

PICK YOUR BOARD WISELY: CEO OUTSIDE BOARD DIRECTORSHIPS AND MANAGERIAL ABILITY

Abstract

Do CEO outside board directorships advance CEO managerial abilities? Against the backdrop of continuous debates on the value of CEO outside board directorships, we propose that outside board service limits CEO managerial ability in recent times because of the increasing executive job demands, heightened directorial responsibilities, and the changing nature of the corporate elite. However, we further argue that this effect is contingent on the insights and resources provided by the host board as well as the effective monitoring and alignment mechanisms of the home board.

Keywords: CEO outside directorships, CEO managerial ability, board capital theory, agency theory

INTRODUCTION

What is the value of CEO outside board directorships? This question is at the center of intense scholarly debate (Geletkanycz & Boyd, 2011; Hambrick, Finkelstein, & Mooney, 2005). Previous research suggests that CEO outside directorships benefit the CEO's home firm. This research draws on an embeddedness perspective, emphasizing that CEO outside directorships grant access to valuable resources. For instance, CEO outside directorships improve firm performance by creating access to resources in other boardrooms and the "corporate elite" (Geletkanycz & Boyd, 2011) and by allowing first-hand insights into successful firm strategies (Oh & Barker, 2015).

We suggest that CEO outside directorships do not only affect these and other firm outcomes, but also play a crucial role in shaping the CEO's managerial abilities. Managerial abilities—defined as the skills needed to utilize firm resources effectively—are crucial determinants of establishing competitive advantages (Holcomb, Holmes, & Connelly, 2009). On the one hand, firms are eager to ensure that their CEOs keep managerial skills up-to-date to reduce the need for disruptive leadership changes (Hambrick & Fukutomi, 1991; Marcel, Cowen, & Ballinger, 2017). On the other hand, CEOs feel the pressure to improve their managerial abilities to increase their reputation in the executive and director labor market (Boivie et al., 2016). We propose that outside directorships affect managerial abilities through learning opportunities by working on outside boards and interacting with executives and directors.

Yet, outside directorships can be problematic if they distract the CEO or lose their value. These problems are present during our sample period. Changes in the nature and importance of the corporate elite network in the early 2000s suggest that CEO outside directorships lost some of their traditional values. In the past, an identifiable "inner circle" of highly connected directors provided valuable strategic advice to CEOs (Mizruchi, 2013). This inner circle of the corporate elite had an

uncanny “small world” character through which other directors could be easily and quickly accessed (Davis, Yoo, & Baker, 2003); yet, these networking opportunities are noticeably reduced in recent times (Benton, 2017; Chu & Davis, 2016). Further, corporate governance scandals and the following governance reforms of the early 2000s imposed additional board responsibilities that make reflecting on new strategic experiences more challenging (Bruch & Ghoshal, 2002; Fich & Shivdasani, 2006; Pandey, Vithessonthi, & Mansi, 2015).

Because outside board service is increasingly viewed as a burden on the executive agenda, policy makers and the media warn executives against accepting additional board duties. However, the individual characteristics of the home and host boards might be instrumental in compensating for some of the lost network value. Specifically, we suggest that the value of CEO outside directorships is affected both by the resource provision potential of the *host* board as well as the monitoring effectiveness of the *home* board. First, drawing on board capital theory, host boards may provide access to CEO directors, who share relevant and up-to-date experiences and skills that advance the CEO’s managerial abilities (Davis, 1991; Oh & Barker, 2015). Moreover, host board diversity helps to advance CEO managerial ability by increasing the CEO’s exposure to diverse resources, heterogeneous information, and wider networks (Carter, Simkins, & Simpson, 2003; Zhu, Shen, & Hillman, 2014). Second, relying on agency theory, home boards monitor the CEO’s desire to serve on outside boards. Board independence will lead to a better oversight of the CEO’s decision to accept outside directorships (Carpenter & Westphal, 2001). Moreover, CEO ownership aligns CEO interests with shareholder interests, leading CEOs to accept more strategically fitting outside directorships (McDonald, Khanna, & Westphal, 2008a).

An inherent difficulty in studying CEO managerial abilities is its unobservable nature. Previous studies have relied on indirect proxies such as firm performance (Bertrand & Schoar,

2003). We use a new measure of managerial ability that provides a better proxy of CEO managerial abilities. Demerjian, Lev and McVay (2012) created and validated a measure of managerial ability using data envelopment analysis (DEA) purged of firm-specific effects. Previous studies using this measure show a positive stock market reaction to dismissing low-ability CEOs (Demerjian et al., 2012), infrequent use of earnings management by high-ability CEOs (Demerjian et al., 2013), improved learning from high-ability CEOs (Francis, Xian, & Wu, 2013), and higher credit ratings for firms led by high-ability CEOs (Bonsall, Holzman, & Miller, 2017). Exploring a dataset with 5,876 firm-year observations between 2000 and 2013, we find that outside directorships generally reduce the CEO's managerial ability. However, the board capital of the host board as well as the effective monitoring and alignment mechanisms of the home company make outside directorship more likely to contribute to the CEO's managerial ability.

Our contributions are twofold. First, we contribute to the debate on the value of CEO outside directorships. Research so far has focused on the effects of outside board service on the monitoring and advisory abilities of outside directors (McDonald, Westphal, & Graebner, 2008b; Kroll, Walters, & Wright, 2008). Adding to this research, we examine the effects of outside directorships on the managerial abilities of a company's most visible director: the CEO. Second, we highlight the importance of the board context in which CEO outside directorships affect managerial abilities (Busenbark et al., 2016; Geletkanycz & Boyd, 2011). Drawing from board capital and agency theories (Hillman & Dalziel, 2003; Zona, Gomez-Mejia, & Withers, 2016), we highlight the moderating role of the home and the host boards on the relationship between CEO outside directorship and managerial ability. We, therefore, reflect on the originally competing nature of board capital and agency theories by uncovering the characteristics of the host board in

terms of contributing to CEO managerial ability and the role of the home board in overseeing the CEO's outside board activities.

THEORETICAL BACKGROUND

Effects of CEO Outside Directorship on Managerial Ability

Sourced on human capital (i.e., skills and knowledge), social capital (i.e., formal and informal ties), and cognition (i.e., mental frameworks and heuristics), managerial abilities are dynamic, meaning they can be shaped and improved over time (Adner & Helfat, 2003; Helfat & Martin, 2015; Holcomb et al., 2009). Management training programs or classroom education can expose managers to new management concepts that adjust their cognitive skills, add to their human capital (Bhagat, Bolton, & Subramanian, 2010; Custódio, Ferreira, & Matos, 2013), and provide valuable and rare social connections (Nguyen, 2013). However, improving managerial abilities often requires experiential learning—or learning-by-doing (McCall, Lombardo, & Morrison, 1988). Sources of experiential learning for seasoned executives such as CEOs may derive from inside the firm. For instance, CEOs build relevant human and social capital early in their tenure by learning from and interacting with other executives and employees (Hambrick & Fukutomi, 1991; Harris & Helfat, 1997), but gain relatively limited new knowledge from firm-internal sources later in their firm tenure (Henderson, Miller, & Hambrick, 2006). Learning within their home firm can only go so far because knowledge sources and routines are relatively established. Firms therefore turn to external sources of learning, such as interactions with directors on outside boards.

Outside directorships represent one of the important sources to improve the managerial ability for senior executives. Serving on outside boards used to grant access to an inner circle of highly interlinked corporate directors (Useem, 1984). These connections served as channels of

learning that include information about strategies (Beckman & Haunschild, 2002; Haunschild, 1993; Mizuchi, 1996) and best practices (Oh & Barker, 2015; Westphal, Seidel, & Stewart, 2001). Such learning can be beneficial for the development of human capital as CEOs as outside directors observe the entire decision-making process and experience the consequences of strategic actions (Carpenter & Westphal, 2001). In fact, human capital is often proxied by previous managerial experiences in other firms (Castanias & Helfat, 2001; Helfat & Martin, 2015; Holcomb et al., 2009). In addition, outside directorships grant access to social capital that helps the CEO in reconfiguring current resources (Adner & Helfat, 2003).

Although outside directorships represent “novel points of view that can enhance the objective quality of strategic choices, and ultimately firm performance” (McDonald et al., 2008a: 454), they are also often considered a burden on the executive agenda. Specifically, we expect CEO outside directorships to yield negative effects on managerial ability during our sampling period (Sundaramurthy, Pukthuanthong, & Kor, 2014). First, outside directorships may fail to increase managerial abilities because the substantial time commitments may distract the CEO. Board rituals introduced by corporate governance regulations such as Sarbanes-Oxley and Dodd-Frank have elevated directorial responsibilities in such areas as due diligence, managerial oversight, and executive compensation (Joseph, Ocasio, & McDonnell, 2014; Hambrick et al., 2005; Zhang & Wiersema, 2009). CEOs serving on outside boards also confront more scrutiny by the media and potential legal challenges for their board services in recent times, suggesting that CEO directors must invest more time in compliance and documenting than creative problem solving (Brandes, Dharwadkar, & Suh, 2016). These additional responsibilities heighten the job demands of outside directorships and increase the reliance on mental shortcuts such as heuristics (Hambrick et al., 2005). The increased job demands of outside board service may in turn reduce

the opportunities to reflect on strategic experiences, reducing the possibility that experiences are incorporated in their human capital (Sherlock & Nathan, 2008; Henderson et al., 2006).

Second, the network value of the corporate elite network has suffered in recent years, reducing the opportunities to learn. For much of the 20th century, highly connected directors were able to create an extremely tightknit corporate elite network and some firms (e.g., financial institutions) signaled their status through large and connected boards. These network features allowed CEO directors to connect with directors easily (Chu & Davis, 2016). However, in the 2000s, proxy advisors such as Institutional Shareholder Services (ISS) and the media promulgated an agency view of these network features, labelling connected directors as “overboarded” and “busy” (Fich & Shivdasani, 2006). Large boards also were considered ineffective according to agency theory (Hillman et al. 2011). As a result, the corporate elite network lost much of its value, such as the transmission of strategic information across corporations and the adoption of best practices (Chu & Davis, 2016). Opportunities to improve managerial abilities may also have suffered from these changes in the network as the network itself became less effective. Hence:

Hypothesis 1. CEO outside directorship is negatively associated with managerial ability.

Given the above arguments, it is more important than ever for firms to carefully manage their CEO’s outside board services (Lublin, 2016). Learning depends on the conditions in which it takes place. Some board conditions restrain learning, such as when directors do not receive candid feedback and criticism from other directors (Sherlock & Nathan, 2008). We, therefore, examine conditions that affect the ability of CEOs through outside board directorships.

THE BOARD CAPITAL ROLE OF THE HOST BOARD

Host boards play a crucial role in restoring some value of outside directorships because they are the context in which interactions with other directors occur. One of the primary roles of the board is to provide board capital resources such as advice, counselling, and connections (Hillman & Dalziel, 2003; Krause, Semadeni, & Cannella, 2013; Zona et al., 2016). Host boards with ample board capital may not only be able to connect the home firm with valuable resources, but also provide their CEO directors with new experiences, valuable connections, and mental models. We suggest that the board capital of the host board is particularly beneficial when it allows interactions with other CEOs as well as learning opportunities from heterogeneous directors.

Host Board CEO Directors

Studies underscore the importance of CEO access to peer-executives in tackling strategic problems and improving firm performance (McDonald et al., 2008a). CEOs value the advice from experienced directors more than the financial compensation for their outside board services (Johnson et al., 2011). CEO directors on the host board may particularly be valuable because they are familiar with the unique strategic challenges faced by CEOs (Porter, Lorsch, & Nohria, 2004). This allows them to better relate to the CEO on a personal and professional level, creating trusting relationships that facilitate the exchange of experiences and advice.

Having access to CEO directors on outside boards benefits learning from the three drivers of managerial ability. First, outside boards provide CEO exclusive access to the human capital of top executives of other corporations as other CEO directors are sources of relevant and up-to-date information and experiences that would likely improve the quality of the CEO's decisions (Davis, 1991). Therefore, CEO directors on the host board are points of regular access to strategic information and relevant but alternative points of view. Second, having access to other CEO

directors increases the social capital of the CEO through ties to other strategic networks. CEO directors can make introductions to other powerful individuals that are able to provide advice and share experiences. CEO directors also have a wide-ranging network outside of business circles, such as politicians, entrepreneurs, and social activists (Nguyen, 2013).

Finally, exposure to CEO directors contributes to the managerial cognition of the CEO by providing a platform to share private and tacit knowledge. Observing the unique insights and mental frameworks of other CEOs helps widen the cognitive spectrum of the CEO by challenging prior heuristics and mental short-cuts. Interactions with other CEOs is particularly valuable compared to CEOs' interactions with their casual advice networks as the boardroom offers an experiential learning environment by exposing directors to unique challenges that require intensive communication and sharing of tacit knowledge and problem solving skills.

Overall, interacting with other CEO directors is an effective means through which to improve the knowledge and skill repertoire of the CEO and advancing her social capital that widens perspectives by enabling effective environmental scanning. As such, access to more CEO directors on the host board will help counter-balance the costs of outside directorship by providing direct strategic experience and learning, which may enhance managerial abilities. Therefore:

Hypothesis 2a. Host board CEO directors positively moderate the relationship between CEO outside board directorship and CEO managerial ability.

Host Board Diversity

Corporate boards increasingly become more diverse (Zhu et al., 2014). This diversity leads to greater variety in human capital, social connections, and cognitive models. It also facilitates directors to voice their opinions because diversity forces people to prepare better for meetings (Carter et al., 2003). A diverse board offers rich resources that improve the overall decision-

making quality of the board (Hillman, Cannella, & Harris, 2002). While diverse boards may have a high potential for conflicts among directors (Van den Steen, 2010), even conflicts may be a valuable source of learning for CEOs (Finkelstein, 2004). Important sources of diversity include gender, nationality, age, tenure, and professional experience (Wahid, 2016; Zhu et al., 2014).

First, gender diversity enriches board discussions (Carter et al., 2003; Erhardt, Werbel, & Shrader, 2003). The impact of gender diversity usually stems from the different qualities and experiences women directors offer (Miller & del Carmen Triana, 2009). Women directors tend to have high education levels (Hillman et al., 2002), experiences with smaller firms (Singh, Terjesen, & Vinnicombe, 2008), and expertise in non-business issues, such as non-profit experiences (Bear, Rahman, & Post, 2010; Hillman et al., 2002). Such unique qualities enable women directors to contribute to the board discussions and particularly advance the human and social capitals of the CEO. Interacting with women directors may also allow insights into the unique problem solving skills of female executives, advancing the mental models of the CEO.

Second, national-cultural heterogeneity promotes a wider perspective in the board, leading to a better understanding of complex global relations (Carter et al., 2003). National-cultural diversity of host board sensitizes the CEO to different cultural backgrounds in an increasingly complex business environment. Directors with different cultural backgrounds also offer social connections beyond the current boardroom, expanding insights that improve many strategic decisions such as cross-border M&As (Masulis, Wang, & Xie, 2012).

Third, age and director tenure diversity offers unique board resources (Hillman, Cannella, & Paetzold, 2000). Younger directors tend to be highly educated and familiar with new technologies whereas older directors offer invaluable business experience (Ali, Ng, & Kulik, 2014). Moreover, directors from different age groups represent links to diverse networks.

Accordingly, younger directors might have links to entrepreneurs whereas older directors might offer links to senior executive networks. Directors with longer tenures tend to have stronger firm-specific knowledge and are better at facilitating communication whereas recently appointed directors are likely to offer fresh perspectives (Rutherford & Buchholtz, 2007).

Finally, professional experiences diversity provides board resources that may improve the learning effects by contributing to cognitive diversity (Erhardt et al., 2003). Since the board human capital is a composition of the collective experience and expertise of board members, diversity in the professional backgrounds of the directors offers a wider range of different perspectives that stem from the unique managerial insights from different business contexts (Bear et al., 2010).

In sum, exposure to diverse contexts increases the CEOs' capacity to transfer and apply knowledge to different settings (Gary, Wood, & Pillinger, 2012). The greater the diversity of director backgrounds on the host board, the greater the potential for developing an understanding of different business problems that can contribute to the managerial abilities of the CEO. Thus:

Hypotheses 2b. Host board diversity positively moderates the relationship between CEO outside board directorship and CEO managerial ability.

THE MONITORING ROLE OF THE HOME BOARD

In addition to the board capital of the host board, the home board may also be able to increase the value of outside directorships. Home boards use both monitoring and alignment mechanisms to reduce CEOs' self-interested actions in their home firm to reduce agency costs (Hillman & Dalziel, 2003). Outside directorships may be a specific source of agency problems because it allows CEOs to accept board invitations that may be privately beneficial to the CEO, but not the firm (Conyon & Read, 2006). To ensure that the CEO puts the home company first, effective board monitoring (Bosse & Philips, 2016) and CEO ownership are essential (Pepper & Gore, 2015).

Board Independence

Effective boards reduce agency costs by closely monitoring CEOs (Daily, Dalton, & Cannella, 2003). These boards demand justifications for proposed strategies and criticize initiatives when they believe those initiatives are ill-advised (McDonald et al., 2008b). Since effective board monitoring depends on the independent functioning of the board from the management, outside directors are pivotal in increasing the effective monitoring of the CEO.

An important line of the agency literature reports that shareholders are willing to allow the CEO to accept outside board directorships to the extent that the marginal costs equal the marginal benefits to the home firm (Booth & Deli, 1996). This cost/benefit calculus depends on the severity of the agency problems that the CEO is subject to at the home firm (Peyer & Perry, 2005). In other words, the monitoring effectiveness of the home board determines whether the CEO will accept value creating outside board directorships. First, independent boards bring greater objectivity to discussions of outside board requests of the CEO, which enables them to be more vocal when it comes to criticizing the CEO's outside board requests (McDonald et al., 2008b). Second, independent directors have more incentives to monitor the CEO because they are concerned about their reputation and credibility in the market for directors (Carpenter & Westphal, 2001). Reputational concerns are especially important as directors are under increased scrutiny regarding strategies and actions (Brandes et al, 2016). For instance, independent director reputation may hurt if the CEO is associated with corporate scandals in an outside directorship (Ma & Khanna, 2016). Overall, independent directors are motivated to ensure that the CEO accepts board assignments that would not have detrimental outcomes for the firm and be worth the CEO's time commitment.

Hypothesis 3a. The ratio of independent directors on home board positively moderates the relationship between CEO outside directorship and CEO managerial ability.

CEO Ownership

Managerial incentives such as CEO ownership minimize agency problems by aligning the CEO's desire for personal financial wealth with the company's objective to increase shareholder returns. Empirical studies suggest that CEO ownership induces CEOs to pursue activities that will elevate shareholder value and eschew actions that will only provide narrow personal benefits (Dalton et al., 2003; McDonald et al., 2008b). For instance, Perry and Peyer (2005) report negative announcement shareholder returns for home firms when executives with low levels of ownership accept outside directorships, suggesting that shareholders believe that the benefits exceed the costs of outside board service only when executives have a personal stake in this decision. With greater ownership, CEOs avoid outside directorships that would not contribute to the managerial abilities of managing their home firms successfully (Fahlenbrach, Low, & Stulz, 2010).

Managers might also react to the lack of financial incentives by taking “uneconomic actions” (Baker, Jensen, & Murphy, 1988). Thus, the CEOs may have personal motivations to serve on outside boards that might not necessarily align with the interests of the shareholders. A popular view indeed suggests that CEO outside board service is another form of ‘CEO disease’ reflected as perquisite consumption in corporate America (Byrne, Symonds, & Syler, 1991).

Overall, CEO ownership helps mitigate the agency costs related to outside directorships, at least in part, by aligning the CEOs' interests with those of the shareholders. We can then argue that strong financial incentives would have a positive impact on the link between accumulation of outside board seats by the CEOs and their respective managerial abilities. Hence:

Hypothesis 3b. CEO ownership positively moderates the relationship between CEO outside directorship and CEO managerial ability.

METHODS

Sample

We gather data on S&P 1,500 firms over the sample period of 2000-2013 from the ISS Directors database, and we match this executive data with corresponding firm level data from S&P's Compustat Financials database. Data on the managerial ability of CEOs as described by Demerjian et al (2012) is kindly provided by the authors at their websites.

We start with 23,793 firm-year observations. The requirement of managerial ability data decreases our initial sample to 17,764 firm-year observations. As we use a one-year forward lag for the managerial ability score as the main dependent variable, our sample size further decreases to 14,149. As described below, we use a two-stage least squares (2SLS) procedure by estimating a determinant model in the first stage. Because of the use of firm-CEO fixed effects in the first stage model, firm-CEO pairs where the CEO never became an outside board member are eliminated from the sample. The requirement of control variables used in our model also decreases our sample size. Eventually, we use 5,876 firm-year observations in our main analysis. This sample size changes as we introduce new interaction effects into the model.

Dependent Variable

Managerial ability was provided by Demerjian et al. (2012). This variable was created with data envelopment analysis (DEA) and measures the efficiency with which CEOs are able to generate higher revenues (compared to industry peers) with a given level of strategic resources (such as R&D and reputation). The managerial ability score is distinct from other measures of managerial ability (such as firm performance) because it excludes firm-fixed characteristics that may convolute CEO's managerial talents (e.g., large firms enable even incompetent CEOs to negotiate favorable terms with stakeholders). To eliminate the risk of factors that might influence managerial

efforts, managerial ability was purged of firm specific characteristics such as firm size, market share, positive free cash flow, and firm age (aiding management) as well as complex multi-segment and international operations (challenging management). The effects of industry and time in the estimation have also been removed. After controlling for the above, the unexplained portion of firm efficiency is attributed to the CEO (Demerjian et al., 2012).

Demerjian et al. (2012) also show that market reactions support their managerial abilities scores, such as when stock market reactions to turnovers of low (high) ability CEOs are positive (negative). This measure of managerial ability is increasingly used in the accounting and finance literature (Banker et al., 2013; Francis et al., 2013; Jun et al., 2016; Koester, Shevlin, & Wangerin, 2016).

Explanatory Variables

CEO Outside directorships. Following Geletkanycz & Boyd (2011), CEO outside directorship was measured as the number of outside boards that the focal CEO is serving on during the firm year, and it ranges between 0 and 5. Following Masulis & Mobbs (2014), we created this variable based on outside directorship in S&P 1,500 firms. In alternative analyses (untabulated), we also measure CEO outside directorship in a binary fashion and find similar results.

Host board CEO directors. *Host board CEO directors* captures the number of host board CEO directors, who are currently serving as the CEO of an S&P 1,500 firm.

Host board diversity. Host board diversity is captured by five different dimensions of board diversity based on data available in ISS Directors as well as proxy filings. First, *Host board diversity_gender* captures the gender diversity of the host board. It was operationalized with the Blau index because gender (i.e., female or male) reflects nominal categories. This diversity

measure was calculated as 1 minus the sum of the squared proportions of directors who are male and female. In mathematical form,

$$Blau\ Index = 1 - \sum_{i=1}^s p_i^2$$

where p captures the proportion of directors in category i ; s represents the number of categories. Second, *Host board diversity_nationality* captures national diversity of the host board. It was operationalized with the Blau index as well. We identified the nationality of each director on the host board via the ISS Directors database and consulted proxy filings if the variable was missing or unclear. This diversity measure was calculated as 1 minus the sum of the squared proportions of nationalities in the firm year.

Third, *Host board diversity_age* captures age diversity of the host board. It was measured with the coefficient of variation (CoV) because age is a continuous variable. The CoV is calculated by dividing the standard deviation of age by its mean value.

Fourth, *Host board diversity_director tenure* captures director tenure diversity of the host board. It was measured with the coefficient of variation (CoV). For each host board, we calculated the standard deviation and mean of director tenures.

Fifth, *Host board diversity_professional background* captures the industry diversity of the host board. It was measured with the Blau index. We identified the primary industry of each director based on 2-digit SIC codes. The primary industry is the industry of the firm in which the director is currently employed or was employed in the past. It was then calculated as 1 minus the sum of the squared proportions of SIC codes.

Home board independence. Home board independence was measured as the number of independent directors divided by board size. We derived this variable from ISS Directors. Gray directors such as major suppliers or customers are excluded from the number of independent

directors as they may have business relationships to the CEO that are too important to allow objective monitoring.

CEO ownership. CEO Ownership was calculated as the percentage of shares owned by the CEO (options excluded). The data source for this variable is ISS Directors.

Analytical Strategy

We are interested in the effect of CEO's outside directorship on his future managerial ability.

Hence, we model a CEO's one-year ahead managerial ability score as follows:

$$\begin{aligned} \text{Managerial ability}_{(t+1)} = & \beta_0 + \beta_1 \text{Outside directorship} + \beta_2 \text{Managerial ability} \\ & + \beta_3 \text{CEO tenure} + \beta_4 \text{Tobin's } q + \text{Firm-CEO fixed effects} \\ & + \text{Year fixed effects} + \varepsilon, \end{aligned} \tag{1}$$

As described in Demerjian et al. (2012), *Managerial ability* is an orthogonal measure to firm performance metrics such as ROA. Since we are modeling the next year's managerial ability, we control for the current level of managerial ability in the model. We also control for CEO tenure (the natural logarithm of CEO tenure) and Tobin's q, as we expect that both CEO's experience with the firm and the firm's growth opportunities are likely to positively factor into the CEO's future managerial ability.

Estimating this association is not straightforward, as there is an endogeneity concern. That is to say, random shocks might affect both the CEO's future managerial ability score and his propensity to serve on outside boards. Therefore, any association between these two endogenously determined variables will not be reliable. An untabulated Hausman test rejects the null hypothesis of outside directorship being an exogenous variable, so in order to address the endogeneity problem, we follow an instrumental variable approach by estimating a 2SLS model (Wooldridge, 2002). Specifically, we estimate the following set of equations:

1st Stage:

$$\begin{aligned} \text{CEO Outside directorships} = & \beta_0 + \beta_1 \text{CEO age} + \beta_2 \text{Firm size} + \beta_3 \text{ROA} + \beta_4 \text{Managerial} \\ & \text{ability} + \\ & \beta_5 \text{CEO tenure} + \beta_6 \text{Tobin's } q + \text{Firm-CEO fixed effects} + \text{Year fixed effects} + \varepsilon, \end{aligned} \quad (2)$$

2nd Stage:

$$\begin{aligned} \text{Managerial ability}_{(t+1)} = & \beta_0 + \beta_1 \text{CEO Outside directorships} + \beta_2 \text{Managerial ability} \\ & + \beta_3 \text{CEO tenure} + \beta_4 \text{Tobin's } q + \text{Firm-CEO fixed effects} \\ & + \text{Year fixed effects} + \varepsilon, \end{aligned} \quad (3)$$

In the first stage, we model the determinants of the number of outside boards that a CEO is serving on, while in the second stage we utilize the estimation from the first stage model. Despite the fact that our endogenous variable (*CEO Outside directorships*) is a nonlinear variable, we linearly estimate the first stage model, as the consistency of second stage estimates does not depend on the functional form of the first stage model (Kelejian, 1971), and the nonlinear treatment of the first stage model might lead to specification errors (Angrist and Krueger, 2001). Note that we use CEO age, firm size, and firm performance as multiple instruments. We use the natural logarithm of CEO age variable in the analyses. Firm size was measured as the natural logarithm of total assets and firm performance was measured by return on assets (ROA) and calculated by dividing operating income after depreciation by total assets. Instruments are valid as far as they are highly correlated with *CEO outside directorships* and they have low (or zero) correlation with *Managerial ability*_(t+1). We choose CEO age as an instrument because the literature suggests that older CEOs are more likely to serve on outside boards and acceptance of directorships among younger CEOs

may signal unfavorable conditions at their home firms (Fich, 2005), while there is no reason to believe that older CEOs have more (or less) ability. We also select firm size and firm performance as other instruments, because we have evidence that CEOs of large and profitable firms are more likely to serve on outside boards (Brickley, Linck, & Coles, 1999; Ferris et al., 2003), while the calculation of *Managerial ability* isolates the effects of firm size and performance in order to derive a CEO-specific measure.

The correlation matrix on Table 1 provides support for instrument validity with the exception of ROA. There is a positive and significant correlation between *Managerial ability*_(t+1) and ROA. This might be due to ROA affecting future managerial ability due to a momentum effect, while ROA and current level of managerial ability is orthogonal. Moreover, we perform an over-identifying restrictions test (untabulated) which supports our usage of multiple instruments. In addition to the three instruments, we include all the other exogenous variables of second stage model in the first stage model.

(Insert Table 1 around here)

RESULTS

Descriptive Statistics

Table 1 reports the descriptive statistics and the correlation matrix of the variables used in our analyses. The distribution of our dependent variable (*Managerial ability*) shows similarities with Demerjian et al. (2012), despite different sample sizes and periods. Our main variable of interest is the CEO outside directorships variable (*CEO outside directorships*), and 45% of the firm-years in our sample have CEOs serving on outside boards. Among those CEOs who serve on outside boards, the majority of them are sitting on a single outside board, while around 20% of CEOs serve

on multiple outside boards. The maximum number of outside boards that a CEO is serving on is 5. The average CEO in our sample is 55 years old; has been serving as the CEO of his home firm for 6 years, and owns 1.8% of his home firm's stock. Data requirements skew our sample firms towards larger and more profitable firms, which also explain the higher average of the *Managerial ability* compared to Demerjian et al. (2012).

The Effect of CEO Outside Directorships on CEO Managerial Ability

Table 2 shows the results of testing Hypothesis 1. We first tabulate the first stage results of the 2SLS procedure. Consistent with the univariate correlations, CEO age and firm size are strong predictors of CEO outside directorships, while ROA does not load significantly in the estimation. The second column reports the results of the second stage. Consistent with Hypothesis 1, the coefficient on *CEO outside directorships* is significantly negative (z-statistic is -4.05), which provides strong support for the hypothesis that outside directorships adversely affect the CEO's managerial ability. The model is well specified with control variables loading up significantly in theoretically expected signs.

(Insert Table 2 around here)

Host Board CEO Directors

We question how other CEO directors on the host board affect the main association between CEO outside directorships and managerial ability. Note that this measure is an implicit interaction with the *CEO outside directorships* variable, as a CEO needs to serve on an outside board in order to have access to other CEOs. In other words, the *Host board CEO directors* variables are always zero when *CEO outside directorships* is zero. The results reported in the first column of Table 3 show a positive and significant coefficient on *Host board CEO directors* (z-statistic is 2.65) supporting Hypothesis 2a

We also test whether the interaction effect of CEO directors on the host board eliminate the negative effect of outside directorship on managerial ability. Significance levels of the sum of the main effect and the interaction effect are reported at the bottom of Table 3. Results show that while the existence of CEO directors on the host board reduces the negative effect of outside directorship on managerial ability, it does not totally eliminate the overall negative effect. For example, the sum of *CEO outside directorships* and *Host board CEO directors* yields a negative coefficient of -0.229, which is still significant (z-statistic is -2.75).

(Insert Table 3 around here)

Host Board Diversity

Table 4 shows the interaction effect of the host board diversity measures on the relationship between CEO outside directorships and managerial ability. Similar to the *CEO Outside directorships* variable explained above, *Host board diversity* variables are also implicit interaction terms with *CEO Outside directorships*. In other words, *Host board diversity* is non-zero only when *CEO outside directorships* is non-zero. Our results indicate positive and significant moderation effects across all measures of diversity, namely gender, nationality, age, director tenure, and professional background. Overall, we find strong support for Hypotheses 2b for board diversity.

We also test whether the interaction effect of the host board diversity eliminate the negative effect of outside directorship on managerial ability. Significance levels of the sum of the main effect and the interaction effect are reported at the bottom of Table 4. Results show that diversity measures of gender, nationality, age, director tenure, and professional background eliminate and reverse the overall negative effect of CEO outside directorship on managerial ability. For example, the sum of *CEO outside directorships* and *Host board diversity_gender* yields a positive coefficient of 0.338, which is significant (z-statistic is 3.23).

(Insert Table 4 around here)

Home Board Independence

In order to assess how independent directors on the home board affect the association between CEO outside directorships and the CEO's managerial ability, we interact measures of home board independence with the *CEO Outside directorships* variable. Table 5 shows the analysis results. In the first column, we interact *CEO Outside directorships* with the ratio of independent directors serving in the home board (*Home board independence*). Supporting Hypothesis 3a, the interaction term is positive and significant (z-statistics is 1.98). Overall, as the ratio of independent directors serving on the home board increases, the negative effect of outside directorship on CEO's managerial ability is diminished. We formally test the significance of the diminishing effect by summing up the main effect and the interaction effect. The sum of *CEO Outside directorships* and *CEO Outside dir.*Home board independence* yields a positive coefficient of 0.091, which is significant (z-statistic is 1.82). This is consistent with home board independence eliminating and reversing the negative effect of outside directorship of managerial ability. Note that the results tabulated in Table 5 are the second stage results of the 2SLS procedure. We insert the interaction term along with the main effect of the board independence variables into the first stage equation as well, but we do not tabulate the first stage results for brevity.

(Insert Table 5 around here)

CEO Ownership

We analyze how CEO ownership moderates the association between outside directorship and the CEO's managerial ability by interacting the *CEO ownership* variable with the *CEO outside directorships* variable. Table 6 tabulates the results of this estimation. Supporting Hypothesis 3b, the interaction term is positive and significant (z-statistic is 2.40). As the CEO's ownership of

home firm's stock increases, the negative effect of CEO outside directorships on CEO's managerial ability becomes less pronounced, but it is not totally eliminated. The sum of *CEO Outside directorship* and *CEO Outside dir.*CEO ownership* yields a negative coefficient of -0.159, which is still significant (z-statistic is -2.58).

(Insert Table 6 around here)

Robustness Checks

We conducted several robustness checks. First, we used four alternative measures to proxy for host board CEO directors based on data available in ISS Directors. As shown in Table 3, *Host board CEO directors_SP500* is the number of host board CEO directors, who are currently serving as a CEO of an S&P 500 firm. *Host board CEO directors_incl. past CEOs* is the number of host board CEO directors, who are currently serving as a CEO of an S&P 1,500 firm, or have been the CEO of a S&P 1,500 firm in the past five years. *Host board CEO directors_SP500 incl. past CEOs* is the number of host board CEO directors, who are currently serving as a CEO of an S&P 500 firm, or have been the CEO of a S&P 500 firm in the past five years. Columns 2 through 4 in Table 3 show estimation results with alternative measure of CEOs serving on the host board, and they all yield similar inferences supporting Hypothesis 2a.

Second, we calculated the principal component of the five host board diversity measures and created *Host board diversity*, which is an overall diversity index of the host board diversity. As shown in Table 4, column 6, the diversity index variable (*Host board diversity*) yields a positive and significant result (z-statistic is 2.75) providing further support for Hypothesis 2b. However, unlike the individual measures of diversity, the interaction effect of the diversity index variable does not eliminate the negative main effect: the sum of *CEO outside directorship* and *Host board diversity* yields a negative coefficient of -0.227, which is still significant (z-statistic is -2.84).

Third, as an alternative measure of home board independence, we use the ratio of independent directors over all directors assigned by the CEO during his tenure (*Home board independence_assigned by CEO*) in Table 5, column 2. The results tabulated show a positive and significant interaction term (z-statistic is 3.19), providing further support for Hypothesis 3a.

Finally, instead of using a continuous variable for the number of outside directorship, we created an indicator variable for outside directorship (*CEO Outside directorship_indicator*) in untabulated regressions. Note that using a dummy endogenous variable in 2SLS is akin to a more specific Heckman (1979) selection model. Our results remain similar in terms of direction and significance.

DISCUSSION

CEO outside directorships can be viewed as a double-edged sword given their learning benefits on the one side and the potential of distracting CEOs from their home firm duties on the other. Compared to non-CEO directors, CEOs are the most demanded outside directors due to their first-hand experience with strategic leadership (Fich, 2005; Neff & Heidrick, 2006). However, the structural characteristics of the corporate elite network have significantly changed (Benton, 2017; Chu & Davis, 2016), making it more challenging for firms to utilize the benefits of outside board directorships for their CEOs (Mizruchi, 2013). It is, therefore, no surprise that fewer CEOs serve on outside boards since the early 2000s (Spencer Stuart, 2015). At the same time, outside board experiences continue to be a valuable leadership tool to groom executives for CEO positions and keep managerial skills of CEOs up-to-date. In fact, several executive search firms have turned this delicate task into a business opportunity and started offering “reverse board search” services to match executives with suitable boardroom opportunities (Wall Street Journal, 2016).

The literature is divided into two strands when it comes to the outcomes of CEO outside board service. Policy makers and other external corporate governance parties such as investors, analysts, and the media in general view outside board directorships as a tool to advance executive interests at the expense of scarce managerial time and abilities (Blackhurst, 2000). This perspective rests on the assumption that all outside boards have similar qualities and consume the CEO's time while offering little or no value to the sending firm. Our findings shed light on this perception by uncovering the role of the host firms' board capital (i.e., access to CEO directors and diverse perspectives) and also the home firms' monitoring and alignment mechanisms in reducing—and in some cases reversing—the potential detrimental effect of outside directorship. Accordingly, we find that the overall effect of outside directorship on managerial ability is negative. However, we find that this relationship depends on the board capital of the host board as well as the monitoring ability of the home board, thus providing some support for the perspective of firms and CEOs that CEO outside directorships create value.

Supporting the host board capital perspective, the CEO's access to other CEO directors provides an exposure to a richer and more relevant information context that in turn contributes to the CEO's own repertoire of executive knowledge and helps in facing the focal firm's strategic challenges. Our findings also highlight the importance of board diversity in terms of its contribution to the managerial abilities of the CEO. The traditional 'corporate elite' with similar social and educational backgrounds has frequently been viewed as related to directors' inability to consider diverse perspectives (Zhu et al., 2014). In that regard, our findings echo the trend of increasing the degree of diversity in corporate boards that reflect a wider range of demographic and cognitive characteristics (Adams & Ferreira, 2009; Hillman et al., 2002).

Supporting the role of agency-theory prescribed corporate governance mechanisms, we also find that an independent board of the home firm helps to reduce the negative impact of outside board service on managerial ability. For example, CEOs as outside directors do not necessarily receive more direct compensation than peer board members (Fahlenbrach et al., 2010). However, the demand for their services as outside directors allows CEOs “to take their pick of board seats, and they will naturally choose boards that offer them the best total compensation package for the amount of effort required and for the risk involved” (Fahlenbrach et al., 2010: 12). Our findings therefore caution that an independent board should demand justifications for CEO initiatives and criticizes decisions they believe are ill-advised. In addition to the monitoring role of the home board, we also find that CEO ownership helps reducing the agency costs related to CEO’s decision to serve on outside boards by aligning the interests of the CEO with those of shareholders.

Our results further indicate interesting insights about the effect of home and host board characteristics on the value of CEO outside directorship. Specifically, host board diversity measures seem to not only reduce the negative impact of CEO outside directorship on managerial ability but also reverse it. We observe a similar effect when we examine the impact of home board independence. Both findings reveal the importance of board composition in both home and host boards when it comes to the value it has on managerial development. We can conclude that diverse boards add value to their incumbents by contributing to their learning. Similarly, independent boards help to make sure the CEOs select to sit on boards that are worth the CEOs’ time and contribute to their executive skill and knowledge repertoire.

Theoretical Contributions

We aim for two theoretical contributions. First, contributing to studies that explored firm level (Geletkanycz & Boyd, 2011) and executive level (Geletkanycz, Boyd, & Finkelstein, 2001)

outcomes of outside directorships, we investigate a new perspective in terms of whether or not CEO managerial abilities are affected by the CEO's outside directorships. Our findings suggest that it is inadequate for firms to approve outside board services for general benefits such as "elite contacts" as the continued fracturing of the corporate elite (Benton, 2017; Chu & Davis, 2016) and increasing regulatory requirements for board service (Brandes et al. 2016) may wipe out such general benefits. In this light, our findings also contribute to the literature on board interlocks by specifically focusing on CEO outside directorships. CEOs are important not just because of their status in the corporate hierarchy, but also their influence on strategic decision making and their first-hand experience of strategic leadership (Neff & Heidrick, 2006) making them the most sought after directors of the labor market (Fahlenbrach et al., 2010; Fich, 2005). Previous studies already established that outside board directorships generally must be constrained. We add to this literature that CEO outside board assignments should also be carefully considered.

Second, drawing from board capital and the agency theory perspectives (Hillman & Dalziel, 2003; Zona et al., 2016), we develop a contingency model that highlights the moderating roles of the home and host boards on the relationship between CEO outside directorship and managerial ability. Previous studies have shown that outside directorships are not homogenous. For instance, Masulis and Mobbs (2014) find that overboarding or busyness concerns for outside board service are less relevant when the director serves on a more reputable firm, as the director directs most of her attention to the most valuable board appointment. Our findings suggest that CEOs benefit from the learning effects of appointment to host boards with significant board capital. CEOs also benefit from close monitoring by their home board. For governance researchers, this finding provides additional arguments for a more detailed contingency perspective on a controversial topic than outside directorship (Geletkanycz & Boyd, 2011).

Managerial Implications

Time is a scarce managerial resource. Given the heightened executive job demands and increasing scrutiny of directorial responsibilities, it is no surprise that policy makers and the media warn executives against accepting additional board duties. However, our findings caution against generalizing the consequences of outside board services. Although time and knowledge limitations of outside board duties come as a burden on the CEOs' agendas, we underscore the merits of host board capital and diversity in corporate boards over the historically important role of more homogenous connections in the corporate elite. For corporate boards, this finding provides justification for critically reviewing outside board service requests by their CEO. Specifically, their popularity in the director labor market gives CEOs a high degree of flexibility in their choices of outside boards. CEOs may use this flexibility to either serve their self-interests—and thereby forgo the strategic needs of their companies (Geletkanycz & Boyd, 2011)—or select outside boards that provide crucial sources of learning—and therefore fill the strategic needs of their home firms (Carpenter & Westphal, 2001).

Limitations and Future Research

Our study is subject to certain limitations that can be advanced in future studies. First, our sample period is between the years 2000 and 2013. Although this period reflects the current corporate governance reforms that altered the nature of board directorships, it could be interesting to compare previous periods to uncover the impact of historical trends on the strategic choices of CEOs to accept outside directorships. It would also be interesting to understand the historical change in the nature of the corporate elite and thus compare older years with current data. Second, our sample includes only US companies—a cross-country comparison would enable us to further explore the effect of different institutional contexts on board interlocks and their effect on executive abilities.

A concern for our study is endogeneity as “the field of strategic management is fundamentally predicated on the idea that managerial decisions are endogenous to their expected performance implications” (Hamilton & Nickerson, 2003: 52). We attempted to respond to this problem by using the instrumental variable approach for our outside directorship and applied a two-stage model to correct for the endogenous nature of our variables (Greene, 2003). Another concern is the nature of our dependent variable, which is derived from various accounting measures that might have certain limitations. Despite these limitations, this measure of managerial ability exhibits an economically significant manager specific component and contains less noise than existing proxies of managerial ability. Therefore, it outperforms alternative ability measures on accounts of association with manager fixed effects, CEO turnover, and the subsequent performance at CEOs’ new appointments (Demerjian et al., 2012). The future research might benefit from experimental methods to directly observe the changes in managerial ability.

Conclusion

The changing nature of corporate elite networks because of the corporate governance scandals and the following reforms of the 21st century changed the dynamics of outside board directorship. Specifically, CEO outside directorship in recent years has great potential to distract from the CEOs’ ability to effectively manage their home firm’s strategic resources. As such, the insights learned on the host boards may only be effective under narrow conditions. Our findings shed light on the contingencies of CEO outside board assignments by highlighting the board capital aspect of the host board and the monitoring effectiveness of the home board in regulating the relationship between CEO outside board directorship and managerial ability.

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Table 1. Descriptive Statistics

Variables	N	Mean	S. D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Managerial ability	5876	0.01	0.12	1.00																				
2. CEO outside directorships	5876	0.54	0.67	-0.02	1.00																			
3. CEO Outside directorship_indicator	5876	0.45	0.50	-0.01	0.88*	1.00																		
4. Host board CEO directors	5876	0.87	1.30	-0.03	0.85*	0.73*	1.00																	
5. Host board CEO directors_SP500	5876	0.46	1.00	-0.02	0.62*	0.51*	0.80*	1.00																
6. Host board CEO directors_incl. past CEOs	5876	1.66	2.51	-0.03	0.85*	0.72*	0.90*	0.76*	1.00															
7. Host board CEO directors_SP500 incl. past CEOs	5876	0.88	1.79	-0.04	0.66*	0.53*	0.76*	0.89*	0.86*	1.00														
8. Host board diversity	5876	-0.04	0.97	-0.02	0.96*	0.83*	0.84*	0.66*	0.85*	0.70*	1.00													
9. Host board diversity_gender	5876	0.11	0.17	-0.02	0.82*	0.72*	0.76*	0.65*	0.77*	0.69*	0.88*	1.00												
10. Host board diversity_nationality	5876	0.02	0.07	-0.01	0.39*	0.34*	0.32*	0.33*	0.36*	0.38*	0.50*	0.37*	1.00											
11. Host board diversity_age	5876	0.06	0.08	-0.02	0.90*	0.79*	0.73*	0.51*	0.71*	0.53*	0.90*	0.70*	0.33*	1.00										
12. Host board diversity_director tenure	5876	0.40	0.54	-0.02	0.94*	0.82*	0.80*	0.57*	0.79*	0.60*	0.94*	0.76*	0.36*	0.87*	1.00									
13. Host board diversity_professional background	5876	0.26	0.37	-0.01	0.91*	0.76*	0.83*	0.66*	0.85*	0.72*	0.93*	0.80*	0.35*	0.80*	0.85*	1.00								
14. Home board independence	5047	0.77	0.14	-0.01	0.03	0.05*	0.04	0.08*	0.08*	0.10*	0.05*	0.12*	0.05*	-0.01	0.02	0.05	1.00							
15. Home board independence_assigned by CEO	5047	0.34	0.28	0.08*	0.03	0.06*	0.03	0.03	0.05	0.04	0.02	0.04	0.02	0.00	0.00	0.02	0.27*	1.00						
16. CEO ownership	3937	1.81	4.69	-0.04	-0.05	-0.07*	-0.05	-0.08*	-0.07*	-0.07*	-0.05*	-0.08*	-0.04	-0.02	-0.04	-0.04	-0.26*	-0.02	1.00					
17. CEO age	5876	54.94	6.11	-0.02	0.15*	0.12*	0.13*	0.09*	0.13*	0.11*	0.13*	0.14*	0.05*	0.09*	0.11*	0.15*	0.07*	0.19*	0.21*	1.00				
18. Firm size	5876	7.90	1.42	0.00	0.11*	0.10*	0.14*	0.35*	0.19*	0.34*	0.15*	0.18*	0.15*	0.08*	0.09*	0.15*	0.19*	0.04	-0.11*	0.10*	1.00			
19. ROA	5876	0.14	0.08	0.39*	0.02	0.02	0.04	0.06*	0.05*	0.07*	0.02	0.04	0.00	0.01	0.01	0.03	-0.03	0.04	0.02	-0.02	-0.09*	1.00		
20. CEO tenure	5876	5.96	5.45	0.02	0.04	0.04	0.02	-0.02	0.02	-0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.44*	0.32*	0.39*	-0.02	-0.04	1.00	
21. Tobin's q	5876	1.58	1.05	0.23*	-0.04	-0.03	-0.02	0.00	-0.02	-0.01	-0.04	-0.04	-0.03	-0.02	-0.04	-0.04	-0.10*	0.03	0.07*	-0.10*	-0.22*	0.57*	0.00	1.00

Pearson correlations are reported on the lower diagonal. *, ** and *** stand for significance levels at p<0.1, p<0.05, and p<0.01 confidence intervals.

Table 2. 2SLS regression results

Variables	First Stage CEO outside directorships	Second Stage Managerial ability (t+1)
CEO outside directorships		-0.128*** (-4.05)
CEO age	3.293*** (3.50)	
Firm size	0.099*** (3.67)	
ROA	-0.204 (-1.32)	
Managerial ability	0.141 (-1.32)	0.372*** (15.45)
CEO tenure	0.175*** (5.51)	0.019** (2.37)
Tobin's q	0.006 (0.51)	0.011*** (5.34)
Year & Firm-CEO fixed effects	YES	YES
Observations	5,876	5,876
Pseudo/Adjusted R squared	0.5	0.579

This table presents the results from 2SLS estimation of models (2) and (3). Robust z-statistics are calculated and reported in parentheses. *, ** and *** stand for significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively.

Table 3: The moderation effect of CEOs serving on the host board

VARIABLES	(1)	(2)	(3)	(4)
		Managerial ability(t+1)		
CEO outside directorships	-0.400*** (-2.71)	-0.208*** (-3.41)	-0.292*** (-3.52)	-0.187*** (-3.77)
Managerial ability	0.352*** (11.18)	0.371*** (14.28)	0.361*** (13.43)	0.370*** (14.77)
Host board CEO directors	0.171*** (2.65)			
Host board CEO directors_SP500		0.089*** (3.29)		
Host board CEO directors _incl. past CEOs			0.069*** (3.45)	
Host board CEO directors_SP500 incl. past CEOs				0.051*** (3.66)
CEO tenure	0.025* (1.91)	0.020** (2.13)	0.015* (1.91)	0.016** (2.10)
Tobin's q	0.010*** (3.58)	0.012*** (5.18)	0.011*** (4.64)	0.011*** (4.84)
CEO outside dir + Host board CEO directors z-statistic	-0.229*** (-2.75)			
CEO outside dir + Host board CEO directors_SP500 z-statistic		-0.119*** (-3.47)		
CEO outside dir + Host board CEO directors _incl. past CEOs z-statistic			-0.223*** (-3.54)	
CEO outside dir + Host board CEO directors_SP500 incl. past CEOs z-statistic				-0.137*** (-3.80)
Year & Firm-CEO fixed effects	YES	YES	YES	YES
Observations	5,876	5,876	5,876	5,876
Adjusted R-squared	0.187	0.450	0.486	0.541

This table presents the results from 2SLS estimation of a modified version of models (2) and (3), first stage results are not reported for brevity. Robust z-statistics are calculated and reported in parentheses. *, ** and *** stand for significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively.

Table 4. The moderation effect of host board diversity

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
			Managerial ability(t+1)			
CEO outside directorships	-0.162*** (-3.46)	-0.145*** (-3.87)	-0.860*** (-2.60)	-0.843** (-2.28)	-0.225*** (-3.08)	-0.598*** (-2.78)
Managerial ability	0.379*** (16.10)	0.371*** (15.24)	0.307*** (6.46)	0.257*** (3.74)	0.379*** (16.25)	0.340*** (10.92)
Host board diversity_gender	0.501*** (3.30)					
Host board diversity_nationality		0.430*** (3.44)				
Host board diversity_age			6.512*** (2.58)			
Host board diversity_director tenure				0.936** (2.26)		
Host board diversity_professional background					0.368*** (2.97)	
Host board diversity						0.370*** (2.75)
CEO tenure	0.005 (0.98)	0.019** (2.28)	-0.016* (-1.72)	0.001 (0.08)	0.006 (1.14)	-0.003 (-0.56)
Tobin's q	0.012*** (6.22)	0.012*** (5.60)	0.016*** (4.54)	0.016*** (4.34)	0.010*** (4.89)	0.014*** (5.72)
CEO outside dir. + Host board diversity_gender z-statistic	0.338*** (3.23)					
CEO outside dir. + Host board diversity_nationality z-statistic		0.285*** (3.22)				
CEO outside dir + Host board diversity_age z-statistic			5.652*** (2.58)			
CEO outside dir + Host board diversity_director tenure z-statistic				0.093** (2.06)		
CEO outside dir + Host board diversity_prof. background z-statistic					0.143*** (2.81)	
CEO outside dir + Host board diversity z-statistic						-0.227*** (-2.84)
Year & Firm-CEO fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,876	5,876	5,876	5,876	5,876	5,876
Adjusted R-squared	0.662	0.553	0.031	0.001	0.646	0.444

This table presents the results from 2SLS estimation of a modified version of models (2) and (3), first stage results are not reported for brevity. Robust z-statistics are calculated and reported in parentheses. *, ** and *** stand for significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively.

Table 5: The moderation effect of home board independence

VARIABLES	(1)	(2)
	Managerial ability(t+1)	
CEO Outside Directorships	-0.426** (-2.02)	-0.171*** (-3.37)
Managerial ability	0.398*** (13.80)	0.389*** (14.78)
CEO outside dir.*Home board independence	0.517** (1.98)	
Home board independence	-0.220* (-1.86)	
CEO outside dir.*Home board independence_assigned by CEO		0.248*** (3.19)
Home board independence_assigned by CEO		-0.108*** (-2.95)
CEO tenure	-0.000 (-0.07)	0.014 (1.59)
Tobin's q	0.017*** (6.52)	0.015*** (6.58)
CEO outside dir.+ CEO outside dir.*Home board independence z-statistic	0.091* (1.82)	
CEO outside dir. + CEO outside dir.*Home board independence_assigned by CEO z-statistic		0.077*** (2.78)
Year & Firm-CEO fixed effects	YES	YES
Observations	5,047	5,047
Adjusted R-squared	0.670	0.608

This table presents the results from 2SLS estimation of a modified version of models (2) and (3), first stage results are not reported for brevity. Robust z-statistics are calculated and reported in parentheses. *, ** and *** stand for significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively.

Table 6: The moderation effect of CEO ownership

VARIABLES	(1) Managerial ability(t+1)
CEO outside directorships	-0.170** (-2.57)
Managerial ability	0.379*** (13.98)
CEO outside dir.*CEO ownership	0.011** (2.40)
CEO ownership	-0.002 (-1.08)
CEO tenure	0.018 (1.54)
Tobin's q	0.013*** (5.03)
CEO outside dir. + CEO outside dir.*CEO ownership	-0.159***
z-statistic	(-2.58)
Year & Firm-CEO fixed effects	YES
Observations	3,937
Adjusted R-squared	0.574

This table presents the results from 2SLS estimation of a modified version of models (2) and (3), first stage results are not reported for brevity. Robust z-statistics are calculated and reported in parentheses. *, ** and *** stand for significance levels at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively.