based on the job opportunity hypothesis. Fahlenbrach et al. (2010) and Knyazeva et al. (2013) state that larger and older firms offer more career opportunities because they carry more prestige, visibility, and connections. In this case, CEOs in smaller or younger firms may be more interested in sitting on outside boards to obtain these advantages their firms cannot provide. Also, previous literature suggests a possible positive correlation between CEO compensation and firm size (Finkelstein & Hambrick, 1989; Lambert et al., 1991), which may foster the desire for upward mobility among small firms' CEOs. Hence, if outside job opportunities increase, CEOs of small or young firms may be more motivated to boost their reputation by sitting on outside boards.

On the other hand, under the competitive threat hypothesis, CEOs leading small or younger firms may hold fewer outside directorships because they may devote more effort and time to manage the potential threat of trade secret leakage after the IDD is rejected. Kang and Lee (2022) argue that larger firms have better access to specialized attorney

teams and other legal resources. If so, they may be able to respond to competitive threats quicker than smaller firms. Thus, two opposite hypotheses are as follows:

H3a. Following the rejection of IDD by the state court, CEOs of smaller or younger firms in that state will take on more outside directorships.

H3b. Following the rejection of IDD by the state court, CEOs of smaller or younger firms in that state will keep fewer outside directorships.

Finally, I expect the positive relation between the IDD rejection and the number of CEOs' outside directorships to become stronger in high-technology industries. After the IDD rejection, labor market mobility increases more in high-tech industries because proprietary information is more important for them (Na, 2020). Therefore, CEOs in this industry may sit on more outside boards as outside job opportunities arise.

However, the relation between the IDD rejection and the number of CEOs' outside directorships can be negative or uncorrelated. The competitive threat hypothesis suggests that CEOs in high-tech industries may be busy dealing with potential threats following the IDD rejection because trade secret leakage is more damaging to high-tech firms (Kang & Lee, 2022). Moreover, high-tech firms tend to enjoy more growth opportunities (Leone et al., 2007; Na, 2020), so their CEOs may spend time realizing growth opportunities than taking more outside directorships and care less about increased outside job opportunities (Booth & Deli, 1996; Fich, 2005). Hence, two opposite hypotheses form:



H4a. Following the rejection of IDD by the state court, CEOs taking office in high-technology industries in that state will take on more outside directorships.

H4b. Following the rejection of IDD by the state court, CEOs taking office in high-technology industries in that state will keep fewer outside directorships.

3. Research Design

3.1. Regression models

The main hypotheses (H1a. and H1b.) discuss how CEOs react to increased labor market mobility, proxied by the IDD rejection. If the job opportunity hypothesis holds, CEOs will seize this opportunity to acquire a better job, encouraging them to take more outside board seats to enhance their reputation. If the competitive threat hypothesis holds, CEOs will act in the interest of their shareholders and spend more time preventing firms' trade secrets from disclosure instead of serving as outside directors. To check the relation between the IDD rejection and CEOs' outside directorships, I apply the following model:

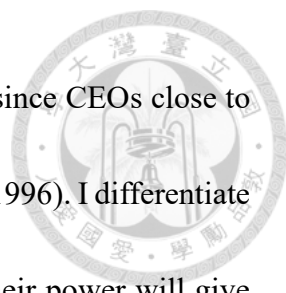
$$\begin{aligned} Out_dir_{i,t+1} = & \beta_0 + \beta_1 IDD_Reject_{i,t} + \beta_2 Controls(firm)_{i,t} \\ & + \beta_3 Controls(CEO)_{i,t+1} + \beta_4 CNC + \beta_5 Year_i \\ & + \beta_6 Firm_t + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where $Out_dir_{i,t+1}$ is the number of outside directorships the CEO of firm i holds in year $t+1$, and $IDD_Reject_{i,t}$ is a dummy variable equal to one if the state where the firm i is headquartered rejected IDD in the most recent IDD litigation precedent in year t , and zero

otherwise. The dependent variable of Eq. (1) incorporates CEOs' outside directorships in both public and private firms, as both types can benefit CEOs' career opportunities.

In Eq. (1), I control firm and CEO characteristics, which prior literature has observed to affect CEOs' outside directorships. Booth and Deli (1996) argue that CEOs of large firms sit on more boards since they possess more contractual ties, and Ferris et al. (2003) also manifest that directors from larger firms are more attractive. Thus, I take the natural logarithm of the firm's total assets to control its size (*Size*). Previous studies suggest that CEOs take fewer directorships if their firms have more growth opportunities (Booth & Deli, 1996; Fich, 2005), so I apply the market-to-book ratio (*MTB*) to proxy the firm's growth opportunities. Given that lots of research presents a positive relationship between firms' financial performance and the outside directorships of their executives and board members (Ferris et al., 2003; Fich, 2005; Yermack, 2004), I employ the return on assets ratio (*ROA*) to measure the firm's performance. I control the firm's dividend payout ratio (*Div_pay*) since Kaplan and Reishus (1990) reveal that executives have fewer outside directorships when their firms cut dividends. I add the firm's board size (*Board_size*) into control variables as Yermack (1996) considers small boards to provide better monitoring, which may decrease CEOs' spare time and reduce their outside director numbers.⁵ The rest of the firm control variables are referred to Cai et al. (2020).

⁵ Yermack (1996) argues that firms with smaller boards have higher market value, and smaller boards can provide stronger incentives for CEOs to perform better through compensation awards and dismissal threats.



For CEO characteristics control, I control CEO age and tenure since CEOs close to retiring ages are prone to accept outside directorships (Booth & Deli, 1996). I differentiate whether CEOs act as the chairman in their boards (*CEO_dual*) as their power will give them more freedom to accept outside board seats (Booth & Deli, 1996). Following Fich and Shivdasani (2007) and Lanis et al. (2019), I control CEOs' gender (*Fem_CEO*) and share-owning percentages (*CEO_own*) and identify whether they are hired from outside the firms (*Out_CEO*). Considering that the CEO in year t may not be the same person as in year $t+1$, all CEO control variables in Eq. (1) are data for year $t+1$ to ensure that the outside directorships and CEO characteristics belong to the same CEO. Besides, I employ the state-level enforceability index of covenants not to compete (*CNC*) to estimate the intensity of contractual restrictions on CEOs in different states each year (Chen et al., 2022; Klasa et al., 2018; Li et al., 2022; Na, 2020). I include year and firm fixed effects to control unobserved factors, and the standard errors are robust to heteroscedasticity.

In Eq. (1), I use data for CEOs' outside directorships and CEO characteristics from one year later because it takes time for CEOs to react to this external shock. However, if CEOs manage to gain reputations through outside directorships, they are less likely to acquire board seats immediately since appointing firms may expect them to demonstrate their expertise or experience (e.g. Fich, 2005; Harford & Schonlau, 2013). Meanwhile, CEOs may need to wait for demand in the market for outside directors, especially when

they seek to join boards of larger or older firms (Fahlenbrach et al., 2010; Knyazeva et al., 2013).⁶ Hence, I change the dependent variable and CEO control variables to three years later to examine whether the relation between IDD rejection and CEOs' outside directorships would be stronger than that of one year later. The model is as follows:

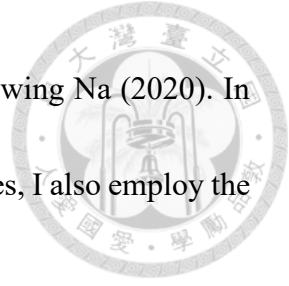
$$\begin{aligned} Out_dir_{i,t+3} = & \beta_0 + \beta_1 IDD_Reject_{i,t} + \beta_2 Controls(firm)_{i,t} \\ & + \beta_3 Controls(CEO)_{i,t+3} + \beta_4 CNC + \beta_5 Year_i \\ & + \beta_6 Firm_t + \varepsilon_{i,t} \end{aligned} \quad (2)$$

where everything is the same as Eq. (1) except the year in which the dependent variable and the CEO control variables are used. As explained earlier, I use data for $t+3$ years on the CEO control variables to avoid having data on CEO characteristics and outside directorships come from different CEOs.

I apply the difference-in-differences method (DID) to test H2 to H4. I examine hypothesis 2 using the interaction of *CEO_age* and *CEO_tenure*, already in the control variables, with *IDD_Reject*. For hypothesis 3, I apply *Size* and *Firm_age* in the control variables to proxy the firm's size and age. The former is measured by the natural logarithm of total assets; the latter is counted from the firm's IPO year. I also measure the firm size by the natural logarithm of the firm's market equity (*Size_ME*) and total sales (*Size_sales*) to check if they deliver consistent results as *Size* (Dang et al., 2018). To test hypothesis 4,

⁶ Kim et al. (2014) construct a sample of 14,186 observations from 2003 to 2008 and show an average of 8.2 years and a median of 7.5 years of outside director tenure, indicating that the turnover rate for outside directors may not be high.

I create a dummy variable for high-tech industries (*High_tech*) following Na (2020). In addition, since high-tech firms often possess high growth opportunities, I also employ the interaction of *MTB* with *IDD_Reject* to examine if H4 holds.



3.2. Data and sample selection

I get precise dates of state courts' decisions on the IDD cases from Canil et al. (2023) and collect data related to firms from Compustat and the Centre for Research in Security Prices (CRSP). I obtain data on board characteristics and CEOs' outside directorships from the BoardEx database. Most CEO-related data comes from ExecuComp. When a CEO held the position continuously at the same firm from 1992 to 2000, I add a tenure dummy equal to one, otherwise zero, because I cannot find data on ExecuComp for their tenure before 1992. The state-level CNC index is from Kini et al. (2021). My sample includes all public firms in the U.S. from 2000 to 2014, excluding financial and utilities firms as they are highly regulated.⁷ I also remove subsidiaries, firms not listed on a major exchange, and interim CEOs, and I only keep observations without any missing value.

The final sample for Eq. (1) (hereinafter referred to as "Sample 1") consists of 1,507 firms and 2,542 CEOs, with a total of 12,519 firm-year observations. The final sample for Eq. (2) (hereinafter referred to as "Sample 2") consists of 1,435 firms and 2,471 CEOs,

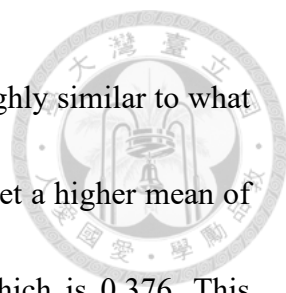
⁷ Following Cai et al. (2020), I exclude two-digit SIC codes 60 to 69 and 49, which represent financial and utility industries. My sample period starts in 2000 because few firms in North America were covered by the BoardEx database before 2000; my sample period ends in 2014 because the state-level CNC index is only available until 2014.



with a total of 11,679 firm-year observations. All the non-binary variables are winsorized at the 1% and 99% levels. To standardize time measurements, all years are converted to fiscal years, including IDD rejection year. Table 1 lists the 16 states that rejected IDD by the end of 2014, with the dates and fiscal years of IDD rejection. The detailed variable definition and data source are in Appendix.

3.3. Descriptive statistics

Tables 2 and 3 report the summary statistics for Sample 1 and Sample 2, respectively. Little statistical difference exists between the two samples when examining each variable. The average number of CEOs' outside directors (*Out_dir*) is close to 1, and the standard deviation is close to 1 as well, showing that most CEOs do not serve on more than two outside boards in both samples, likely because they care about the cost of time and effort required as outside directors (Fahlenbrach et al., 2010; Knyazeva et al., 2013). Thus, the regression results are hardly economically significant. About 40% of the observations are located in states rejecting IDD, forming a quite even distribution between experimental and control groups in both samples. Among all control variables, the means of the firm's dividend payout ratio (*Div_pay*), capital intensity (*Cap_int*), and CEO's stock-owning percentage (*CEO_own*) are closer to Q3 rather than the median and have relatively large standard deviations, suggesting that a small part of firms pay high dividends, have a lot of fixed assets, or give their CEOs a large share of their stock in both samples.



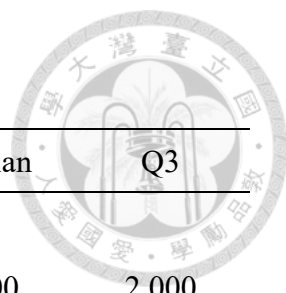
Meanwhile, the summary statistics for Samples 1 and 2 are roughly similar to what Lanis et al. (2019) and Cai et al. (2020) have reported. However, I get a higher mean of CEOs' outside director numbers than that of Cai et al. (2020), which is 0.376. This difference may stem from different definitions we give for CEOs' outside director numbers. While I count CEOs' directorships in both publicly listed and private firms, Cai et al. (2020) only include CEOs' directorships in those that have been covered by the S&P 1500 Index. Besides, my samples also display a lower average of firm age (*Firm_age*) and CEO tenure (*CEO_tenure*) than those of Cai et al. (2020).

Tables 4 and 5 are the correlation matrix for Samples 1 and 2, respectively, and there is little difference between the two samples. The correlation between *Out_dir* and *IDD_reject* is negative but highly insignificant in Tables 4 and 5 (-0.045 in Table 4 and -0.050 in Table 5). In both Tables, the correlation coefficient between CEO age and tenure is about 0.4, and so is that between firm size and firm age. Since both variable pairs are similar but not highly correlated, I use them in regression tests for H2 and H3 to examine if they display consistent results. A higher correlation exists between the firm's capital expenditures (*CAPEX*) and capital intensity (*Cap_int*), slightly above 0.5. It is reasonable as firms usually spend more on capital if they prefer possessing more fixed assets. The highest correlation coefficient, almost 0.6, is between firm size and board size, and it also makes sense because larger firms may require more directors to monitor.

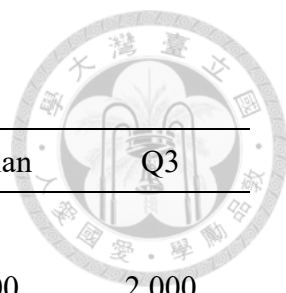
Table 1. The rejection date of the Inevitable Disclosure Doctrine.



State	Date of IDD Rejection (MM/DD/YYYY)	Fiscal Year
AR	12/11/2009	2009
CA	09/12/2002	2002
FL	05/21/2001	2000
GA	05/20/2013	2012
MA	05/14/2012	2011
MD	05/13/2004	2003
MI	04/30/2002	2001
NC	10/02/2014	2014
NH	09/01/2010	2010
NJ	09/06/2012	2012
NY	06/03/2009	2009
OH	12/23/2008	2008
TX	04/03/2003	2002
VA	07/23/1999	1999
WA	12/27/2012	2012
WI	04/29/2009	2008

Table 2. Summary statistics for Sample 1.


	Mean	SD	Q1	Median	Q3
Dependent and Independent variables					
Out_dir _{t+1}	1.016	1.178	0.000	1.000	2.000
IDD_reject	0.438	0.496	0.000	0.000	1.000
Control variables for Firm					
Size	7.287	1.508	6.218	7.173	8.242
MTB	2.116	1.358	1.257	1.695	2.464
ROA	0.135	0.104	0.090	0.134	0.187
Sale_grow	0.103	0.233	-0.004	0.075	0.172
CAPEX	0.054	0.056	0.020	0.035	0.065
Cash	0.172	0.177	0.038	0.111	0.246
Div_pay	0.160	0.396	0.000	0.000	0.248
Leverage	0.207	0.185	0.031	0.187	0.315
Cap_int	0.311	0.470	0.092	0.168	0.320
Firm_age	23.908	18.735	11.000	18.000	33.000
Board_size	9.002	2.170	7.000	9.000	10.000
Board_ind	0.763	0.134	0.667	0.800	0.875
Control variables for CEOs					
CEO_age _{t+1}	55.922	6.999	51.000	56.000	60.000
CEO_dual _{t+1}	0.542	0.498	0.000	1.000	1.000
CEO_edu _{t+1}	1.886	0.995	1.000	2.000	2.000
CEO_tenure _{t+1}	6.095	3.995	3.000	5.000	8.000
tenure_dum _{t+1}	0.012	0.108	0.000	0.000	0.000
Fem_CEO _{t+1}	0.033	0.178	0.000	0.000	0.000
Out_CEO _{t+1}	0.096	0.294	0.000	0.000	0.000
CEO_own _{t+1}	1.989	4.667	0.000	0.338	1.631
CNC	4.118	2.238	3.000	5.000	6.000

Table 3. Summary statistics for Sample 2.


	Mean	SD	Q1	Median	Q3
Dependent and Independent variables					
Out_dir _{t+3}	1.012	1.161	0.000	1.000	2.000
IDD_reject	0.431	0.495	0.000	0.000	1.000
Control variables for Firm					
Size	7.321	1.516	6.246	7.208	8.291
MTB	2.124	1.364	1.263	1.697	2.464
ROA	0.137	0.103	0.091	0.135	0.188
Sale_grow	0.103	0.232	-0.002	0.076	0.172
CAPEX	0.054	0.056	0.020	0.035	0.065
Cash	0.170	0.176	0.038	0.109	0.243
Div_pay	0.166	0.402	0.000	0.000	0.255
Leverage	0.206	0.184	0.032	0.187	0.313
Cap_int	0.313	0.471	0.093	0.169	0.322
Firm_age	24.288	19.037	11.000	19.000	34.000
Board_size	9.052	2.184	7.000	9.000	10.000
Board_ind	0.763	0.134	0.667	0.800	0.875
Control variables for CEOs					
CEO_age _{t+3}	56.391	6.915	52.000	56.000	61.000
CEO_dual _{t+3}	0.515	0.500	0.000	1.000	1.000
CEO_edu _{t+3}	1.897	0.978	1.000	2.000	2.000
CEO_tenure _{t+3}	6.692	4.413	3.000	6.000	9.000
tenure_dum _{t+3}	0.009	0.095	0.000	0.000	0.000
Fem_CEO _{t+3}	0.039	0.193	0.000	0.000	0.000
Out_CEO _{t+3}	0.086	0.280	0.000	0.000	0.000
CEO_own _{t+3}	2.088	4.738	0.025	0.485	1.704
CNC	4.141	2.221	3.000	5.000	6.000

Table 4. Correlation matrix for Sample 1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) Out_dir _{t+1}	1																					
(2) IDD_reject	-0.045	1																				
(3) Size	0.220	-0.021	1																			
(4) MTB	-0.049	0.030	-0.191	1																		
(5) ROA	0.009	-0.088	0.144	0.281	1																	
(6) Sale_grow	0.003	-0.000	-0.054	0.230	0.104	1																
(7) CAPEX	-0.008	-0.031	0.017	0.090	0.241	0.215	1															
(8) Cash	-0.123	0.112	-0.376	0.375	-0.215	0.100	-0.135	1														
(9) Div_pay	0.033	-0.036	0.126	0.024	0.137	-0.058	-0.036	-0.098	1													
(10) Leverage	0.122	-0.073	0.310	-0.165	-0.061	-0.029	-0.001	-0.345	0.032	1												
(11) Cap_int	0.052	-0.017	0.180	-0.128	-0.069	0.034	0.523	-0.164	0.002	0.196	1											
(12) Firm_age	0.107	-0.032	0.411	-0.124	0.066	-0.142	-0.072	-0.220	0.183	0.080	0.005	1										
(13) Board_size	0.161	-0.063	0.598	-0.129	0.099	-0.082	-0.011	-0.312	0.145	0.206	0.067	0.384	1									
(14) Board_ind	0.057	0.099	0.143	-0.017	-0.021	-0.034	-0.079	0.001	0.032	-0.004	0.008	0.187	0.078	1								
(15) CEO_age _{t+1}	0.094	0.016	0.079	-0.074	0.035	-0.035	-0.013	-0.097	0.071	0.049	0.025	0.123	0.044	-0.043	1							
(16) CEO_dual _{t+1}	0.133	-0.080	0.142	-0.043	0.079	-0.006	0.014	-0.107	0.065	0.042	0.029	0.131	0.051	0.030	0.276	1						
(17) CEO_edu _{t+1}	0.115	-0.022	0.081	0.003	-0.078	0.017	-0.033	0.038	-0.016	0.032	0.040	0.062	0.070	0.101	-0.029	0.034	1					
(18) CEO_tenure _{t+1}	0.103	0.071	0.035	-0.021	0.033	-0.016	0.007	-0.019	0.051	-0.005	0.030	0.069	-0.030	0.051	0.403	0.321	-0.025	1				
(19) tenure_dum _{t+1}	-0.002	-0.017	0.061	0.017	0.036	-0.018	0.025	-0.008	0.045	-0.018	0.011	0.029	0.071	-0.041	0.117	0.095	-0.041	0.219	1			
(20) Fem_CEO _{t+1}	0.012	0.007	0.012	-0.004	0.002	-0.015	0.012	0.016	0.014	-0.016	-0.022	0.027	0.012	0.028	-0.054	-0.047	0.014	-0.056	-0.020	1		
(21) Out_CEO _{t+1}	0.004	-0.037	-0.030	-0.007	-0.016	-0.011	-0.024	0.022	-0.035	0.004	-0.019	-0.027	-0.043	0.040	-0.038	-0.041	0.019	-0.038	-0.028	-0.039	1	
(22) CEO_own _{t+1}	-0.079	0.057	-0.205	0.009	-0.007	0.018	0.028	0.092	0.018	-0.102	-0.033	-0.112	-0.190	-0.097	0.159	0.170	-0.086	0.235	0.055	-0.007	-0.077	1
(23) CNC	0.060	-0.236	0.084	-0.101	0.090	-0.041	0.002	-0.224	0.073	0.109	0.031	0.064	0.119	0.042	0.039	0.058	-0.031	0.012	0.036	-0.006	-0.048	-0.005

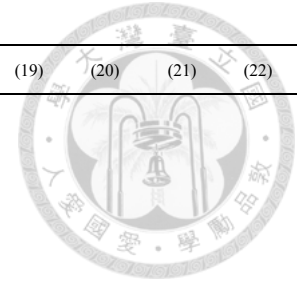


Table 5. Correlation matrix for Sample 2.



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) Out_dir _{t+3}	1																					
(2) IDD_reject	-0.050	1																				
(3) Size	0.198	-0.014	1																			
(4) MTB	-0.046	0.024	-0.197	1																		
(5) ROA	0.014	-0.091	0.136	0.277	1																	
(6) Sale_grow	0.019	-0.005	-0.065	0.239	0.100	1																
(7) CAPEX	-0.005	-0.031	0.016	0.093	0.239	0.212	1															
(8) Cash	-0.116	0.110	-0.379	0.385	-0.214	0.111	-0.130	1														
(9) Div_pay	0.019	-0.033	0.123	0.014	0.131	-0.063	-0.040	-0.098	1													
(10) Leverage	0.115	-0.073	0.314	-0.174	-0.065	-0.037	-0.005	-0.342	0.037	1												
(11) Cap_int	0.044	-0.017	0.180	-0.127	-0.077	0.030	0.514	-0.160	-0.000	0.193	1											
(12) Firm_age	0.094	-0.028	0.418	-0.124	0.069	-0.146	-0.072	-0.223	0.186	0.083	0.005	1										
(13) Board_size	0.142	-0.059	0.599	-0.131	0.093	-0.092	-0.008	-0.313	0.143	0.212	0.068	0.383	1									
(14) Board_ind	0.047	0.098	0.150	-0.024	-0.025	-0.037	-0.083	-0.003	0.038	-0.002	0.015	0.187	0.078	1								
(15) CEO_age _{t+3}	0.088	0.013	0.054	-0.059	0.030	-0.025	-0.008	-0.074	0.042	0.048	0.017	0.096	0.018	-0.051	1							
(16) CEO_dual _{t+3}	0.142	-0.080	0.141	-0.028	0.078	0.001	0.016	-0.099	0.056	0.045	0.024	0.136	0.074	0.003	0.289	1						
(17) CEO_edu _{t+3}	0.111	-0.017	0.070	0.002	-0.078	0.012	-0.051	0.042	-0.005	0.025	0.036	0.056	0.057	0.102	-0.029	0.016	1					
(18) CEO_tenure _{t+3}	0.093	0.065	-0.043	0.003	0.030	0.009	0.013	0.019	0.011	-0.012	0.018	-0.001	-0.080	0.002	0.438	0.358	-0.042	1				
(19) tenure_dum _{t+3}	-0.022	-0.010	0.046	0.023	0.041	-0.013	0.036	0.005	0.036	-0.021	0.007	0.020	0.053	-0.036	0.126	0.086	-0.050	0.209	1			
(20) Fem_CEO _{t+3}	0.026	0.006	0.014	-0.001	-0.000	-0.026	0.010	0.010	0.013	-0.025	-0.023	0.039	0.013	0.034	-0.049	-0.048	0.014	-0.065	-0.019	1		
(21) Out_CEO _{t+3}	-0.001	-0.047	-0.039	0.000	-0.008	-0.012	-0.016	0.022	-0.035	0.005	-0.016	-0.051	-0.062	0.022	-0.030	-0.039	0.013	-0.019	-0.026	-0.046	1	
(22) CEO_own _{t+3}	-0.074	0.040	-0.213	0.003	-0.007	0.021	0.018	0.101	0.013	-0.107	-0.038	-0.113	-0.198	-0.120	0.201	0.198	-0.098	0.299	0.088	-0.007	-0.068	1
(23) CNC	0.051	-0.229	0.074	-0.100	0.081	-0.042	0.001	-0.216	0.074	0.105	0.030	0.056	0.110	0.038	0.037	0.063	-0.029	-0.004	0.037	-0.008	-0.039	-0.004

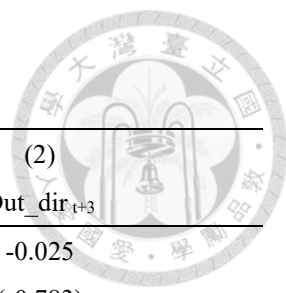


4. Empirical Results

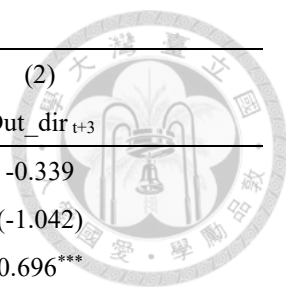
4.1. Baseline regression

I test my main hypothesis (H1) with Eq.(1) and Eq.(2) and present the results in Table 6. The coefficient on *IDD_reject* is 0.003 and -0.025 when regressing *Out_dir t+1* (the number of CEOs' outside board seats after 1 year) and *Out_dir t+3* (the number of CEOs' outside board seats after 3 years). The t-values are 0.081 and -0.783, respectively, showing that the IDD rejection and CEOs' outside directorships are arguably uncorrelated. The insignificant results may arise from the combined impact of job opportunity and competitive threat concerns that diminish the effect of IDD rejection. Otherwise, maybe it is because not all CEOs have incentives to pursue outside job opportunities. Hence, further tests are required to determine whether *IDD_reject* and *Out_dir* are unrelated or their relation appears within specific groups of CEOs.

In Table 6, CEO age (*CEO_age*), duality (*CEO_dual*), education (*CEO_edu*), tenure (*CEO_tenure*), and firm size (*Size*) are significantly and positively correlated to CEOs' outside director numbers. Meanwhile, the capital intensity (*Cap_int*) negatively affects CEOs' outside directorships. These findings are consistent with Booth and Deli (1996) and Cai et al. (2020). However, Table 6 presents that female (*Fem_CEO*) CEOs and outside CEOs (*Out_CEO*) take more outside board seats, which is not found in prior studies (e.g. Lanis et al., 2019).

Table 6. IDD rejection and CEOs' outside directorships.


	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
IDD_reject	0.003 (0.081)	-0.025 (-0.783)
Size	0.102*** (3.944)	0.072*** (2.647)
MTB	-0.017* (-1.724)	-0.015 (-1.546)
ROA	0.024 (0.197)	0.063 (0.498)
Sale_grow	-0.017 (-0.483)	0.017 (0.461)
CAPEX	-0.270 (-1.199)	-0.183 (-0.764)
Cash	-0.013 (-0.151)	-0.103 (-1.133)
Div_pay	0.017 (0.795)	-0.002 (-0.117)
Leverage	-0.004 (-0.055)	-0.102 (-1.270)
Cap_int	-0.099* (-1.725)	-0.141** (-2.549)
Firm_age	-0.022 (-0.650)	-0.021 (-0.586)
Board_size	0.017** (2.103)	0.009 (1.134)
Board_ind	0.290** (2.538)	0.026 (0.235)
CEO_age _{t+1 / +3}	0.005* (1.676)	0.009*** (2.912)
CEO_dual _{t+1 / +3}	0.119*** (3.511)	0.172*** (5.041)
CEO_edu _{t+1 / +3}	0.067*** (3.615)	0.060*** (3.250)
CEO_tenure _{t+1 / +3}	0.053*** (11.499)	0.049*** (11.301)



	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
tenure_dum _{t+1 / +3}	-0.045 (-0.198)	-0.339 (-1.042)
Fem_CEO _{t+1 / +3}	0.520*** (5.663)	0.696*** (8.320)
Out_CEO _{t+1 / +3}	0.117** (2.075)	0.151** (2.437)
CEO_own _{t+1 / +3}	-0.004 (-1.577)	-0.006** (-2.050)
CNC	0.004 (0.211)	-0.026 (-1.318)
_cons	-0.332 (-0.394)	0.080 (0.087)
Year FE	Yes	Yes
Firm FE	Yes	Yes
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.642

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

4.2. CEOs with younger age or shorter tenure

The second hypothesis (H2) predicts that the relationship between IDD rejection and CEOs' outside directorships is reinforced among younger or shorter-term CEOs. Though the baseline regression results do not support the job opportunity hypothesis, the effect of IDD rejection on CEOs' outside board seats may be evident when interacting with CEO age and tenure as young and junior CEOs are more attentive to the external labor market and need more recognition and promotion (Ali & Zhang, 2015; Gibbons & Murphy, 1992). Thus, I employ the difference-in-differences method (DID) to examine the effect of IDD rejection among younger CEOs and shorter-tenure CEOs.



Table 7 reports the regression results for H2. In Panel A of Table 7, the coefficient on *IDD_reject* is positive and significant in both columns, suggesting that CEOs hold more outside directorships after IDD rejection. Furthermore, the coefficient on *CEO_age* $\times$ *IDD_reject* is -0.011 (-0.013) and significant at the 1% level in column 1 (column 2), indicating that younger CEOs increase more outside board seats after IDD rejection. This finding supports the job opportunity hypothesis that younger CEOs are better motivated by increased labor market mobility to serve as outside directors. If the competitive threat hypothesis prevails, older CEOs are expected to serve on more outside boards after IDD rejection, as they probably have found a successor to gradually take their position as CEO, which lessens their workload to cope with competitive threats (Booth & Deli, 1996).

Panel B of Table 7 shows a positive and significant coefficient of 0.120 (0.090) on *IDD_reject* in column 1 (column 2). Also, the coefficient on *CEO_tenure* $\times$ *IDD_reject* is -0.018 (-0.017) and significant at the 1% level in column 1 (column 2). These findings reveal that CEOs sit on more board seats in states that have rejected IDD, especially when they have shorter tenure. The results are consistent with those in Panel A and less likely driven by the competitive threat hypothesis that posits CEOs with short tenure are busier after the IDD rejection. Overall, Table 7 presents significant and consistent regression results, supporting the hypothesis that younger or junior CEOs have more incentives to take more outside directorships after labor market mobility increases.

Table 7. IDD rejection and outside directorships for younger or junior CEOs.

Panel A: CEO age		
	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
CEO_age _{t+1/t+3} × IDD_reject	-0.011*** (-3.446)	-0.013*** (-3.930)
CEO_age _{t+1/t+3}	0.010*** (2.945)	0.014*** (4.289)
IDD_reject	0.637*** (3.448)	0.688*** (3.718)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.626 (-0.739)	-0.252 (-0.270)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.643
Panel B: CEO tenure		
	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
CEO_tenure _{t+1/t+3} × IDD_reject	-0.018*** (-3.957)	-0.017*** (-3.899)
CEO_tenure _{t+1/t+3}	0.062*** (12.438)	0.057*** (12.069)
IDD_reject	0.120*** (2.632)	0.090* (1.923)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.500 (-0.590)	0.011 (0.012)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

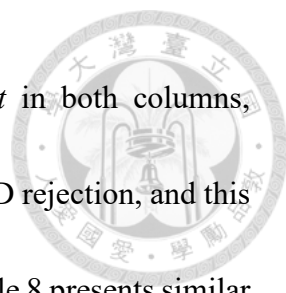


4.3. CEOs in smaller or younger firms

The third hypothesis (H3) discusses whether firms' size and age will affect the relationship between IDD rejection and CEOs' outside directorships. The job opportunity hypothesis states that smaller or younger firms are less visible, so their CEOs serve as more outside directors to make themselves known in the external labor market after its mobility increases. Also, CEOs of smaller or younger firms may view the IDD rejection as a chance for upward mobility to more prestigious firms, so they are probably more willing to accept outside director appointments.

I report the regression results for H3 in Table 8. Panel A of Table 8 shows a positive and significant coefficient on *IDD_reject* in columns 1 and 2, indicating that CEOs sit on more outside boards in the state rejecting IDD. Moreover, a negative coefficient of -0.040 (-0.067) on *Size × IDD_reject* is significant at the 5% (1%) level in column 1 (column 2), demonstrating that CEOs of smaller firms increase more outside directorships than those of larger firms after the IDD rejection. The result matches the interpretation of the job opportunity hypothesis that CEOs in smaller firms are more active in enhancing their reputation following increased labor market mobility.

In Panels B and C of Table 8, I replace the previous measure of firm size, the natural logarithm of firms' total assets, with the natural logarithm of firms' market equity and total sales, respectively. Panel B reports a significantly positive coefficient on *IDD_reject*



and a significantly negative coefficient on $Size_ME \times IDD_reject$ in both columns, signifying that CEOs increase their outside directorships after the IDD rejection, and this relation strengthens when they work for smaller firms. Panel C of Table 8 presents similar results to Panel B in column 2. However, the coefficient on IDD_reject and $Size_sale \times IDD_reject$ is insignificant in column 1 of Panel C, implying that it may take some time for CEOs in smaller firms to acquire more outside board seats after IDD rejection.

In Panel D of Table 8, there is a positive and significant coefficient on IDD_reject in column 2, and the coefficient on $Firm_age \times IDD_reject$ is -0.006 and significant at the 1% level. However, the results in column 1 are insignificant. These findings indicate that CEOs take more outside board seats three years after the IDD rejection, and this increase is even greater for those of younger firms. Collectively, Table 8 provides consistent results, supporting the job opportunity hypothesis since CEOs in smaller or younger firms hold more outside directorships after the IDD rejection. The effect of IDD rejection on outside directorships for CEOs in smaller and younger firms may take a while to emerge because some results in column 1 are insignificant in Table 8. It is difficult to explain the empirical evidence in Table 8 by the competition threat hypothesis since large or established firms are more likely to have access to more legal resources to address the potential threat of trade secret disclosure following the IDD rejection (Kang & Lee, 2022).

Table 8. IDD rejection and outside directorships for CEOs in smaller or younger firms.

Panel A: Firm size (the natural logarithm of firms' total assets)		
	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
Size × IDD_reject	-0.040** (-2.456)	-0.066*** (-3.941)
Size	0.118*** (4.456)	0.097*** (3.479)
IDD_reject	0.301** (2.496)	0.474*** (3.795)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.336 (-0.398)	0.089 (0.096)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.643
Panel B: Firm size (the natural logarithm of firms' market equity)		
	(1)	(2)
	Out_dir _{t+1}	Out_dir _{t+3}
Size_ME × IDD_reject	-0.029** (-2.046)	-0.044*** (-3.002)
Size_ME	0.078*** (3.888)	0.062*** (2.955)
IDD_reject	0.223** (2.004)	0.315*** (2.732)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.158 (-0.187)	0.206 (0.223)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

Table 8. (continued)

Panel C: Firm size (the natural logarithm of firms' total sales)		
	(1) Out_dir _{t+1}	(2) Out_dir _{t+3}
Size_sale × IDD_reject	-0.014 (-0.836)	-0.044*** (-2.614)
Size_sale	0.054** (1.962)	0.081*** (3.063)
IDD_reject	0.104 (0.841)	0.305** (2.428)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.063 (-0.074)	0.118 (0.127)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.640	0.643
Panel D: Firm age		
	(1) Out_dir _{t+1}	(2) Out_dir _{t+3}
Firm_age × IDD_reject	-0.002 (-1.404)	-0.006*** (-4.023)
Firm_age	-0.028 (-0.843)	-0.042 (-1.148)
IDD_reject	0.056 (1.176)	0.140*** (2.819)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.169 (-0.199)	0.601 (0.640)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

Table 9. IDD rejection and outside directorships for CEOs in high-growth firms.

Panel A: High technology industries		
	(1) Out_dir _{t+1}	(2) Out_dir _{t+3}
High_tech × IDD_reject	-0.034 (-0.550)	-0.011 (-0.168)
IDD_reject	0.012 (0.338)	-0.022 (-0.618)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.338 (-0.402)	0.079 (0.085)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.642
Panel B: Market-to-book ratio		
	(1) Out_dir _{t+1}	(2) Out_dir _{t+3}
MTB × IDD_reject	-0.007 (-0.476)	0.021 (1.456)
MTB	-0.013 (-1.118)	-0.024** (-2.024)
IDD_reject	0.017 (0.367)	-0.068 (-1.485)
Firm Controls	Yes	Yes
CEO Controls _{t+1/t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.338 (-0.402)	0.109 (0.117)
<i>N</i>	12440	11589
adj. <i>R</i> ²	0.641	0.642

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

4.4. CEOs in firms or industries with more growth opportunities



The last hypothesis (H4) examines the role of growth opportunities in the relation between IDD rejection and CEOs' outside directorships. If CEOs take office in high-tech industries or firms with high market-to-book ratios, their outside job mobility may be highly constrained since the proprietary information they possess is more valuable. Thus, under the job opportunity hypothesis, their job opportunities increase more following the IDD rejection, which may result in more acceptance of outside director appointments.

Panel A of Table 9 reports the regression results for CEOs in the high-tech industries, and none of the coefficients in either column is significant. The t -value of $High_tech \times IDD_reject$ is small in both columns, signifying that CEOs in the high-tech industries do not change their outside directorships for IDD rejection. Besides, the results in Panel B of Table 9 are also insignificant in both columns, implying that the number of CEOs' outside directorships is unrelated to firms' MTB ratios. As a result, based on empirical evidence in Table 9, firms' growth opportunities have no impact on the relation between the IDD rejection and CEOs' outside board seats.

Neither the job opportunity nor competition threat hypothesis can predict the results in Table 9. The former assumes CEOs in firms with high growth opportunities increase the outside directorships they hold with greater job opportunities, while the latter assumes they will decrease their outside directorships because of a greater potential threat for trade



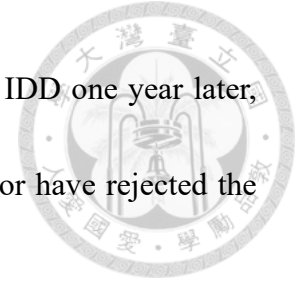
secret disclosure. The results may be influenced by the combined effect of job opportunity and competition threat. Otherwise, it is also possible that CEOs in high-growth firms or industries are busy realizing their firms' growth opportunities or do not rely on outside directorships to raise their reputation when job opportunities arise.

4.5. The timing of changes in CEOs' outside directorships

Though the main and the last hypotheses (H1 and H4) fail to stand, the empirical evidence does support H2 and H3, especially when using Sample 2 which includes CEOs' outside directorships three years later. To recognize when the IDD rejection affects CEOs' outside directorships, I replace *IDD_reject* with variables representing the years before and after IDD rejection to see whether the effect on CEOs' outside directorships occurs after IDD rejection. If this effect is only significant before IDD rejection, it is unjustified as evidence for the job opportunity hypothesis. I created dummy variables for the years before and after IDD rejection following prior studies (Ding et al., 2021; Flammer & Kacperczyk, 2019; Na, 2020). To keep this section concise and clear, I only present the regression results for H2 and H3 using Sample 2. The regression results using Sample 1 are not included in this paper, but they are qualitatively similar to those using Sample 2.

Table 10 reports the tests on the timing of changes in the number of CEOs outside board seats for H2. The independent variable, *IDD_reject*, is replaced with *IDD_rej*⁻², *IDD_rej*⁻¹, *IDD_rej*⁰, *IDD_rej*¹, and *IDD_rej*²⁺, equal to one if the state where the firm

is headquartered will reject the IDD two years later, will reject the IDD one year later, rejected the IDD in this year, have rejected the IDD one year ago, or have rejected the IDD more than one year ago, respectively, and zero otherwise.



In column 1 of Table 10, the coefficient on IDD_rej^{-2} is positive and significant at the 5% level, and the coefficient on $CEO_age \times IDD_rej^{-2}$ is negative and significant at the 5% level, indicating that CEOs' outside directorships (three years after the 'actual' IDD rejection year) are positively impacted by the second year before IDD rejection, and this impact increases on younger CEOs. This result is not what I expected, and I cannot find a reasonable explanation for it. However, the positive coefficient on IDD_rej^{2+} and the negative coefficient on $CEO_age \times IDD_rej^{2+}$ are both significant at the 1% level, suggesting that the impact of IDD rejection on CEOs' outside directorships takes effect two years after the state court judgment and has a greater influence on younger CEOs. As a result, although an unknown impact exists two years before the IDD rejection, the effect of IDD rejection on younger CEOs' outside board seats remains evident and significant.

In column 2 of Table 10, there is no significant coefficient on years before the IDD rejection, which alleviates the concern that the positive relation between IDD rejection and younger CEOs' outside directorships is invalid. Besides, coefficients on $CEO_tenure \times IDD_rej^1$ and $CEO_tenure \times IDD_rej^{2+}$ are negative and significant at the 5% and 1% level, respectively, reinforcing the positive effect of IDD rejection on the number of

outside boards CEOs with shorter tenure sit on. Overall, the tests for H2 on the timing of changes show that the increase in younger or shorter-tenure CEOs' outside directorships is significant after the IDD rejection, confirming the reliability of the findings in Table 7. Thus, the robustness check in Table 10 supports the job opportunity hypothesis for H2.

Table 11 presents the tests on the timing of changes in CEOs' outside directorships for H3.⁸ In column 1 of Table 11, there is a coefficient of 0.689 on IDD_rej^{2+} significant at the 1% level, and the coefficient on $Size \times IDD_rej^{2+}$ is -0.098 and significant at the 1% level, revealing that two years after IDD rejection, CEOs start taking on more outside directorships (three years after the 'actual' IDD rejection year), especially those working at smaller firms. In column 2 of Table 11, there are positive and significant coefficients on IDD_rej^1 and IDD_rej^{2+} , and $Firm_age \times IDD_rej^1$ and $Firm_age \times IDD_rej^{2+}$ have negative coefficients significant at the 5% and 1% level, respectively, implying that the positive effect on CEOs' outside directorships starts from one year after IDD rejection and strengthens on CEOs leading younger firms. Collectively, Table 11 reports that the increase in the outside directorships of CEOs in smaller or younger firms is significant after IDD rejection. These findings validate the regression results for H3 in Table 8 and empirically support the job opportunity hypothesis.

⁸ I put the robustness check on firm size proxied by market equity (*Size_ME*) and total sales (*Size_sales*) in the Appendix. The results are reported in Table A2 and consistent with those of *Size* in Table 11.

Table 10. The timing of changes in CEOs' outside directorships for Hypothesis 2.

	(1) Out_dir _{t+3}	(2) Out_dir _{t+3}
CEO_age _{t+3} × IDD_rej ⁻²	-0.015** (-2.142)	
CEO_age _{t+3} × IDD_rej ⁻¹	-0.003 (-0.525)	
CEO_age _{t+3} × IDD_rej ⁰	-0.005 (-0.883)	
CEO_age _{t+3} × IDD_rej ¹	-0.006 (-0.985)	
CEO_age _{t+3} × IDD_rej ²⁺	-0.018*** (-4.836)	
CEO_tenure _{t+3} × IDD_rej ⁻²		-0.013 (-1.355)
CEO_tenure _{t+3} × IDD_rej ⁻¹		-0.004 (-0.462)
CEO_tenure _{t+3} × IDD_rej ⁰		-0.006 (-0.663)
CEO_tenure _{t+3} × IDD_rej ¹		-0.018** (-1.973)
CEO_tenure _{t+3} × IDD_rej ²⁺		-0.020*** (-4.043)
CEO_age _{t+3}	0.016*** (4.657)	0.009*** (2.947)
CEO_tenure _{t+3}	0.050*** (11.385)	0.059*** (11.949)
IDD_rej ⁻²	0.886** (2.197)	0.097 (1.219)
IDD_rej ⁻¹	0.179 (0.528)	0.030 (0.346)
IDD_rej ⁰	0.292 (0.830)	0.023 (0.270)
IDD_rej ¹	0.379 (1.106)	0.160* (1.741)
IDD_rej ²⁺	0.965*** (4.406)	0.079 (1.279)
Firm Controls	Yes	Yes
CEO Controls _{t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	-0.407 (-0.432)	-0.005 (-0.006)
N	11589	11589
adj. R ²	0.644	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; t statistics in parentheses

Table 11. The timing of changes in CEOs' outside directorships for Hypothesis 3.

	(1) Out_dir _{t+3}	(2) Out_dir _{t+3}
Size × IDD_rej ⁻²	-0.006 (-0.247)	
Size × IDD_rej ⁻¹	-0.029 (-1.080)	
Size × IDD_rej ⁰	-0.025 (-0.874)	
Size × IDD_rej ¹	-0.046 (-1.631)	
Size × IDD_rej ²⁺	-0.098*** (-4.297)	
Firm_age × IDD_rej ⁻²		0.001 (0.441)
Firm_age × IDD_rej ⁻¹		0.000 (0.054)
Firm_age × IDD_rej ⁰		-0.002 (-0.966)
Firm_age × IDD_rej ¹		-0.007*** (-3.224)
Firm_age × IDD_rej ²⁺		-0.006*** (-3.046)
Size	0.106*** (3.654)	0.068** (2.504)
Firm_age	-0.039 (-1.064)	-0.045 (-1.212)
IDD_rej ⁻²	0.070 (0.373)	0.001 (0.016)
IDD_rej ⁻¹	0.222 (1.138)	0.012 (0.168)
IDD_rej ⁰	0.176 (0.832)	0.060 (0.720)
IDD_rej ¹	0.389* (1.866)	0.241*** (2.972)
IDD_rej ²⁺	0.689*** (3.916)	0.124* (1.733)
Firm Controls	Yes	Yes
CEO Controls _{t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	0.149 (0.161)	0.651 (0.689)
<i>N</i>	11589	11589
adj. <i>R</i> ²	0.643	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

4.6. The impact of IDD adoption on CEOs' outside directorships

To further examine if the results are still consistent when using a different IDD proxy, I apply a dummy variable, *IDD_adopt*, equal to one if the IDD is recognized in the state where the firm's headquarters is located, and zero otherwise (Na, 2020). As the definition of *IDD_adopt* is the opposite of *IDD_reject*, I expect its results to be opposite to those of the IDD rejection. Again, I only exhibit the regression results for H2 and H3 using Sample 2 for concision and clarity in this section, and the regression results using Sample 1 are qualitatively similar to those using Sample 2.

Table 12 reports the tests for H2 using the adoption of IDD. In column 1, there is a coefficient of -0.831 on *IDD_adopt* significant at the 1% level, indicating that CEOs in states adopting the IDD sit on fewer outside board than CEOs in other states. In addition, the coefficient on *CEO_age* $\times$ *IDD_adopt* is positive and significant at the 1% level, suggesting that younger CEOs reduce more outside board seats than older ones in states recognizing the IDD. Similarly, in column 2 of Table 12, the coefficient on *CEO_tenure* $\times$ *IDD_adopt* is positive and significant at the 5% level, demonstrating that CEOs with shorter tenure possess fewer outside directorships than senior CEOs after IDD adoption. In sum, the results in Table 12 are opposite to those in Table 7, confirming the consistency of regression results for H2 and solidify the evidence in favor of the employment theory.

Table 12. IDD adoption and outside directorships for younger or junior CEOs.

	(1)	(2)
	Out_dir _{t+3}	Out_dir _{t+3}
CEO_age _{t+3} × IDD_adopt	0.014*** (4.378)	
CEO_tenure _{t+3} × IDD_adopt		0.011** (2.562)
CEO_age _{t+3}	0.003 (1.075)	0.009*** (2.918)
CEO_tenure _{t+3}	0.049*** (11.172)	0.045*** (9.356)
IDD_adopt	-0.831*** (-4.411)	-0.090* (-1.929)
Firm Controls	Yes	Yes
CEO Controls _{t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	0.304 (0.328)	0.048 (0.052)
<i>N</i>	11589	11589
adj. <i>R</i> ²	0.643	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; *t* statistics in parentheses

Table 13. IDD adoption and outside directorships for CEOs in smaller or younger firms.

	(1)	(2)	(3)	(4)
	Out_dir _{t+3}	Out_dir _{t+3}	Out_dir _{t+3}	Out_dir _{t+3}
Size × IDD_adopt	0.075*** (4.225)			
Size_ME × IDD_adopt		0.059*** (3.827)		
Size_ME		0.018 (0.844)		
Size_sale × IDD_adopt			0.048*** (2.715)	
Size_sale			0.042 (1.557)	
Firm_age × IDD_adopt				0.007*** (4.637)
Size	0.038 (1.367)			0.072*** (2.648)
Firm_age	-0.033 (-0.915)	-0.028 (-0.769)	-0.029 (-0.792)	-0.050 (-1.363)
IDD_adopt	-0.580*** (-4.365)	-0.465*** (-3.859)	-0.370*** (-2.831)	-0.209*** (-4.043)
Firm Controls	Yes	Yes	Yes	Yes
CEO Controls _{t+3}	Yes	Yes	Yes	Yes
CNC	Yes	Yes	Yes	Yes
Year FE & Firm FE	Yes	Yes	Yes	Yes
_cons	0.568 (0.617)	0.604 (0.656)	0.430 (0.466)	0.790 (0.840)
<i>N</i>	11589	11589	11589	11589
adj. <i>R</i> ²	0.643	0.643	0.643	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; t statistics in parentheses



Table 13 presents the robustness tests for H3 using the IDD adoption. The coefficient on *IDD_adopt* is negative and significant in every column, signifying that CEOs in states with IDD obtain fewer outside board seats than those in other states. The coefficient on *Size* $\times$ *IDD_adopt* is positive and significant at the 1% level in column 1, and so as those on *Size_ME* $\times$ *IDD_adopt* and *Size_sales* $\times$ *IDD_adopt* in columns 2 and 3, showing that CEOs of smaller firms decrease more outside board seats than those of larger firms in states adopting the IDD. In addition, a positive coefficient on *Firm_age* $\times$ *IDD_adopt* is significant at the 1% level, revealing that the reductions in CEOs outside directorships following IDD adoption are stronger for CEOs of younger firms. Altogether, the results for H3 in Table 13 are consistent with those in Table 8, validating the empirical evidence for the job opportunity hypothesis.

5. Conclusion

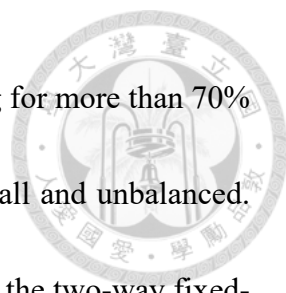
This paper studies the causal relationship between IDD rejection and CEOs' outside directorships to see whether job opportunities affect CEOs' behavior. If concerned about their outside job opportunities, CEOs may seek to enhance their reputation by serving as more outside directors when the IDD rejection increases labor market mobility. Though the baseline regression fails to support this relation, I find a positive and significant effect of IDD rejection on CEOs' outside directorships when they are younger or shorter-tenure. This effect also holds but takes about three years to emerge when CEOs work for smaller



or younger firms. There is no evidence that growth opportunities in a firm or an industry impact CEOs' outside board seats after the state court rejects the IDD. The above findings are robust when examining the timing of changes in CEOs' outside directorships and replacing IDD rejection with IDD adoption to proxy job opportunities.

Overall, the empirical evidence supports the job opportunity hypothesis, suggesting that CEOs eager for upward labor market mobility and reputation enhancement increase their outside directorships more after the IDD rejection. On the other hand, no evidence seems to support the competitive threat hypothesis that the potential threat of trade secret leakage reduces CEOs' time as outside directors. Younger or shorter-tenure CEOs pay attention to the external labor market and require certification for their ability; CEOs of smaller or younger firms also expect more visibility, so the marginal benefits for them to accept outside director appointments are greater. Hence, the insignificant results in the baseline regression may be that not every CEO has an incentive to realize outside job opportunities or elevate the reputation.

I acknowledge that there are inadequacies in my research. First, I cannot include all variables that may influence my regression models, such as board interlocks and CSR scores (Booth & Deli, 1996; Cai et al., 2020). Due to a lack of access to the data, I fail to control board interlocks, which may increase CEOs' outside directorships. I choose not to add the CSR score in regression models since I can only obtain data from 2006 onwards,



and the final sample largely falls between 2012 and 2014, accounting for more than 70% of the total. Thus, controlling for CSR scores makes my sample small and unbalanced. These insufficiencies can be a direction for further research. Second, the two-way fixed-effect DID (TWFE-DID) method I apply to build my regression models has strict and unrealistic assumptions. It assumes that treatment effects are homogeneous across time and groups, i.e., that IDD rejection has the same impact on CEOs' outside directorships across states or across fiscal years in the same state. Recent studies have proposed various solutions to address the drawbacks of TWFE-DID (Borusyak et al., 2024; Callaway & Sant'Anna, 2021; Wooldridge, 2021), and future researchers can employ these modeling methods to make regression models more relevant to real-world situations.



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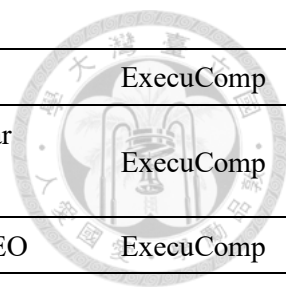
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Appendix

Table A1. Variable definitions.

Variable	Definition	Source
Dependent and Independent variables		
Out_dir	Number of outside directorships the firm's CEO holds	BoardEx
IDD_reject	equal to 1 if the state where the firm is headquartered has rejected the IDD, and 0 otherwise	Canil et al. (2023)
Control variables for firm characteristics		
Size	Natural logarithm of total assets	Compustat
MTB	(Total assets – book value of equity + market value of equity) / total assets	Compustat and CRSP
ROA	Operating income before depreciation divided by total assets	Compustat
Sale_grow	Sales growth: current sales divided by lagged sales, then subtract 1	Compustat
CAPEX	Capital expenditures divided by lagged total assets	Compustat
Cash	Cash and short-term investment divided by total assets	Compustat
Div_pay	Dividend payout ratio: total dividends paid divided by net income	Compustat
Leverage	Long-term debt and debt in current liabilities divided by total assets	Compustat
Cap_int	Capital intensity: net property, plant, and equipment divided by sales	Compustat
Firm_age	Number of years from the year of the firm's IPO	CRSP, the Field-Ritter dataset, and Compustat ⁹
Board_size	Number of directors on CEO firm's board	BoardEx
Board_ind	Proportion of independent directors on CEO firm's board	BoardEx
Control variables for CEO characteristics		
CEO_age		ExecuComp
CEO_dual	equal to 1 if a CEO is the chairman of the board, and 0 otherwise	BoardEx
CEO_edu	Number of qualifications at the undergraduate level and above	BoardEx
CEO_tenure	Number of years a CEO has served as CEO of the current firm	ExecuComp
tenure_dum	equal to 1 if a CEO held the position of CEO continuously in the same firm from 1992 to 2000, and 0 otherwise	ExecuComp

⁹ The URLs for the Field-Ritter dataset of company founding dates are as follows:
<https://site.warrington.ufl.edu/ritter/ipo-data/>



Fem_CEO	equal to 1 if a CEO is female, and 0 otherwise	ExecuComp
Out_CEO	equal to 1 if a CEO takes the position of CEO within one year after joining the current firm, and 0 otherwise	ExecuComp
CEO_own	Percentage of total ordinary shares outstanding owned by a CEO	ExecuComp
Others		
CNC	Index for the state-level enforceability of covenants not to compete	Kini et al. (2021)
High_tech	equal to 1 if a firm's three-digit SIC code is 357, 737, 283, 873, 366, 481, 360-365, or 367, and 0 otherwise	Na (2020)

Table A1 lists the definition and source of all the variables in this paper, most of which are defined with reference to Cai et al. (2020). Due to the limited access to the data, I calculate *CEO_tenure* and identify *Out_CEO* by myself. For *CEO_tenure*, I first identify the firm's CEO in each fiscal year by the Annual CEO Flag in ExecuComp. Then, I count the years a CEO has held this position in a firm based on the number of times he appears in the sample.¹⁰ I cannot avoid errors in the estimation of *CEO_tenure*, especially for CEOs whose firms first appear in the sample, since the earliest data in ExecuComp only dates back to 1992, and many firms were gradually added to ExecuComp later.

For *Out_CEO*, I use the date the individual became CEO (*BECAMECEO*) and the date the individual joined the company (*JOINED_CO*) in ExecuComp to find CEOs hired from outside the firms. For CEOs with both *BECAMECEO* and *JOINED_CO* data, I define those who become CEOs within one year after joining the firm as outside CEOs following Na (2020). For CEOs with *BECAMECEO* data but *JOINED_CO* data is

¹⁰ For CEOs who had left this position but returned as CEOs again at the same firm, I keep accumulating their seniority as CEOs instead of counting the years from scratch.

missing, I exclude those whose firms first appear in the sample and then define those who become CEOs at least three years before serving as CEOs in current firms in the sample as outside CEOs. Last, I check if the CEO's role name in the BoardEx database contains the word "founder" because founder CEOs are not appointed outside the firms. Though I cannot identify all outside CEOs in the sample, I try to prevent including internal CEOs in this variable.

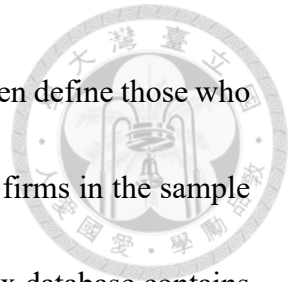


Table A2. The timing of changes in outside directorships for CEOs' in smaller firms.

	(1) Out_dir _{t+3}	(2) Out_dir _{t+3}
Size_ME × IDD_rej ⁻²	-0.002 (-0.083)	
Size_ME × IDD_rej ⁻¹	-0.016 (-0.637)	
Size_ME × IDD_rej ⁰	-0.004 (-0.143)	
Size_ME × IDD_rej ¹	-0.036 (-1.397)	
Size_ME × IDD_rej ²⁺	-0.060*** (-3.259)	
Size_sale × IDD_rej ⁻²		-0.013 (-0.504)
Size_sale × IDD_rej ⁻¹		-0.016 (-0.575)
Size_sale × IDD_rej ⁰		-0.014 (-0.491)
Size_sale × IDD_rej ¹		-0.034 (-1.253)
Size_sale × IDD_rej ²⁺		-0.065*** (-2.706)
Size_ME	0.067*** (3.073)	
Size_sale		0.088*** (3.159)
IDD_rej ⁻²	0.030 (0.159)	0.116 (0.633)
IDD_rej ⁻¹	0.122 (0.660)	0.130 (0.620)
IDD_rej ⁰	0.019 (0.097)	0.097 (0.455)
IDD_rej ¹	0.322 (1.570)	0.300 (1.460)
IDD_rej ²⁺	0.410*** (2.727)	0.437** (2.339)
Firm Controls	Yes	Yes
CEO Controls _{t+3}	Yes	Yes
CNC	Yes	Yes
Year FE & Firm FE	Yes	Yes
_cons	0.253 (0.272)	0.144 (0.155)
N	11589	11589
adj. R ²	0.643	0.643

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; t statistics in parentheses