Are All Inside Directors the Same?

Evidence from the external directorship market.

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Abstract

Agency theory and optimal contracting theory posit opposing roles and shareholder wealth effects for corporate inside directors. We evaluate these competing theories using the labor market for outside directorships to differentiate inside directors. Firms with inside directors holding outside directorships have better operating performance and market-to-book ratios, especially when board monitoring is more difficult. These boards make better acquisition decisions, have greater cash-holdings and overstate earnings less often. Announcements of outside board appointments improve shareholder wealth, while departure announcements reduce it, consistent with these inside directors improving board performance and outside directorships being an important source of inside director incentives.

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The board of directors is a critical corporate governance mechanism, yet our knowledge of what makes boards effective is quite limited. In this study, we explore the roles of inside directors. Fama and Jensen (1983) theorize that internal managers are the most influential board members due to their valuable firm-specific knowledge. Similarly, recent theoretical research has explored the important roles non-CEO executives play from several perspectives. Raheja (2005), Adams and Ferreira (2007) and Harris and Raviv (2008) show inside directors are valuable in enhancing a board's advisory and monitoring functions, while Acharya, Meyers, and Rajan (2009) show influential inside directors can be valuable when CEOs are less entrenched. Despite a growing theoretical understanding of the roles of inside directors, there is little empirical evidence on their importance to corporate boards.

Most empirical research treats non-CEO inside directors as a homogeneous group and presumes inside directors raise manager-shareholder agency costs. Yet this approach ignores the many studies documenting differing degrees of independence among outside directors and how these differences affect major corporate decisions.[1] Given the pivotal role played by non-CEO inside directors (hereafter termed inside directors), documenting important differences among this group of directors and investigating how these differences can affect firm decisions and performance can lead to a more accurate assessment of optimal board characteristics and a clearer understanding of director traits that enhance firm decision making and performance.

In this study, we investigate an inside director characteristic that affects their incentives, measures their external reputation and reflects positively on their managerial skills. We argue that the labor market for outside directors offers a useful way to distinguish among inside directors. There are at least four reasons

[1] For example, Mace (1971), Hallock (1997), Core et al. (1999), Shivdasani and Yermack (1999), Kaufman et al. (2007), Larcker et al. (2005) and Fich and Shivdasani (2006) and for an insightful summary of this research see Hermalin and Weisbach (2003).

inside directors with outside directorships serve special roles on their employer's board. First, Fama and Jensen (1983) argue that individuals obtain outside directorships when the external labor market for directors recognizes their valuable decision management skills in their own firms. They note (p. 315) "The value of their [directors'] human capital depends primarily on their performance as internal decision managers in other organizations."[2] Thus, inside directors with outside directorships should enhance board decisions at their own firms and are not on their own boards merely as CEO allies. Second, rational CEOs recognize that these skilled and reputable operating officers have a wealth of proprietary knowledge, and thus represent credible replacements for them, which increase CEO performance incentives. Third, the labor market for outside directors creates new incentives for officers appointed to outside boards to be more concerned with firm performance, given the career and reputation benefits of retaining these positions and the knowledge that poor home performance can to lead to their loss. Fourth, the greater visibility to other firms, due to outside directorships, facilitates a broader assessment of these inside directors' managerial skills and expands their career opportunities outside their own firms, lessening their reliance on their own CEO for career advancement. With greater career independence from their CEO, these officers are less susceptible to CEO influence, making them more valuable sources of firm-specific information for their boards' outside directors. Given that this distinction relies on an external labor market mechanism to distinguish among executives, we refer to inside directors with outside directorships as externally *certified inside directors (CIDs)*[3] and the other inside directors as *non-CIDs.*

[2] Following their reasoning Fich (2005) notes (p.1946) "prior accomplishment can be used as a measure of an individual's talents and executives of well-performing firms are rewarded with directorships in the director labor market."

[3] To ensure that these are market-determined decisions, we exclude appointments to affiliated boards and directors with family connections and only include independent outside directorships in our definition of CIDs.

Our analysis reveals that CID presence is associated with improved board decision making and better firm performance, which is consistent with stronger board monitoring, reduced CEO entrenchment and lower manager-shareholder agency cost. Thus, we conclude that CIDs enhance the effectiveness of the board of directors, a vital internal corporate governance mechanism. Interestingly, while almost half our sample has one or more inside directors, only one tenth of these officer-directors hold outside directorships.

As a first step in understanding the differences among inside directors, we examine the determinants of CIDs and non-CIDs. In firm-level panel regressions, we find evidence that CIDs are associated with firms having less influential CEOs and exhibiting larger growth options and greater organizational complexity. This evidence contradicts the conventional view that the primary effect of inside directors is to raise manager-shareholder agency cost, which hurt shareholder interests. These findings are also consistent with such firms benefiting from a more informed board, since otherwise outside directors could struggle to perform their duties effectively given the poor transparency of firm operations and investment opportunities (Raheja (2005)).

Next, we conduct several tests to examine whether firm performance and value are higher with CID representation due to a board's enhanced monitoring and advisory capacities, potentially due to these inside directors being better motivated, having better decision making skills and greater independence from the CEO and imposing heightened competitive pressure on the CEO to perform better. After controlling for a firm's decision to select inside directors using a Heckman (1979) self-selection model, we find that a firm with a CID is on average associated with a 132 basis point higher operating performance and an 8.8% greater market-to-book ratio relative to firms with non-CIDs. To address the possibility that unobserved factors associated with firms choosing inside directors are also associated with differences in firm

performance, we employ several alternative approaches, including a difference-in-difference analysis, 2SLS instrumental variable and firm fixed effects regressions, and find our results are robust to these alternative specifications. Further, since we find no evidence that past firm performance leads to greater CID representation, it is unlikely that these relations are due to reverse causality.

We also explore whether the observed CID associations are due to their enhanced incentives from the labor market for directors and the increased pressures on CEOs from better informed boards and the threat of a credible replacement or if these associations are due solely to the market recognizing an exceptionally skilled officer is on the board. Throughout our analysis, the evidence is consistent with the enhanced incentives of CIDs, beyond simply signaling inside director quality, resulting in the improved effectiveness of board monitoring and advisory functions.

Next, we examine shareholder wealth effects of changes in inside directors. When inside directors acquire their first independent outside directorship, we find a significant positive market reaction to this news. Appointments to a second independent directorship produce a smaller effect and appointments to a third or greater independent directorship elicit a negative market reaction, consistent with a busy director effect. In addition, shareholders experience a significant negative wealth effect on announcements of CID departures, but experience no significant wealth effect on announced departures of other inside directors.

Finally, we study specific board actions to more directly test the effects of CIDs on firm decision making. We document that firms with CIDs make more profitable acquisition decisions, better manage cash holdings in shareholder interests and are less apt to restate earnings due to over-reporting. This body of evidence showing stronger board monitoring and advisory roles is consistent with CIDs enhancing board effectiveness, and not simply acting to entrench a CEO.

Our findings further the current literature in four key ways. First, many studies find outside directors differ in their levels of independence and competence. Yet, we are unaware of any published research that examines similar variations among inside directors. Our findings suggest that important differences exist among inside directors. By considering one major difference among inside directors, namely whether they hold outside directorships, we uncover new evidence that supports existing theories of how inside directors enhance shareholder wealth. Second, these findings contribute to our understanding of how board composition affects firm performance by uncovering important roles played by a special class of inside directors. Previous research almost exclusively focuses on how outside director characteristics affect firm performance, though the importance of particular board characteristics remains inconclusive. By not considering inside directors, prior research has overlooked their important information-providing role and as Adams and Ferreira (2007) observe, (p. 235), "unless boards are given better access to information, simply increasing board [outside] independence is not sufficient to improve governance." Third, this study furthers our understanding of the important role played by the labor market for corporate directors in identifying reputable and highly skilled corporate officers and increasing their incentives to act in the interests of their home firm shareholders. Previous research considering the external labor market for directorships has focused on outside directors, but our findings show that the market for directorships can be an important source of incentives for inside directors as well.

Finally, distinguishing among inside directors using outside directorships has the advantage of relying on an external certification mechanism to identify very capable inside directors. By excluding outside director appointments to affiliated firms, we exclude circumstances when this certification mechanism is less likely to be reliable. Because this selection process is market determined and generally follows

executive officer appointments to their own boards, it reduces potential concerns about the endogeneity of these board appointment decisions.[4] So we are better able to observe the impact on firm performance when the external labor market for directorships rewards inside directors with outside directorships.

We begin our empirical analysis by recognizing that if some types of inside directors are more valuable, then firms should to seek to retain these directors, even in the face of heightened regulatory pressures. The legal and regulatory board reforms mandated by the Sarbanes-Oxley Act of 2002 (SOX), exchange listing rule changes and stepped up institutional investor pressure emphasize the importance of greater outside representation, which implicitly discounts the value of inside directors.[5] These legal and regulatory changes produce an exogenous shock to the composition of many US boards, forcing firms to add outside directors or replace officer-directors with outside directors, which we exploit in our analysis. Figure 1 shows the frequency of inside directors in the years surrounding the passage of SOX. It reveals a downward trend in firms using inside directors generally. Further, the percentage of firms with non-CIDs decreases significantly over the 2001-2006 period. Yet, the percentage change in firms with CIDs is insignificantly different from zero. This evidence shows boards have responded to SOX by reducing the number of inside directors. Yet, boards are much more likely to retain inside directors who are externally certified, consistent with these inside directors being viewed as more valuable to board decision making.[6]

We review the related literature on boards, directors, and firm performance and develop the hypotheses in Section I. Section II contains the sample description and summary statistics. We examine

[4] Our sample selection criteria further reduces this concern by excluding firms with CEOs near retirement.

[5] Section 301 of the Sarbanes-Oxley Act requires audit committees of public U.S. firms to include only outside directors. Also, see http://www.calpers-governance.org/docs-sof/principles/2010-5-2-global-principles-of-accountable-corp-gov.pdf, http://www.tiaa-cref.org/pubs/pdf/governance_policy.pdf, http://www.nyse.com/pdfs/section303Afaqs.pdf and http://www.nasdaq.com/about/Corp_Gov_Summary101002.pdf

[6] Linck et al. (2009) find firms retain some insiders and add outsiders to raise the number of independent outside directors.

the determinants of inside director representation in Section III. Section IV contains an analysis of the relations between inside directors and firm performance and valuation. We examine wealth effects of announcements of outside directorship appointments and departures of inside directors in Section V. Section VI examines specific board actions. Section VII contains a discussion of several robustness tests and Section VIII summarizes our findings.

[Figure 1. here]

I. Literature Review and Hypotheses Development

A. Different Views of Inside Directors

We consider two alternative objective functions for inside director selection. The first view, referred to as *board capture* (Bebchuk and Fried (2003)), is from the agency theory literature. This hypothesis reflects the conventional view found in empirical corporate finance research that influential CEOs select inside directors to maximize CEO welfare and further CEO entrenchment. Given that inside directors are dependent on the CEO for their continued employment, compensation level and private benefits received from the firm (Helmich and Brown (1972), Helmich (1974), and Fee and Hadlock (2004)), inside directors are unlikely to take positions in the boardroom at variance from the CEO's, which weakens board monitoring and advisory roles and results in poorer firm performance. Hermalin and Weisbach (1998) argue that greater CEO tenure and ownership and better past performance, all contribute to greater CEO influence over the board, and thus serve as indirect measures of board capture.

The second view of the role of inside directors comes from the optimal contracting literature, which assumes boards choose directors to maximize shareholder wealth by improving board knowledge,

expertise and oversight of senior management. Fama and Jensen (1983) take the perspective that inside directors enhance board functionality by improving the quality of board decision making. As such, they expect well functioning boards to (p. 314) "include several of the organization's top managers." Recent theoretical research has expanded the role of inside directors in enhancing board monitoring (Raheja (2005)), board decision making (Harris and Raviv (2008)), and shareholder wealth creation (Acharya, Myers and Rajan (2009)). For example, Raheja argues that both inside and outside directors realize reputational benefits from better firm performance, so high quality inside directors have incentives to reveal information to the board to improve board decision making and ultimately firm performance. These models highlight the importance of firm-specific knowledge provided by influential inside directors in enhancing the effective execution of a board's monitoring and advisory duties.

Given these two widely held, but opposing views of the role of inside directors, it seems reasonable to question the implicit assumption that inside directors are homogeneous in their effects on firm performance. We use outside directorships as an external mechanism to identify potentially important differences among inside directors and to develop more powerful tests of these two competing theories. Recent research finds evidence that supports the important role of the labor market for directors in identifying highly skilled decision managers (Brickley, Linck, and Coles (1999), Gilson (1990), Kaplan and Reishus (1990), Fich (2005), Fich and Shivdasani (2007)) with greater incentives to maintain their heightened reputation in the managerial labor market (Fama (1980), Fama and Jensen (1983) and Yermack (2004)). To retain their outside appointments, CIDs must continue to demonstrate strong decision

management skills in their own firms, increasing their attractiveness to their own board.[7] The greater reputation afforded to CIDs also creates greater external job opportunities and reduces the relative importance of the private benefits they expect to receive from their current positions, which increases their willingness to share proprietary firm-specific information with outside directors (Raheja (2005) and Harris and Raviv (2008)).

The enhanced reputation of a CID is also likely to increase their credibility and influence on their home board and increase their likelihood of being viewed as a replacement for the current CEO. Consistent with this conjecture, Mobbs (2010) finds that CIDs are significantly more likely to become CEOs relative to other inside directors and their presence is associated with greater board bargaining power over current CEOs. Thus, their CEOs are less entrenched and have stronger incentives to perform.

For these reasons, CIDs can lower a CEO's expected private benefits of control, motivating entrenched CEOs to oppose internal board appointments of executives likely to receive outside board appointments. Conversely, Acharya, Myers, and Rajan (2009) show when CEOs are not entrenched, they have incentives to support the career aspirations of their most valuable senior executives, so as to increase their likelihood of remaining at their firms and thereby enhancing firm performance. This can reduce CEOs incentives to oppose outside appointments by their senior managers. Thus, we expect CIDs to be more common in firms with less CEO entrenchment.

[7] A potential concern with using outside directorships highlighted in the literature is that executives with too many outside directorships can be distracted from their responsibilities at their own firm (Fich and Shivdasani (2006)). To assess whether this is a serious concern for inside directors, we examined the number of outside directorships held by the CIDs in our sample and find the average (median) number of outside directorship is only 1.4(1) (only 2% have more than 3). This is much smaller than the mean (median) for outside directors of 3(2) reported in Fich and Shivdasani. Thus, excessive outside directorships do not appear to be a major problem for most inside directors. We also separately examine the market reactions to initial and subsequent outside directorship appointments as reported in Section V.

If firms optimally choose board structures and continuously readjust them, then observing a significant relation between firm performance and CID representation is unlikely in an agency perspective. However, frictions associated with appointing directors will slow board adjustments to their optimum composition, while additional frictions can prevent the external market for directorships from immediately recognizing valuable insiders (Yermack (2004)).[8] Thus, considering the previous arguments, we expect to find cross-sectional associations of CIDs with enhanced firm performance and value.[9] We formalize this analysis in the following hypotheses.

H1: CIDs are more common in firms with less powerful or entrenched CEOs.

H2: Boards with CIDs are more effective, resulting in better firm operating performance and stock valuation.

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B. Insiders and Firm-Specific Information

Raheja (2005) argues that inside executives are more likely to sit on boards when it is more difficult for outside directors to verify or monitor firm projects and operations, such as in larger, more complex, or technology intensive firms. These firms require their boards to have greater firm-specific knowledge to oversee effectively their operations and investment activities. Following this prediction, Coles et al. (2008) argue that R&D intensity is a proxy for the importance of firm-specific knowledge to board monitoring (project verification) and thus, inside directors should be more common and more beneficial in high R&D intensity firms. Given CIDs greater career independence from the CEO and greater labor market reputation

[8] Coles, Daniel and Naveen (2008) discuss further reasons boards may be slow to adjust to their optimal composition.

[9] The few prior empirical studies examining the association of *all* inside directors with firm performance have found them to be associated with higher stock returns when they are on a board's finance and investment committee (Klein (1998)), reduced operating performance volatility (Adams et al. (2005)), and higher valuations in high R&D intensity firms (Coles et al. (2008)).

and incentives, they should to be particularly valuable and frequent in such firms. Therefore, we refine these predictions by distinguishing among insiders.

> H3: In high R&D intensity firms, CIDs are more frequent and have a stronger association with better firm performance and value, relative to non-CIDs.[10]

C. Board Decision Making

The prior hypotheses address the overarching relation between the presence of CIDs and better firm performance and value relative to firms with non-CIDs. However, improved board decision making should be the cause of this relation. One important board decision that directly affects operating performance and firm value is an acquisition of another firm. This decision requires a thorough understanding of the expected synergies and costs of the acquisition and the risks associated with the transaction. Better-informed boards can more accurately assess proposed M&A transactions to avoid CEO empire building, increasing the likelihood these transactions will enhance shareholder wealth.

Another important board decision is determining the range of firm cash reserves under management's control. Boards that have greater knowledge of firm operations and place CEOs under strong pressure to perform can allow larger cash reserves and thereby help prevent missed investment opportunities due to a lack of immediately available capital and debt capacity constraints. To the extent that CIDs facilitate closer board monitoring, they should be associated with larger firm cash holdings.

[10] Focusing on firm-specific information's importance to board decision making helps us to distinguish whether an outside directorship simply acts as a signal of director skill or enhances an inside director's incentives to strengthen board performance. If an outside directorship is merely a signal of officer quality, then there should be no difference in the relation of CID representation with firm performance across high and low R&D intensity firms. However, when timely access to firm-specific information is most important to board functions, the improved incentives of inside directors with outside directorships can increase their willingness to share information with outside directors, which can lead to stronger firm performance (H3).

Another key responsibility of directors is monitoring management to ensure the accuracy of its financial statements and especially its reported earnings. Misreported earnings lead to a loss of reputation capital by directors and a subsequent loss of outside directorships (Srinivasan (2005)). The greater reputation capital of CIDs and their better access to internal information about firm operations provides CIDs with stronger incentives to ensure that outside directors are well informed and able to assess the reliability of financial statements and thereby avoid earnings restatements. Our next hypothesis captures the prediction that CIDs improve the effectiveness of board monitoring and decision making.

> H4: CIDs enhance board effectiveness and this leads to (i) more profitable acquisitions, (ii) larger average cash holdings and (iii) smaller and less frequent earnings overstatements.

II. Sample Selection and Data Description

A. Sample Selection

We extract director information from the Investor Responsibility Research Center (IRRC) database, firm financial statement data from Compustat and common stock return information from CRSP. The sample period is 1997 to 2006 and includes all firms whose information is available in these three databases. IRRC includes director information for approximately 1,500 firms each year, including other directorships held. IRRC identifies each director as a firm employee, an affiliated outsider or an independent outsider and has a flag that indicates if an inside director is the CEO.[11] Inside operating officers are those listed as firm employees, and are not CEO or Chairman of the board.

[11] There are 391 firm-years with no CEO listed. We accounted for a missing CEO in the following way. If the firm had an inside director listed as President or Chairman, or there was only one inside director listed, we assigned that insider as the CEO. We excluded 24 firm-year observations with no CEO or other insider listed and 75 firm-year observations with multiple or co-CEOs.

From the IRRC database, we obtain information on 148,795 director-year observations for 3,085 firms, or 15,479 firm-years over the course of our ten-year sample. We discard firms when Compustat does not have the necessary information for our dependent and explanatory variables. We also exclude highly regulated finance and utility firms where regulation could also affect firm governance and performance.[12] Finally, Hermalin and Weisbach (1988) find that inside directors often join the board prior to CEO succession, suggesting that grooming CEO successors is another reason for appointing inside directors. Since it is unclear how inside directors affect firm performance near CEO succession, we exclude observations where the CEO is 64 years old or older.[13,14] The final sample consists of 10,767 firm-year observations by 2,137 firms over the 1997 to 2006 period.

Our key dependent variables are a firm's market-to-book ratio and operating performance. The market-to-book ratio is the year-end book value of assets plus market value of equity less book value of equity, all normalized by book value of total assets. We reduce the effect of skewness by using a natural log transformation. Following Fich and Shivdasani (2006), we use operating cash flow (CF) rather than EBITDA to measure operating performance because it is less susceptible to earnings management and thus more reflective of true performance.[15] Both measures are industry adjusted by subtracting out median values of other public firms in the same Fama-French industry.[16] In our analysis, we control for other

[12] Firms in the finance and utility industries (Fama-French Industry Codes 31 and 45-48) are excluded.

[13] It could again be a manifestation of an entrenched CEO extending his or her control of a firm into retirement, in which case agency costs rise. Alternatively, it may be an efficient mechanism for selecting a successor, which enables the board to make a more informed CEO replacement decision, while minimizing transaction costs to the firm.

[14] The results are qualitatively the same when we lower the CEO age exclusion to exclude all firms where the CEO is 62 or older and when we drop this filter.

[15] Our results are robust to using the Fich and Shivdasani (2006) cash flow measure or EBITDA scaled by total assets (ROA).

[16] Barber and Lyon (1996) show that adjusting accounting figures by their industry medians yield powerful and unbiased tests.

influences on firm performance found to be important in prior studies (Coles et al. (2008), Anderson and Reeb (2003), Fich and Shivdasani (2006)).[17] Variable definitions are in the appendix.

B. Data Description and Univariate Analysis

Table I.A presents descriptive statistics for different classifications of inside and outside directors for our sample of firms. The sample includes 8,742 inside director-years, of which 10% hold an outside directorship. There are several notable differences among insiders. First, CIDs have a greater frequency of holding significant operating titles such as President, Chief Operating Officers and Chief Financial Officers and a lower frequency of holding administrative titles such as Treasurer or Secretary, indicating that CIDs are more likely to hold titles associated with strong decision management skills. Further, CIDs have shorter tenure and less ownership relative to other inside directors. Firms with CIDs have relatively few other insiders on their boards. On average, boards with CIDs have greater independent director representation and are more likely to have a majority of independent directors than boards with other inside directors. Yet, CIDs are also associated with a lower frequency of non-CEO chairs.

[Table 1 about here]

To examine the outside boards that inside directors serve on, Table I.B presents descriptive statistics on inside directors' outside directorships in both unaffiliated and affiliated firms.[18] Note that outside directorships in affiliated firms fall outside our CID definition because they are likely suppliers, customers, or have other business or familial relationships with the home firm or its executives. Outside directorships in

[17] Some studies use board size and the percentage of independent outside directors as explanatory variables, but we exclude them as controls given the endogenous relation with other measures of board compositions. For robustness, we include these variables as additional controls and find that our results are qualitatively unchanged.

[18] Our analysis is limited to directorships in S&P 1500 firms reported in the IRRC database. However, director appointments in these larger firms provide a stronger signal of director reputation and lead to greater inside director independence.

these affiliated firms are likely to occur for strategic reasons, and while potentially valuable, they do not lead to greater director independence or incentives to work harder since they represent a weaker positive signal of the external market's assessment of an executive's value. We compare traits of inside directors with affiliated directorships to those with unaffiliated directorships to see if they are systematically different.

Table I.B shows significant differences between affiliated and independent directorships held by inside directors. First, a larger portion of insiders with affiliated directorships holds outside directorships prior to joining their own board. Even considering the greater frequency of these prior appointments, the average tenure of these insiders on their own boards prior to obtaining an affiliated directorship is greater than that for insiders obtaining an independent directorship. Tenure on outside boards is also greatest among insiders with affiliated directorships. These results are consistent with affiliated directorships reflecting long-term business/strategic relationships between the two firms. Conversely, it suggests greater career mobility for executives with directorships in unaffiliated firms. In addition, outside affiliated directorships occur more frequently within the same industry than for outside independent directorships. Further, directors appointed to affiliated companies have much larger equity stakes in the outside firm. This evidence is consistent with the use of affiliated directorships to cement strategic alliances, rather than serving to improve inside director incentives. Firm level characteristics are similar to those in earlier studies and are reported in the Internet Appendix.[19] CIDs are more common in larger, organizationally complex, mature and financially secure firms and in firms with a larger percentage of independent outside directors.

III. Determinants of Inside Directors

A. Control Variables

[19] The Internet Appendix is available at http://www.afajof.org/supplements.asp

It is important to examine the factors influencing a firm's choice of having inside directors prior to examining its impact on firm performance. Following prior studies of board composition (see Boone et al. (2007), Linck et al. (2008), and Coles et al. (2008)), we use as determinants of inside directors the following control variables: firm sales, number of business and geographic segments, financial leverage, past firm performance, stock return volatility, R&D intensity, capital expenditure intensity, product market competition, board ownership and proxies for CEO influence, namely CEO ownership and tenure, plus indicators for founder and founding family directors.

We introduce two other control variables. First, an indicator variable for the post Sarbanes-Oxley Act (SOX) period, which equals one for observations occurring in 2001 or later, to capture an exogenous regulatory shock that raises the required level of outside director representation, as in Duchin, Matsusaka and Ozbas (2010).[20] Second, we use an indicator variable that equals one if a firm engages in any M&A activity within the past two years to control for M&A activity influencing board structure, since often in M&A deals, a target's senior executives temporarily join the acquirer's board to facilitate merger integration and maintain target firm capabilities (Denis and Sarin (1999)).

B. Determinants of Inside Board Representation

Table II reports the results of our analysis of the determinants of inside board representation, separated into CIDs and non-CIDs. In model 1, the dependent variable is the board's percentage of non-CIDs. Model 1 shows a negative association between non-CID representation and R&D intensity and capital expenditures. Coles et al. (2008) reports a similar finding (for all inside directors), contradicting their hypothesis and Raheja's (2005) prediction of a larger inside director representation in high R&D intensive

[20] The Sarbanes-Oxley Act became law on July 30, 2002, though the legislation was discussed for much of calendar year 2002. Since many firms' fiscal year-ends are in June, we define fiscal year 2001 as the beginning of the SOX period.

firms due to the greater difficulty outside directors face accessing firm-specific information. We also find positive relations between non-CID representation and CEO tenure and ownership, two measures of CEO power. The positive association of CEO ownership with non-CIDs is also consistent with the findings for *all* insiders in Coles et al. (2008) and Denis and Sarin (1999). We also find that non-CID representation is positively associated with the recent M&A activity indicator and past firm performance.[21] Lastly, the SOX indicator is associated with a significant fall in non-CID representation. The positive associations of CEO tenure and recent firm performance with non-CID representation are consistent with the Hermalin and Weisbach (1998) prediction that CEOs with longer tenure and good performance have more influence over boards and their composition. In their view, longer tenure allows CEOs to reduce board independence by nominating more supportive new directors, while encouraging less supportive directors to leave the board.

[Table II about here]

The dependent variable in model 2 of Table II is CID representation. This model reveals distinct differences in the relations of CID and non-CID representation to measures of CEO influence and the importance of board access to firm-specific information. CID representation has a significant positive relation to R&D intensity and capital expenditure intensity, which is the opposite of the model 1 findings for non-CIDs.[22] CID board representation also rises significantly with firm size and geographic segments. This is in contrast to model 1 and other studies (Coles et al. (2008) and Denis and Sarin (1999)), which find a negative relation between all inside directors and firm size.[23] In sum, model 2 shows that CID

[21] We also examine thresholds of performance and find that high past operating performance (top decile), rather than low (bottom decile) past operating performance, is driving the association between past performance and non-CID representation.
[22] Other growth measures such as equity capitalization, intangible assets and asset growth are unrelated to inside directors.
[23] Given that CIDs are only one tenth as frequent as other insiders, the similarity of model 1's findings and the dissimilarity of model 2's findings with other earlier studies that do not differentiate among inside directors is not surprising.

representation, but not non-CID representation, is associated with larger, geographically diversified or R&D intensive firms, where boards have a greater need for timely access to firm-specific information, consistent with hypothesis H3. Further, model 2 reveals that CID representation is significantly higher in more competitive product markets, while model 1 reveals that non-CID representation is significantly lower. One interpretation of this finding is that a competitive product market raises the need for well informed boards, rather than reducing this need by substituting a strong external governance mechanism for monitoring and motivating management. This evidence suggests that boards with CIDs can offer CEOs better advice and guidance, even when CEOs have strong incentives to perform due to high product market competition.

Inside director (non-CID and CID) representation has a positive relation to CEO tenure in both model 1 and 2, but the magnitude is smaller for CIDs. Using a Wald test, the equality of coefficients for the two types of inside directors is rejected. Examining insider representation and CEO ownership, we find a significant positive relation for non-CIDs and an insignificant negative relation for CIDs. Following the reasoning in Hermalin and Weisbach (1998), this evidence supports the conclusion that CIDs are less likely to be on the board as CEO influence rises, consistent with H1. In addition, non-CIDs (model 1) have a positive association with the presence of a founder-board member, while CIDs (model 2) have no such significant association. This suggests that having a CEO with strong alignment with shareholders interests or having a founder with firm-specific knowledge on the board can reduce the need for CIDs.[24]

Model 2 also reveals that CIDs are unrelated to past firm performance or recent M&A activity, while model 1 finds non-CIDs are positively associated with both factors. This suggests that rising CEO influence after good performance leads to more non-CIDs, but not more CIDs. In appointing an inside director of a

[24] Also, Anderson and Reeb (2003) report that family members on the board are associated with better firm performance.

well performing firm to its board, an outside firm must attribute at least part of the superior firm performance to this director. If inside directors of better performing firms receive more outside board seats regardless of the inside director's individual reputation, then outside board appointments could induce a spurious positive correlation between CID representation and strongly serially correlated firm performance. However, Table II shows no significant relation between past firm performance and CID representation, suggesting that this reverse causality argument lacks empirical merit. However, we cannot rule out a reverse causality explanation for a positive relation between non-CIDs and past firm performance.

While recent regulatory pressure for greater outside representation on boards (SOX) has reduced CID representation, the reduction in non-CIDs is much greater. A Wald test rejects the hypothesis that the two coefficients are equal at the 1% level. This is consistent with the pattern in Figure 1 and indicates firms are more reluctant to lose CIDs, presumably because they are more highly valued inside directors.[25]

Since many firms do not have inside directors of either type, the dependent variable equals zero for these firms. To account for a lower bound on the dependent variable, we estimate Tobit regressions for non-CID and CID representation. The coefficient estimates found in the Internet Appendix are consistent with models 1 and 2, except that in the CID regression, R&D intensity is positive, but no longer significant. More importantly, the other measures of organizational complexity and the importance of firm-specific information remain positive and significant for CIDs, but are negative or insignificant for non-CIDs. Past operating performance is unrelated to either type of inside director.

It is possible that having *one* CID is sufficient to enhance board performance. To address this question, models 3 and 4 of Table II report probit estimates where the dependent variables equal one if the

[25] We also examine the relations of either type of inside director to external governance mechanisms such as the G-Index (Gompers et al. (2003)) and takeover defenses such as staggered boards, but find no significant relations.

firm has at least one inside director or at least one CID on the board, respectively. The results remain qualitatively unchanged from the earlier models. Together, the evidence in Table II underscores the importance of distinguishing between CIDs and other inside directors.

IV. Inside Directors and Firm Performance

To estimate inside director associations with firm performance measures, we use a Heckman (1979) two-step procedure to produce consistent estimates that account for self-selection. This also controls for a potential endogeneity problem due to an omitted variable bias. Specifically, if private information that leads to these inside director appointments is correlated with expected firm performance, then ignoring this information will bias our estimates. In our selection regression, we use the probit model specified in model 3 of Table II, where the dependent variable is one if a firm has any inside directors and zero otherwise. In the second equation, inside director association with firm performance is estimated for only firm-years where inside directors are present. We estimate the two equations and the selectivity effect jointly using maximum likelihood estimation with robust standard errors and adjusting for firm clustering.[26]

A. Certified Inside Directors and Firm Performance

Table III presents estimates from a Heckman model of the relation between industry-adjusted operating performance (models 1 and 2) or market-to-book ratio (models 4 and 5) and a firm's percentage of CIDs on the board. In models 1 and 2, CIDs have a significant positive association with firm operating performance. Changing the classification of one director on the board of an average firm is equivalent to an 11% increase in board representation by a director class. Therefore, having a CID, rather than a non-CID, is associated with a 1.32 (.12%x11) basis point rise in operating return on assets. Given that the average

[26] We also estimate these regressions sequentially and find consistent results that are often more significant.

firm in our sample with inside directors has $5.45 billion in assets, CIDs are associated with an average $72 million annual gain in operating cash flow compared to non-CIDs. In models 4 and 5, we find that CID representation also has a significant positive relation with a firm's market-to-book ratio. In economic terms, having CIDs is associated with an 8.8% (.8%x11) larger industry-adjusted market-to-book ratio compared to firms with other inside directors. In models 2 and 5, we control for the board presence of other non-CIDs and find no evidence of an association with better firm operating performance or value.

[Table III about here]

Another intriguing finding is that lambda, the estimated selectivity effect, has a negative coefficient in all the models and is statistically significant for operating performance. Interpreting lambda in models 1 and 2 as a proxy for private information (Li and Prabhala (2007)) that motivates inside director appointments, suggests firms with inside directors have weaker operating performance relative to firms without inside directors. This suggests that larger, more complicated firms are more difficult to manage and for boards to monitor, thus requiring better informed boards for effective decision making.

In models 3 and 6 of Table III, firm fixed effects are used to control for omitted traits that could affect firm operating performance and value. The drawback of this approach is its greater reliance upon within-firm time-series variation for its explanatory power. Thus, if key explanatory variables have insufficient time series variability, then the power of the tests falls substantially. Estimating the relation with firm fixed effects, we continue to find a significant positive association between CIDs and market-to-book ratios. Finally, we employ an instrumental variable approach and use the determinants of inside directors from Table II to generate instruments for CID and non-CID representation. As seen in the Internet Appendix, we continue to find evidence that CIDs are positively associated with operating performance and

firm value, consistent with H2. While no one statistical technique is robust to all kinds of endogeneity problems, these additional specifications suggest endogeneity is not driving our major findings.[27]

B. Do Outside Directorships Add Value?

To further evaluate the effects of an inside director receiving an outside directorship, we examine changes in operating performance and firm value when an inside director first acquires an outside directorship relative to the change in performance had they not acquired an outside directorship. We estimate this treatment effect by first matching each treatment firm (a firm with an inside director appointed to an unaffiliated firm's board) to a similar control firm in the same industry and of similar size that has one or more inside directors with no unaffiliated firm directorships in our sample period. We use this paired sample to conduct a difference-in-difference (DID) analysis. We have 91 matched observations of treated and untreated firms prior to the treatment year that we use for this purpose.

We present results of the DID analysis in Table IV. The coefficient for the treated firms in the pre-treatment period is insignificant in model 1; suggesting that treated firms and control firms have similar operating performance before inside directors in the treated firms gain outside directorships. The coefficient of the post-treatment indicator estimates the average performance change in the control firms across the treatment period. This negative coefficient estimate implies that the average performance of the control firms dropped by 1.6 basis points from the year before to the year after the treated firms' inside directors acquired an outside directorship. In contrast, the coefficient of post-treatment indicator of the treated firms is significantly positive with a coefficient of .024. This implies that the average firm whose inside director

[27] We also control for other governance mechanisms such as blockholders, board size and ATPs. Only Bebchuk, Cohen and Ferrell's (2009) E-index has a significant negative relation to operating performance and valuation, while CIDs continue to have significant positive relations to both. Also, see the Internet Appendix for analysis of other measures of board independence.

received an outside directorship not only did not experience a decrease in performance during the period, but instead increased operating performance by .8 basis points (.024 - .016 = .008) relative to their performance prior to the change in inside director status. The difference-in-difference estimate of .024 further illustrates the importance of not treating all inside directors alike. These results reveal two opposing relations between inside directors and firm performance. While CIDs are associated with improved performance, non-CIDs are associated with deteriorating performance, reflecting the board enhancing characteristics of CIDs as well as the performance detracting characteristics of many non-CIDs. In model 2 of Table IV, we include all the control variables used in Table III and obtain similar results.

[Table IV about here]

In model 3 of Table IV, we examine firm market-to-book ratios and find results similar to operating performance. The post-treatment indicator coefficient reveals a negative time trend in the matched control firms across the treatment period of -8.4%. Conversely, the average treated firm experiences an increase in market-to-book of 7.1% (.155-.084=.071) over the treatment period relative to their own value prior to the treatment, which is a 15.5% greater value than the average matched firm where inside directors are not externally recognized with an outside directorship. When all the control variables are included in model 4, we obtain similar results. In sum, evidence in Table IV indicate that inside director appointments as outside directors in unaffiliated firms are associated with greater value for shareholders in their home firms compared to similar firms where inside directors have no such board appointments. This suggests that external recognition by the labor market for outside directors of an officer's strong decision management skills and their resulting improved incentives are associated with improved corporate performance.

C. Certified Inside Directors and the Importance of Board Oversight in High Growth Firms

Table V examines the associations of a firm's operating performance and market-to-book ratio with inside director representation in high and low R&D intensity firms. We use R&D intensity, measured by R&D expenses divided by total assets, as a proxy for firm growth opportunities, following Coles et al. (2008). We create indicator variables, *High R&D (Low R&D)*, which equals one if a firm is in the top (bottom) quartile of R&D intensity and zero otherwise.[28]

[Table V about here]

Table V models 1 and 4 reveal that in high R&D firms CIDs have significant positive relations to operating performance and firm market-to-book.[29] In models 2 and 5, non-CID representation is included as a second measure of insider board participation. We find both inside director types are associated with higher firm valuations in high R&D firms. These results are consistent with the Coles et al. (2008) finding that in high R&D firms inside director representation (CIDs and non-CIDs combined) is associated with higher market-to-book ratios. In addition, consistent with H3, in high R&D firms the economic impact of CIDs is much greater than that of non-CIDs. Using a Wald test in model 2, we find for high R&D firms that operating cash flows are significantly larger for boards with CIDs compared to non-CIDs (at a 1% level). A Wald test in model 5 reveals that for high R&D firms the difference in market-to-book ratios of firms with CIDs versus non-CID insiders is also significant (at a 10% level). Finally, F-tests (bottom of Table V) indicate the positive relations of CIDs to operating performance and firm value are statistically stronger in high R&D firms, where boards are in greater need of timely access to firm-specific information and

[28] In earlier versions of the paper, we used principle component analysis (PCA) to extract a single factor representing a firm's growth opportunities from three growth measures: R&D intensity, capital expenditure intensity and a high-tech indicator as proxies for the importance of firm-specific information. The findings are qualitatively the same when only using R&D intensity.

[29] We include finance and utility firms in models 4, 5 and 6 following Coles et al. (2008). The results remain qualitatively unchanged excluding them.

monitoring is more vital. In models 3 and 6 of Table V, we show results for firm fixed effects models and again find stronger positive relations between CIDs and market-to-book ratios in high R&D firms.

In the Internet Appendix, we decompose a related measure of operating performance, ROA, following Chhaochharia et al. (2009) and Ang, Cole and Lin (2000) for high R&D firms to gain further insights into how CIDs enhance board decision making. We find that CIDs are associated with higher asset turnover, reflecting improved monitoring of management; lower cost of goods sold (COGS), reflecting greater operational efficiency; and higher profit margins for high R&D intensity firms, where firm-specific information is most critical and where insiders are especially useful to boards.

V. Announcement Effects of Inside Director Appointments and Departures

A. Acquisitions of Outside Directorships by Inside Directors

We next examine market reactions to news of inside director appointments to outside boards in stocks of the directors' home firms. We search for the earliest news report of an appointment of an inside director in our sample to a board of an unaffiliated public firm, using proxy statements of the insider's home firm to identify the appointing firm and Factiva to locate the earliest press release. We exclude announcements when the inside director's firm simultaneously reveals M&A transactions, earnings releases or director changes at their own firms. We find 118 uncontaminated announcements of independent director appointments for inside directors. To assess whether the market reaction is simply a signaling effect, we also collect prior announcements of appointments of 87 of these same executives to their own boards. If boards benefit from these valuable directors even without an outside directorship, we should find a positive reaction when the market first learns of their appointments to their own boards. We

report cumulative abnormal returns (CARs) over a 3-day window [-1,1], where announcements occur on day 0. We estimate a stock's abnormal return using a one-factor market model where the value-weighted CRSP index is used to calculate market returns over the estimation period, event days [-210,-10].[30]

Table VI.A shows the mean 3-day CAR for 87 announcements of inside director appointments to their own boards (who later receive outside board seats) and the 118 subsequent announcements of insider appointments to unaffiliated boards. The mean reaction to appointments to their own boards is negative, but not significant, indicating that shareholders are at best indifferent to these internal appointments for the overall sample period and following the passage of the Sarbanes-Oxley Act. On the other hand, we find a positive and significant mean (median) CAR of .84% (.5%) for announcements of inside directors acquiring outside directorships, consistent with shareholders positively valuing outside board appointments, even though this will take away some of their time, energy and attention from their home firms. Since the mean market capitalization of firms with inside directors is approximately $8.4 billion, we infer that an inside director's appointment to an outside board is equivalent to about a $70.6 million increase in home firm shareholder wealth.[31] Post-SOX when firms face increased pressure to reduce inside directors, the mean (median) CAR rises to a significant 1.2% (.7%). This evidence suggests shareholders realize greater gains when inside directors acquire outside directorships in the post-SOX period of heightened market concern about board quality. When we limit the analysis to directors where we have both their internal and external board appointments, we obtain qualitatively similar results. This evidence is consistent with (1) these directors gaining greater labor market visibility, which gives them stronger

[30] Our results are also robust to using WLS where the weights are equal to the inverse of the CAR estimation errors.

[31] The mean CAR for appointments to affiliated boards is -.011 (*p*-value=.085). Given the lack of an independent external certification and the associated large time commitment, shareholders appear to view this as more of a cost, than as a benefit.

incentives to participate actively on the board, while making them less dependent of the CEO and (2) the market reacting positively to a labor market signal that a valuable inside director is on the board. We explore these two explanations further in the next section.

[Table VI about here]

B. Multivariate Analysis of 3-Day CARs of Inside Director Appointment to Outside Directorships

Table VI.B examines market reactions to outside appointments after controlling for other differences in firm characteristics using an OLS regression model. In model 1, we use a *High R&D* intensity indicator to proxy for firms where board monitoring and timely access to firm-specific information is especially important and we find a significantly larger announcement effect for these firms. We also find the effect increases with firm size and capital expenditures. This suggests that while home shareholders realize benefits when an inside director is recognized by the external labor market for directors, these benefits are greater when the home firm is larger and has greater growth opportunities, and when the effectiveness of board monitoring is particularly important. This is consistent with CIDs being associated with enhanced board decision making at the home firm. Evidence of larger shareholder benefits when a CID has stronger career incentives (is not near retirement) is seen in the positive coefficient on the indicator for inside directors under 60. However, while the second appointment has an insignificant marginal effect, shareholder benefits fall significantly when these executives receive a third outside directorship, suggesting a concern that multiple directorships could distract CIDs and lead to poorer inside director performance (Fich and Shivdisani (2006)). This interpretation is consistent with Perry and Peyer (2005), who find a negative shareholder reaction to outside director appointments of inside executives (including CEOs) who hold two or more outside directorships. Lastly, a negative coefficient on past operating performance

suggests investors partially anticipate external labor market recognition of valuable inside directors, in which case a portion of a firm's benefit from having a CID is capitalized into its stock price prior to the appointment, causing an announcement effect which understates the benefits of a CID.

In model 2 of Table VI.B, we add an indicator for boards having a majority of independent directors, but find no evidence of a differential effect for these firms. However, F-tests reveal greater announcement effects for firms with high R&D intensity *and* a majority of independent outside directors.[32] In model 3, we add growth characteristics of the appointing firm relative to an executive's home firm. We expect firms with large investment opportunities have greater need of experienced managers as outside directors to maximize their growth potential. If high growth firms have higher standards for outside board members and offer them greater career opportunities, then these appointments should increase CID independence more due to both market recognition and their expanded career options. We use the capital expenditure intensity of the appointing firm relative to that of the home firm as a measure of an appointing firm's relative growth opportunities. We find a significant positive coefficient for this measure, consistent with greater appointment announcement effects when an appointing firm has greater growth opportunities and presumably imposing higher standards in selecting outside decision managers and control experts. Finally, we control for an appointing firm's relative size. If the announcement effect is simply a positive signal of an officer's ability, rather than a means of increasing director independence, then we would expect greater announcement effects in larger appointing firms where the certification signal is stronger.[33] Yet, the appointing firm's relative size (total assets) has an insignificant coefficient, which is inconsistent with this signaling hypothesis.

[32] We also examine firms with a non-CEO chairperson and high R&D intensity, but find no significant effect.
[33] We thank an anonymous referee for suggesting this test.

C. Departure of Inside Directors

We next conduct an event study for departure announcements of inside directors. From our sample, we identify firm-year observations that have fewer inside directors than the prior fiscal year. We then searched for the earliest announcement of an inside director's departure.[34] The final sample consists of departure announcements by 123 CIDs and 109 non-CIDs. We calculate 3-day CARs as above.

Table VI.C reports summary statistics for departure announcement CARs. The mean (median) 3-day CAR for the full sample of CIDs is -1.1% (-.6%), which is significant at the 1% (5%) level. The size of this announcement effect is comparable to the .8% increase reported in Table VI.A given the prior evidence that the market partially anticipates an outside appointment when a firm's past performance is strong. Since it is possible that investors are reacting to a departing executive's replacement, rather than to a CID departure, we also exclude departure announcements that simultaneously name a successor. The mean CAR remains negative and is equal to -1.0%. Additional sub-sample results are reported in Table VI.C as well. For example, during the post-Sarbanes-Oxley era when firms face rising pressure to reduce their number of inside directors, we find the mean CID departure announcement CAR is -1.5% and significant. The negative reaction to CID departures, especially in the face of heightened pressure to reduce inside representation on boards, underscores the important roles CIDs serve. When we examine similar departure announcements for other non-CIDs, we find very different results. There is no evidence that non-CID departures negatively affect shareholder wealth.

VI. Evidence of Board Oversight from Major Firm Actions

[34] We exclude announcements indicating an inside director was departing to head a spin-off or if multiple board changes occur.

In this section, we further examine how CIDs enhance board decision making by studying several key firm actions where boards have direct oversight or approval rights. First, we examine a firm's large external investments in corporate acquisitions. Shareholders rely on boards to reject unprofitable empire-building acquisitions and to support profitable bids. Second, we examine firm cash holdings, which is a particularly unconstrained source of capital for management. A weakly monitored CEO can rapidly exhaust available liquid assets and current free cash flows for empire building and perquisite consumption. Thus, large holdings of liquid assets are evidence of more effective board monitoring of management and thus, a less serious manager-shareholder agency problem. Finally, we use earnings restatements to measure the level of board oversight of firm operations and financial statements, since more informed boards should have a clearer understanding of firm performance and be better able to detect efforts to inflate earnings.

A. Merger and Acquisition Decisions

We use Thompson Securities Data Corporation's (SDC) Mergers and Acquisitions (M&A) database to obtain acquisition information for our sample firms, imposing criteria similar to Masulis, Wang and Xie (2007). Specifically, a bidder must be public, hold less than 50% of target shares before an acquisition bid, the deal value must exceed $1 million and represent at least 1% of bidder market capitalization, where we include acquisitions of public and private firms, subsidiaries of public firms and cross-border deals.[35] We require the availability of key bidder characteristics from Compustat, CRSP and IRRC. We manually searched for potentially contaminating news releases around the bid announcement dates of the top and bottom 5% of the sample. We excluded events that are within +/-2 trading days of firm earnings releases or

[35] In robustness analysis, we also exclude transactions when the acquirer holds 5% or more in the target's stock prior to the acquisition announcement. The announcement return results are qualitatively unchanged.

announcements of changes in directors or top managers. After imposing these criteria, 3,066 acquisition bid announcements by our sample firms remain in our sample period, of which 2,824 are completed bids.

[Table VII about here]

In Table VII, we report results examining cumulative abnormal returns (CARs) (in percent) based on a one-factor market model over a 5-day window [-2, 2] around the acquisition announcement. Panel A reports univariate analysis for the full sample and subsample of firms with inside directors that (i) make acquisition bids and (ii) complete acquisitions. For the full sample, we find a significant negative announcement effect, but when we consider subsamples of firms with and without CIDs, we find firms without CIDs have a significant negative price reaction, while firms with CIDs have an insignificant positive price reaction. When we restrict our examination to only firms with inside directors, shown in the bottom two sections of Table VII.A, we find firms with non-CIDs are associated with significantly more negative acquisition announcement effects, while the firms with CIDs again have a positive, though insignificant effect. The difference in shareholder reactions to acquisition announcements across the two samples is around 1% (*p*-value=.08) and is economically very significant. Bid announcements that are ultimately completed (bottom panel of Table VII.A) exhibit similar patterns. Thus, in firms with inside directors that make large acquisition investment decisions, firms with CIDs are on average associated with significantly more positive shareholder reactions to these bids, relative to firms with non-CIDs.

In Table VII.B, we use a multivariate regression framework to control for firm and deal characteristics related to acquisition announcements following Masulis et al. (2007). The dependent variable is the 5-day CAR in models 1 through 4. Robust standard errors are adjusted for clustering by bidder firms. In model 1, we use the full sample of bid announcements, including unsuccessful bids, and

find the coefficient on CID board representation is positive and significant. In model 2, we consider only completed bids and find similar results. The coefficient on CID representation is positive and significant and the economic impact is slightly greater when only completed acquisitions are analyzed (.148 *p*-value < .01). The coefficient implies that raising CID board representation by one director yields a 163 basis point higher average announcement effect. This is consistent with boards having CIDs making better decisions, potentially because they are better informed and CEO incentives are better aligned with shareholders.

Since a major objective of this study is distinguishing among inside directors, in model 3 we only examine firms with inside directors, where we also control for self-selection of these inside directors. In this regression, the association between CIDs and acquisition bid announcements is even stronger. In a given year, non-CIDs occasionally include future CIDs. However, for the most part, the evidence suggests that non-CIDs are selected for their close CEO relationships, rather than for their likely contributions to improve board decision making. To the extent that these inside directors are detrimental to shareholder welfare and contribute to poor board decision making and poor firm performance, their presence will result in a larger positive coefficient on CID representation in these M&A announcement regressions.

Given our previous findings that firms with CIDs are associated with better operating performance and firm value, especially when board monitoring is more critical, we next condition on the relative importance of firm-specific information by introducing a *High R&D* intensity indicator, as in Table V. In model 4 of Table VII.B, we separately interact CID representation with indicators for high and low R&D intensity firms. When CIDs are present, firms have more positive shareholder reactions to acquisition announcements in both high and low R&D intensity firms, but the impact is economically and statistically greater in high R&D firms, consistent with our earlier findings.

Next, we examine whether firms with CIDs compared to firms with non-CIDs are more likely to make good investment decisions, as indicated by a positive acquisition announcement effect.[36] In model 5 of Table VII.B, the dependent variable is one if the 5-day CAR is positive and zero otherwise. After controlling for the self-selection of inside directors, the coefficient on CID representation in the second stage regression is positive and significant. Thus, CIDs are associated with acquisitions that have significantly better shareholder wealth effects, consistent with them enhancing board decision making.

We also consider whether boards with CIDs are responsive to shareholder reactions to acquisition announcements by examining the likelihood that potential acquirers retract their bids following poor shareholder reactions. Of the 123 withdrawn acquisition attempts in our sample, we exclude 7 withdrawn acquisitions due to antitrust regulatory concerns and 12 hostile acquisitions where the target board formally opposed the bid. This leaves 104 acquisition attempts withdrawn at the bidder board's discretion. In model 6 of Table VII.B, we use a probit model to analyze whether the withdrawal decision is more sensitive to shareholder reactions to a bid announcement when CIDs are present by interacting CID representation with the bid announcement 5-day CAR. The coefficient on the market reaction to the bid is negative and significant, consistent with boards responding to shareholder reactions to bid announcements. Further, consistent with CIDs enhancing board decision making, the interaction term between CID representation and the bid announcement CAR is negative and significant, consistent with these boards being more sensitive to shareholder reactions to bids.

Finally, we consider the total wealth creation associated with the acquisition decision by examining the combined bidder and target shareholder reaction. In model 7 of Table VII.B, the dependent variable is

[36] We also examine the frequency of acquisitions following Gompers et al. (2003) and find that CID firms make fewer bids.

the value weighted bidder and target announcement return, based on their prior equity market capitalizations, for the sub-sample of bids for public targets, where stock returns are available for both bidders and targets.[37] If non-CIDs are supportive of CEO initiatives and lead to boards that are less informed about potential acquisitions, then empire-building motives are more likely to drive acquisitions, resulting in lower shareholder value. On the other hand, we expect firms with CIDs on the board to make decisions that are more informed and less influenced by CEO preferences, resulting in acquisition decisions that are more likely to be shareholder value creating. Consistent with CIDs facilitating more effective board monitoring and non-CIDs inhibiting it, we find CID representation has a significant positive coefficient, while non-CID representation has a significant negative coefficient. These results are consistent with CIDs enhancing board decision making (H4) and non-CIDs facilitating greater CEO entrenchment.

B. Cash Holdings

Determining a firm's cash reserve level is an important board decision, which is undertaken prior to most investment decisions. Boards with less control over managers can set limits on firm cash holdings to constrain management's ability to use cash for their private benefits. Alternatively, if manager use of cash reserves is poorly monitored, then these holdings are likely to be dissipated by managers pursuing unnecessary investments or overhead expenses (perks) (Jensen and Meckling (1976) and Stulz (1990)). Consistent with this agency view, Harford, Mansi and Maxwell (2008) find firms with weaker governance, as measured by low insider ownership and weaker shareholder rights (a high G-Index), are associated with lower cash holdings. In contrast, boards exercising greater oversight and having better knowledge of firm operations can closely monitor both the buildup and use of cash reserves, to limit a misuse of funds. Such

[37] For subsidiary acquisitions, we use the announcement return of the parent. Our results are also robust to their exclusion.

boards can also permit a larger buildup of cash to allow rapid investment as profitable opportunities unexpectedly arise (Myers and Majluf (1984) and Stulz (1990)). Cash buildups under these conditions lead to higher firm valuation since missed investment opportunities and underinvestment are minimized (Mikkelson and Partch (2003) and Opler et al. (1999)). Thus, we expect firms to hold higher cash reserves when they can more effectively monitor and discipline managers. To the extent that CIDs improve board monitoring, we expect CIDs to be associated with greater cash reserves.

[Table VIII about here]

In Table VIII, we examine the determinants of firm cash holdings. The dependent variable is cash and cash equivalents scaled by total sales. In model 1, we find that CID representation has a significant positive association with cash reserves. In model 2, we introduce other governance mechanisms found in Harford et al. (2008) to affect cash holdings. In model 3, we examine industry adjusted cash holdings. In model 4, we control for self-selection of inside directors. In all four of these models, we find CID firms are associated with greater cash holdings, allowing their firms to build up cash to take advantage of future growth opportunities, without facing rapid depletion of these cash reserves as unmonitored or disciplined managers use these easily accessible resources for their private benefit. Finally, in model 5, we interact CID representation separately with high and low R&D intensity firm indicators and find that only in firms with high R&D intensity is there a statistically and economically significant effect, consistent with heightened shareholder concern over the use of cash holdings in high growth firms. In sum, this is further evidence that CIDs enhance the effectiveness of board monitoring (H4), especially in firms where monitoring is more critical, but also more costly for outside directors.

C. Earnings Restatements

To examine restatements, we utilize a data set from Burns and Kedia (2006)[38] of 919 restatement announcements by U.S. companies from January 1997 to June 2002 taken from the General Accounting Office (GAO) study. They identify the fiscal years and quarters of misstated earnings associated with each restatement announcement. We match these restatement quarters to firms in our sample over 1997 to 2002 to obtain 224 restatement announcements involving 319 firm-year restatements (representing 3.3% of our firm-years sample). Note that a restatement announcement can involve multiple quarters or years.

In Table IX, we show the results from estimating a probit model of the likelihood that a firm misreports its earnings. The dependent variable is one if the firm misreported earnings for any quarter during the year and zero otherwise (we exclude instances of underreported earnings). All models include year fixed effects and robust standard errors adjusted for firm clustering. We control for other firm and governance characteristics likely to affect the propensity to misreport. Since prior studies by Burns and Kedia (2006) and Masulis, Wang, and Xie (2010) find larger firms are more likely to misstate earnings and given the prevalence of CIDs in larger firms, we control for firm size as well as the interaction between CIDs and firm size in an attempt to separate the two effects.

[Table IX about here]

In model 1 of Table IX, we see a negative and significant effect of CID board representation on the likelihood of overstated earnings. Consistent with other studies, we find that larger firms are more likely to misreport earnings. Not surprisingly, we find the interaction term between CID representation and firm size reduces the economic effect slightly, but the F-test at the bottom of the table reveals the net effect of CID representation is to reduce the likelihood that a firm misreports its earnings. In model 2, we control for

[38] We are grateful to Natasha Burns and Semi Kedia for sharing their data.

industry fixed effects and find similar results. In model 3, we control for the endogeniety of inside director selection and find that among these firms, those with CIDs are significantly less likely to misreport earnings.

Next, we examine the sub-sample of firms restating earnings where we know the size of the restatement to gain further insights into the extent of misreporting. We include instances of over- and under stated earnings to capture reporting accuracy. In model 4, the dependent variable is the absolute size of the restated amount over total sales. We find that when firms with CIDs misreport earnings, the size is relatively small. In model 5, we condition on the importance of board monitoring using a *High R&D* intensity firm indicator and find the strongest CID effect occurs in high R&D intensity firms where valuable inside directors can be most beneficial to their boards.

Finally, we classify the earnings restatements sample into intentional (irregularities) and unintentional misstatements following Hennes, Leone and Miller (2008). These data come from Leone's website, http://sbaleone.bus.miami.edu, and cover restatements through 2006. In models 6 and 7 of Table IX, the dependent variable is one if the firm has an irregularity and zero otherwise. We find that firms with CIDs are significantly less likely to have irregularities, for both the full sample and for firms with inside directors after controlling for self-selection. Thus, boards with CIDs appear to be better monitors, as indicated by less frequent misreported earnings and intentional misstatements. Moreover, when firms with CIDs misreport earnings, we find smaller earnings restatements. Thus, the evidence is consistent with H4.

VII. Robustness

A. Alternative Measures of CID Representation and Sensitivity to Outliers

It is possible that firms only need one CID to improve board monitoring and advisory decisions. Alternatively, the number of other insiders on a board could alter the influence of CIDs. If other non-CIDs back a CEO's position, then they could lead to stronger CEO influence. In this case, CIDs are most valuable when they are the only inside director and become less valuable as additional non-CIDs join a board. We test for this possible group dynamic by substituting for CID representation (1) the ratio of CIDs to all other insiders including the CEO or (2) an indicator for firms with one or more CIDs. The significant effects on operating performance and firm value are unchanged with the substitution of either alternative CID measure. Thus, our prior conclusions remain unchanged, and we find new evidence that suggests having other inside directors does not significantly undercut the positive effect of CIDs.

We also re-estimate the firm valuation and operating performance regressions (1) using a least absolute deviations (LAD) estimator and (2) after winsorizing the data at the 1% and 99% levels. The results are qualitatively similar to our earlier findings, indicating that outliers are not driving our results.

B. Endogeneity in the Selection of Inside Directors

When firms choose to have inside directors, this is clearly an endogenous decision. However, it is much less likely that boards can decide when an inside director receives an outside directorship and becomes a CID. This decision occurs in the external managerial labor market for directors. Further, officers are unlikely to receive inside director appointments simply because they are promising candidates for outside directorships in unaffiliated firms. However, inside director appointments can reveal private firm-specific information about an officer's internal reputation. If this private information has firm performance implications, then a selection bias could result, depending on the type of inside director chosen. We explore this possibility by repeating our Table III analysis using several different first stage selection models.

First, we estimate a selection model for inside directors who later become CIDs in our sample period. We then add the inverse mills ratio from the selection model to the second stage regressions, but we find it is insignificant for both subsequent operating performance and the market-to-book ratio. This suggests that any private information a firm possesses when it selects an inside director who eventually becomes a CID, is not significantly related to subsequent firm performance.

Next, we estimate the private information implicit in an appointment of an inside director who does not have, and never receives, an outside directorship over our sample period using an inverse Mill's ratio. We find that the private information associated with these appointments is also unrelated to subsequent firm operating performance, but has a significant negative relation to its market-to-book ratio. One interpretation of this result is that the market views the private information revealed by a non-CID appointment as indicating greater CEO entrenchment, resulting in higher manager-shareholder agency costs that require lower market valuations.

Our earlier analysis employs a Heckman self-selection model for firms with inside directors. As an alternative approach, we examine the impact of a specific type of inside director, CIDs, on firm performance for our full sample of firms after adjusting for CID endogeneity. We use a treatment model that controls for a firm's decision to have CIDs in the first stage.[39] The second stage examines firm performance, controlling for the treatment effect (having a CID). The results are consistent with our prior selection model estimates for inside directors.[40]

C. Reverse Causality

[39] The specification of the first stage model is Table II, model 4. See the Internet Appendix discussion of the 2SLS model and the validity of the instruments used for identification in the first stage equation.

[40] Results are similar if we exclude CIDs who held outside board seats prior to joining their own board.

In Section III.B we find no evidence that past performance affects inside director appointments to outside boards, but to explore this prior performance effect further, we conduct two additional tests. First, we test whether better past performance is associated with the number of CIDs sitting on the board using a Poisson count regression model and find no such evidence. Second, we replace our CID variable with three indicators for firms that have at least one, two or three CIDs.[41] We find that only the first CID has a significant positive relation with operating performance and firm value. Indicators for two and three CIDs have positive, but insignificant coefficients. Importantly, the first CID is positive and strongly significant, which suggests that it only takes one CID to affect performance. In sum, if past firm performance leads to outside directorships for inside directors, then we should find a stronger performance relation in firms with two or more CIDs. Yet, we uncover no such finding, which fails to support this reverse causality hypothesis.

VIII. Concluding Remarks

How board composition influences board effectiveness is an important, but unresolved question surrounding this key corporate governance mechanism. This study offers new insights into this question by evaluating two conflicting views of the role of inside directors on corporate boards. One view is that insiders merely follow a CEO's lead, and thus, are indicative of serious agency costs. The opposing view is that they are well informed, highly skilled decision managers, who improve board decision making and enhance board disciplinary power over a CEO. Until recently, researchers have largely ignored these distinct roles when examining firm performance and board composition and implicitly assumed all inside directors are the same. We improve on the prior analysis by introducing a simple mechanism, outside directorships in unaffiliated firms, to identify inside directors more likely to enhance board monitoring and decision making

[41] No sample firm has more than three CIDs.

and less likely to aid CEO entrenchment. Our main finding is inside directors with outside directorships are associated with higher firm operating performance and market-to-book ratios, after controlling for self-selection in the choice of having inside directors. These certified inside directors (CIDs) are also associated with better board decision making, as evident in their firm's more promising acquisition decisions, larger holdings of liquid assets and lower likelihood and size of earnings overstatements. Thus, we conclude that CIDs enhance board monitoring and decision making, making the board a more effective internal corporate governance mechanism. Our evidence also suggests that outside directorships serve to identify highly skilled officer-directors and provide them with important incentives that lower owner-manager agency costs.

We argue that the benefits of inside directors vary across firms and directors. CIDs are especially beneficial to firms facing rapidly changing landscapes, where timely access to firm-specific information is more critical to board monitoring and decision making. While these firms can benefit from other inside directors, we find no evidence that non-CIDs are as valuable as CIDs. Consistent with CIDs providing greater benefits, news of inside director appointments to unaffiliated boards elicit positive stock market reactions and news of CID departures elicit negative market reactions. In contrast, departures of non-CIDs elicit no significant market reactions. These results are consistent with our firm performance evidence and support the conclusion that outside directorships provide reputation incentives that strengthen CID performance on their own boards and increase their independence from the CEO. We find much weaker support for the hypothesis that outside director appointments are simply signals of superior managers.

Just as prior research has uncovered significant differences among outside directors, we uncover significant differences among inside directors. In particular, we find their effectiveness varies significantly, depending on whether they hold outside directorships in unaffiliated firms, which is a distinction researchers

and practitioners should be aware of. Further, well-intentioned reforms such as Sarbanes-Oxley should recognize the valuable roles played by knowledgeable inside directors. Our study provides some useful new guideposts for future research examining the quality and effectiveness of boards of directors.

REFERENCES

Acharya, Viral, Stewart Myers, and Raghuram Rajan, 2009, The internal governance of firms, NBER Working paper 15568, New York University.

Adams, Renée, Heitor Almeida and Daniel Ferreira, 2005, Powerful CEOs and their Impact on corporate performance, *Review of Financial Studies* 18, 1403-1432.

Adams, Renée, and Daniel Ferreira, 2007, A theory of friendly boards, *Journal of Finance* 62, 217-250.

Anderson, Ronald, and David Reeb, 2003, Founding-family ownership and firm performance: Evidence from the S&P 500, *Journal of Finance* 58, 1301-1328.

Ang, James, Rebel Cole and James Lin, 2000, Agency costs and ownership structure, *Journal of Finance*, 55, 81-106.

Barber, Brad, and John Lyon, 1996, Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics* 41, 359-399.

Bebchuk, Lucian, and Jesse Fried, 2003, Executive compensation as an agency problem, *Journal of Economic Perspectives* 17, 71-92.

Bebchuk, Lucian, Alma Cohen, and Allen Ferrell, 2009, What matters in corporate governance?, *Review of Financial Studies*, 22, 783-827.

Bhagat, Sanjai, and Bernard Black, 2002, The non-correlation between board independence and long term firm performance, *Journal of Corporation Law* 27, 231-274.

Boone, Audra, Laura Field, Jonathan Karpoff, and Charu Raheja, 2007, The determinants of corporate board size and composition: An Empirical Analysis, *Journal of Financial Economics,* 85, 66-101.

Brickley, James, Jeffrey Coles, and Gregg Jarrell, 1997, Leadership structure: Separating the CEO and the Chairman of the Board, *Journal of Corporate Finance* 3, 189-220.

Brickley, James, James Linck, and Jeffrey Coles, 1999, What happens to CEOs after they retire? New evidence on career concerns, horizon problems, and CEO incentives, *Journal of Financial Economics* 52, 341-377.

Burns, Natasha, and Simi Kedia, 2006, The impact of performance-based compensation on misreporting, *Journal of Financial Economics* 79, 35-67.

Chhaochharia, Vidhi, Yaniv Grinstein, Gustavo Grullon, and Roni Michaely, 2009, Product market competition and agency conflicts: Evidence from the Sarbanes Oxley Act, Working paper, University of Miami.

Coles, Jeffrey, Naveen Daniel, and Lalitha Naveen, 2008, Boards: Does one size fit all? *Journal of Financial Economics* 87, 329-356.

Core, John, Robert Holthausen, and David Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* 51, 371-406.

Denis, David, and Atulya Sarin, 1999, Ownership and board structures in publicly traded corporations, *Journal of Financial Economics* 52, 187-223.

Duchin, Ran, John Matsusaka, and Oguzhan Ozbas, 2010, When are outside directors effective?, *Journal of Financial Economics*, 96, 195-214.

Fama, Eugene, 1980, Agency problems and the theory of the firm, *Journal of Political Economy* 88, 288-307.

Fama, Eugene, and Michael Jensen, 1983, Separation of ownership and control, *Journal of Law and Economics* 26, 301-325.

Fich, Eliezer, 2005, Are some outside directors better than others? Evidence from director appointments by *Fortune* 1000 firms, *Journal of Business* 78, 1943-1972.

Fich, Eliezer, and Anil Shivdasani, 2006, Are busy boards effective monitors? *Journal of Finance*, 61, 689-724.

Fich, Eliezer, and Anil Shivdasani, 2007, Financial fraud, director reputation, and shareholder wealth, *Journal of Financial Economics* 86, 306-336.

Fee, C. Edward, and Charles Hadlock, 2004, Management turnover across the corporate hierarchy, *Journal of Accounting and Economics*, 37, 3-38.

Gillan, Stuart, Jay Hartzell, and Laura Starks, 2004, Explaining corporate governance: Boards, bylaws, and charter provisions, Working Paper, University of Texas.

Gilson, Stuart, 1990, Bankruptcy, boards, banks, and block holders: Evidence on changes in corporate governance when firms default, *Journal of Financial Economics* 27, 355-387.

Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Hallock, Kevin, 1997, Reciprocally interlocking boards of directors and executive compensation, *Journal of Financial and Quantitative Analysis* 32, 331-344.

Harford, Jarrad, Sattar Mansi, and William Maxwell, 2008, Corporate governance and firm cash holdings in the US, *Journal of Financial Economics,* 87, 535-555.

Harris, Milton, and Artur Raviv, 2008, A theory of board control and size, *Review of Financial Studies,* 21, 1797-1832.

Heckman, James, 1979, Sample selection bias as a specification error, *Econometrica* 47, 153-161.

Helmich, Donald, 1974, Organizational growth and succession patterns, *Academy of Management Journal* 17, 771-775.

Helmich, Donald, and Brown, Warren, 1972, Successor type and organizational change in the corporate enterprise, *Administrative Science Quarterly* 17, 371-381.

Hennes, Karen, Andrew Leone, and Brian Miller, 2008, The importance of distinguishing errors from irregularities in restatement research: The case of restatements and CEO/CFO turnover, *The Accounting Review*, 83, 1487-1519.

Hermalin, Benjamin, and Michael Weisbach, 1988, The determinants of board composition, *Rand Journal of Economics* 19, 589-606.

Hermalin, Benjamin, and Michael Weisbach, 1998, Endogenously chosen board of directors and their monitoring of the CEO, *American Economic Review* 88, 96-118.

Hermalin, Benjamin, and Michael Weisbach, 2003, Boards of directors as an endogenously determined institution: A survey of the economic literature, *Federal Reserve Bank of New York Economic Policy Review* Issue Apr, 7-26.

Jensen, Michael, and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305-360.

Kaplan, Steven and David Reishus, 1990, Outside directorships and corporate performance, *Journal of Financial Economics* 27, 389-410.

Kaufman, Allen, Ernie Englander, and Christopher Tucci, 2007, The managerial power thesis revised: Independent directors and the CEO 'directorate', Working Paper, University of New Hampshire.

Klein, April, 1998, Firm performance and board committee structure, *Journal of Law and Economics* 41, 275-303.

Larcker, David, Scott Richardson, Andrew Seary, and Irem Tuna, 2005, Back door links between directors and executive compensation, Working Paper, Stanford University.

Li, Kai and Nagpurnanand Prabhala, 2007, Self-Selection Models in Corporate Finance, in Handbook of Corporate Finance: Empirical Corporate Finance, *Handbooks in Finance Series*, Chapter 2, (Elsevier/North-Holland).

Linck, James, Jeffry Netter, and Tina Yang, 2008, The determinants of board structure, *Journal of Financial Economics*, 87, 308-328.

Linck, James, Jeffry Netter, and Tina Yang, 2009, The effects and unintended consequences of the Sarbanes-Oxley Act, on the supply and demand for directors, *The Review of Financial Studies,*22, 3287-3328.

Mace, Myles, 1971, *Directors: Myth and reality*, (Boston: Harvard Business School Press).

Masulis, Ronald, Cong Wang, and Fei Xie, 2007, Corporate governance and acquirer returns, *Journal of Finance,* 62, 1851-1889.

Masulis, Ronald, Cong Wang, and Fei Xie, 2010, Globalizing the boardroom: The effects of foreign directors on corporate governance and firm performance, Working paper, Vanderbilt University.

Mikkelson, Wayne, and Megan Partch, 2003, Do persistent large cash reserves hinder performance?, *The Journal of Finance and Quantitative Analysis,* 38, 275-294.

Myers, Stewart, and Nicholas Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187-221.

Mobbs, Shawn, 2010, CEOs under fire: The effects of inside directors on CEO compensation and turnover, Working Paper, University of Alabama.

Opler, Tim, Lee Pinkowitz, René Stulz, and Rohan Williamson, 1999, The determinants and implications of corporate cash holdings, *Journal of Financial Economics* 52, 3-46.

Perry, Tod, and Urs Peyer, 2005, Board seat accumulation by executives: A shareholder's perspective, *Journal of Finance* 60, 2083-2123.

Raheja, Charu, 2005, Determinants of board size and composition: A theory of corporate boards, *Journal of Financial and Quantitative Analysis* 40, 283-306.

Shivdasani, Anil, and David Yermack, 1999, CEO involvement in the selection of new board members: An empirical analysis, *Journal of Finance* 54, 1829-1853.

Srinivasan, Suraj, 2005, Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members, *Journal of Accounting Research* 43, 291-334.

Stulz, René, 1990, Managerial discretion and optimal financing policies, *Journal of Financial Economics*, 26, 3-27.

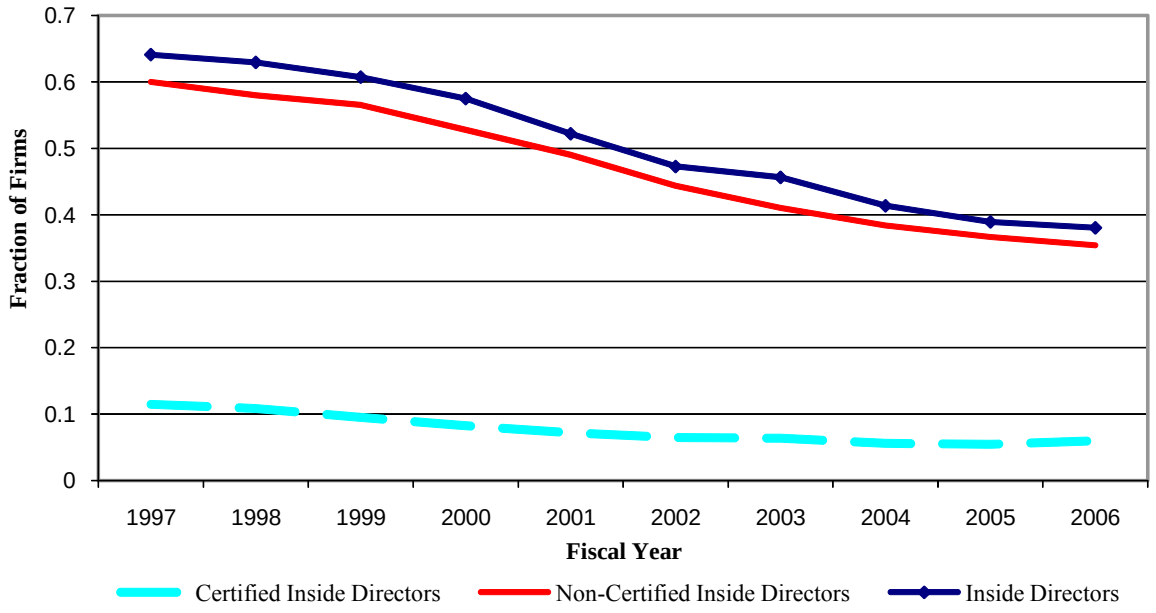
White, Halbert, 1980, A heteroskedasticity-consistent covariance matrix estimator and a direct test of heteroskedasticity, *Econometrica* 48, 817-838.

Yermack, David, 1996, Higher valuation of companies with a small board of directors, *Journal of Financial Economics* 40, 185-211.

Yermack, David, 2004, Remuneration, retention, and reputation incentives for outside directors, *Journal of Finance* 59, 2281–2308.

Figure 1. Firms with Inside Directors during 1997-2006

This figure reports the trend in the fraction of firms with at least one non-CEO inside director, those with at least one certified inside director (CID) and those with at least one non-certified insider during the sample period of 1997-2006. Certified Inside directors are non-CEO inside directors who hold at least one unaffiliated outside directorship. The bottom panel reports the change in the fraction of firms with inside directors, distinguished by whether they hold outside directorships, during the years following the passage of the Sarbanes-Oxley Act of 2002. The passage of the Sarbanes-Oxley Act of 2002 occurred in July 2002, which is the end of the 2001 fiscal year for many firms.



	2001	2006	Change	p-value
% Firms with Inside Directors	52%	38%	14%***	0.00
% Firms with Non-Certified Inside Directors	49%	35%	14%***	0.00
% Firms with Certified Inside Directors	7%	6%	1%	0.46

*Note: If firms have both certified and non-certified inside directors, the sum of the percentage of firms with certified inside directors and other non-certified inside directors may exceed the total percentage of firms with either type of inside director. Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively, based on a two-tailed t-test of the difference in the means.*

Table I. Director Level Univariate Analysis

The sample consists of 8,742 inside director-year observations for 10,767 firm-years for 2,137 firms from fiscal years 1997-2006, excluding finance and utility firms and firm-years when the CEO is 64 years old or older. The director data come from the IRRC director database. *Inside directors* are employees of the firm who are not the CEO. *Certified Inside Directors* are operating officers on the board who hold at least one outside directorship in an unaffiliated firm. *Non-Certified Inside Directors* do not sit on another independent board. *Outside directors* are classified as being either affiliated with the firm or independent of the firm. Other variable definitions are in the appendix. Panel A displays the means of various director characteristics for each type of director within the sample. Panel B displays the mean and median characteristics of the outside directorships held by insiders.

Panel A: All Directors	**Non-CEO Inside Directors**				**Outside Directors**	
	All	**Non-Certified**	**Certified**	**Difference**	**Affiliated**	**Independent**
Number of Inside Director Observations	8742	7867	875			
Percent of sample	100%	90%	10%			
Number of Outside Director Observations					14194	69214
Percent of sample					17%	83%
Inside Executive Positions						
President	0.21	0.19	0.36	-0.16***		
Vice President	0.07	0.08	0.02	0.05***		
Senior Vice President	0.08	0.09	0.05	0.03***		
Executive Vice President	0.21	0.21	0.21	0.00		
Chief Operating Officer	0.19	0.18	0.29	-0.11***		
Chief Financial Officer	0.12	0.12	0.17	-0.05**		
Treasurer	0.04	0.04	0.02	0.02***		
Secretary	0.06	0.07	0.03	0.03***		
Director and Board Characteristics (means)						
Director Age		55.1	55.8	-0.7***	59.5	60.2
Board Tenure		12.3	6.9	5.4***	11.5	7.4
Director Ownership (%)		3.29	0.75	2.54***	2.5	0.3
Founder Director		0.14	0.00	0.14***	0.07	0.02
Founder Family Director		0.08	0.00	0.08***	0.08	0.01
Director Blockholder (owns more than 5%)		0.16	0.03	0.13***	0.11	0.01
Percent Independent Outsiders on the Board		52.97	61.88	-8.91***	51.5	71.5
60% Independent Outsiders		0.33	0.56	-0.23**	0.32	0.74
Separate CEO and Chairperson		0.47	0.25	0.22***	0.44	0.38
Total number of Inside Directors on the Board		2.12	1.88	0.25***		
Insider Appointed During CEO Board Tenure		0.50	0.64	-0.14		

Panel B: Outside Directorships of Insiders	**Mean**			**Median**		
	Independent	**Affiliated**	**Difference**	**Independent**	**Affiliated**	**Difference**
Outside Directorship Prior to Own Board	13.7%	18.4%	-4.7%*	0	0	-
Board Tenure Prior to Gaining Directorship	2.9	3.7	-0.8*	1	1	-
Board Tenure on Outside Boards	3.1	15.9	-12.8***	1	3	-2***
% Ownership in Outside Firm	0.11%	0.50%	-0.38%***	0.005%	0.026%	-0.021%***
Different Fama-French Industry	88%	73%	15%***	1	1	-
Percent Independent Outsiders	72.6%	51.7%	20.9%***	75%	50%	25%***
Relative Firm Size (Assets)	0.19	0.19	0	0.73	0.61	0.13*
Separate CEO and Chair	32%	48%	-16%***	0%	0%	-

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed t-test (a Wilcoxon signed rank test) of the difference in the means (medians).*

Table II. Determinants of Inside Director Board Representation

This table presents regression estimates of the determinants of inside operating officer representation on corporate boards for firms in the 1997-2006 sample period. The dependent variable in model 1 (2) is the percentage of all Non-Certified Inside Directors (Certified Inside Directors) on the board. *Certified Inside Directors* are defined as non-CEO inside directors who hold at least one outside directorship in an unaffiliated firm. Models 3 and 4 estimate probit regressions where the dependent variables are binary indicator variables. In model 3 the dependent variable equals one if the firm has at least one non-CEO inside director on the board and zero otherwise. In model 4, the dependent variable equals one if the firm has at least one certified inside director on the board and zero otherwise. All variable definitions are in the appendix. All models include year and industry fixed effects. Standard errors are robust to heteroscedasticity and adjusted for firm clustering. Beneath each coefficient estimate is its *p*-value.

	% Non-Certified Inside Directors	% Certified Inside Directors	Presence of Inside Directors	Presence of Certified InsideDirectors
	Model 1	Model 2	Model 3	Model 4
	OLS	OLS	Probit	Probit
Information Importance				
R&D/Assets^{+++}	-6.68**	1.58*	0.15	0.82
	(0.018)	*(0.056)*	*(0.708)*	*(0.239)*
Capital Expenditure/Sales^{++}	-0.07***	0.01***	-0.004	0.01***
	(0)	*(0.005)*	*(0.284)*	*(0.001)*
Ln(Sales)$^{+++}$	-0.53***	0.37***	0.07***	0.28***
	(0)	*(0)*	*(0.001)*	*(0)*
Leverage^{+++}	-2.67**	-0.45	-0.35**	-0.14
	(0.014)	*(0.101)*	*(0.012)*	*(0.528)*
Ln(# Business Segments)$^{+}$	-0.29	0.01	-0.07*	0.01
	(0.282)	*(0.899)*	*(0.073)*	*(0.792)*
Ln(# Geographic Segments)$^{+++}$	-0.46	0.14*	-0.07*	0.12**
	(0.126)	*(0.069)*	*(0.084)*	*(0.036)*
Industry Competition^{+++}	0.0008*	-0.0002**	-0.00003	-0.0002*
	(0.079)	*(0.042)*	*(0.614)*	*(0.058)*
CEO/Board Characteristics				
Ln(CEO Tenure)$^{+++}$	1.25***	0.25***	0.15***	0.17***
	(0)	*(0)*	*(0)*	*(0)*
CEO Percent Ownership^{+++}	0.204***	-0.004	0.011***	-0.003
	(0)	*(0.498)*	*(0.008)*	*(0.55)*
Board Ownership% $^{+++}$	0.137***	0.002	0.017***	0.003
	(0)	*(0.601)*	*(0)*	*(0.183)*
Founder Director Present^{+++}	3.33***	0.090	0.40***	0.06
	(0)	*(0.508)*	*(0)*	*(0.529)*
Founder Family Director Present^{+}	0.56	-0.04	0.21**	0.03
	(0.449)	*(0.826)*	*(0.033)*	*(0.797)*
Firm Performance & Activity				
Stock Volatility^{+}	2.47	-0.59	-0.092	-1.03
	(0.415)	*(0.318)*	*(0.795)*	*(0.154)*
Operating $CF_{(t-1)}$	0.02***	-0.0004	0.0044**	-0.0007
	(0)	*(0.66)*	*(0.015)*	*(0.551)*
Recent M&A^{++}	0.59**	0.07	0.07*	0.07
	(0.048)	*(0.355)*	*(0.088)*	*(0.188)*
Post-SOX^{+++}	-4.03***	-0.75***	-0.39***	-0.56***
	(0)	*(0)*	*(0)*	*(0)*
Number of Observations	9523	9523	9523	9316
Adjusted R^2 / Psuedo-R^2	20.86%	5.94%	11.08%	14.18%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively. Symbols $^{+}$, $^{++}$, $^{+++}$ indicate statistical significance at the 10%, 5% and 1% levels respectively for Wald tests comparing coefficients of a multivariate regression of models 1 and 2.*

Table III. Firm Performance and Inside Directors

This table presents the results of a multivariate Heckman (1979) regression analysis of firm performance over the 1997-2006 sample period, using maximum likelihood estimation. Lambda represents the inverse Mill's ratio of the first stage probit regression from Table II model 3 that estimates the likelihood of a firm having at least one non-CEO inside director on the board. The estimates reported below are based on a multivariate regression analysis of two measures of performance for firms with non-CEO inside directors. The dependent variables are industry adjusted (Fama-French) annual operating performance and the natural logarithm of the market-to-book ratio. Firm operating performance is measured by the annual cash flow from operations scaled by beginning of year assets (*CF*). The market-to-book ratio is measured by the year-end market value of equity plus the book value of assets less the book value of equity all scaled by total assets (*M/B*). *Certified Inside Director representation* (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. All other variable definitions are in the appendix. All models include year fixed effects. Models 1, 2, 4 and 5 include industry fixed effects. Standard errors are robust to heteroscedasticity and adjusted for firm clustering with *p*-values reported beneath each coefficient estimate. Models 3 and 6 are OLS regressions using firm fixed effects.

	CF	CF	CF	ln(M/B)	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Certified Inside Directors (%)	0.0012**	0.0011*	0.0002	0.0080***	0.0093***	0.0048***
	(0.017)	*(0.06)*	*(0.581)*	*(0.001)*	*(0)*	*(0)*
Non-Certified Inside Directors (%)		-0.0002	0.00005		0.0013	0.0026***
		(0.394)	*(0.783)*		*(0.283)*	*(0)*
CEO Percent Ownership	-0.0019*	-0.0017*	0.0007	-0.0113***	-0.0122***	0.0003
	(0.056)	*(0.086)*	*(0.385)*	*(0.007)*	*(0.004)*	*(0.905)*
CEO Percent Ownership^2	0.00003	0.00002	-0.00002	0.0004***	0.0004***	-0.0001
	(0.312)	*(0.379)*	*(0.305)*	*(0.002)*	*(0.001)*	*(0.451)*
Board Ownership	-0.0011***	-0.0011***	-0.0007***	-0.0004	-0.0005	-0.0015***
	(0)	*(0)*	*(0)*	*(0.666)*	*(0.62)*	*(0.007)*
Founder-Director	-0.012*	-0.011*	-0.003	0.027	0.025	-0.056***
	(0.081)	*(0.091)*	*(0.47)*	*(0.411)*	*(0.443)*	*(0)*
Founding Family Director	-0.015**	-0.016**	0.007	-0.086**	-0.085**	0.036*
	(0.027)	*(0.025)*	*(0.282)*	*(0.01)*	*(0.012)*	*(0.088)*
CF				1.741***	1.744***	0.946***
				(0)	*(0)*	*(0)*
$CF_{(t-1)}$				0.553***	0.552***	0.228***
				(0)	*(0)*	*(0)*
$CF_{(t-2)}$				-0.034***	-0.035***	-0.03
				(0.002)	*(0.002)*	*(0.316)*
Ln(Assets)	-0.008***	-0.008***	-0.010***	0.008	0.010	-0.244***
	(0.001)	*(0.001)*	*(0.002)*	*(0.379)*	*(0.302)*	*(0)*
Number of Business Segments	-0.003*	-0.003*	0.0004	-0.010*	-0.010*	-0.001
	(0.06)	*(0.061)*	*(0.686)*	*(0.09)*	*(0.085)*	*(0.763)*
R&D / Assets	-0.32***	-0.32***	-0.32***	2.09***	2.10***	-0.017
	(0)	*(0)*	*(0)*	*(0)*	*(0)*	*(0.889)*
Depreciation Expense/Sales	-0.013***	-0.013***	0.006***			
	(0)	*(0)*	*(0.003)*			
Capital Expense/Sales				0.035***	0.036***	0.002
				(0)	*(0)*	*(0.213)*
Ln(Firm Age)	-0.008***	-0.008***	-0.010**	-0.032**	-0.031**	-0.121***
	(0.004)	*(0.003)*	*(0.037)*	*(0.017)*	*(0.023)*	*(0)*
Stock Volitility	-0.266***	-0.265***	-0.142***			
	(0)	*(0)*	*(0)*			
Lambda	-.130***	-.132***		-0.092	-0.081	
	(0)	*(0)*		*(0.142)*	*(0.197)*	
Number of Observations	9385	9385	9700	9347	9347	9512
Censored	4732	4732		4732	4732	
Firms with Inside Directors	4653	4653		4615	4615	
Prob > $\chi 2$ / Adjusted R^2	0.00	0.00	53.37%	0.00	0.00	70.07%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IV. Effects of Inside Directors Acquiring Outside Directorships: A Difference-in-Difference Analysis

This table presents difference-in-difference estimates for firms with non-CEO inside directors. The treatment firms have a non-CEO inside director who acquires an independent outside directorship in the 1998-2006 sample period. The control firms have only non-CEO inside directors who have no unaffiliated outside directorship in the 1998-2006 sample period. The control firms are matched on industry and asset size with replacement. There are 91 observations of treatment and non-treatment firms during the pre-treatment period. The model estimated is

$$\text{Performance}_{it} = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Post-treatment}_t + \beta_3 \text{Treatment}_i * \text{Post-treatment}_t + \text{Controls} + \varepsilon_{it}$$

The performance measure is either industry adjusted operating cash flow or ln(market-to-book). The pre-treatment period is the year prior to an inside director acquiring an outside directorship and the post treatment period is the year after. *Treatment*$_i$ equals 1 if the firm is in the treatment group and zero otherwise. *Post-treatment*$_t$ equals 1 in the post treatment period and are zero otherwise. The coefficient estimate of the interaction term, β_3, is the difference-in-difference estimate. Control variables are the same as Table III, but are suppressed for brevity. Standard errors are robust to heteroscedasticity and clustered by firm, with *p*-values reported beneath each coefficient estimate.

	CF	CF	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Treatment Firm	0.004	0.006	0.070	0.063
	(0.789)	*(0.654)*	*(0.378)*	*(0.374)*
Post-Treatment Indicator	-0.016**	-0.009	-0.084**	-0.049
	(0.039)	*(0.31)*	*(0.041)*	*(0.194)*
Post-Treatment X Treatment Firm	0.024*	0.022*	0.155**	0.116*
(Difference-in-Difference)	*(0.055)*	*(0.096)*	*(0.013)*	*(0.07)*
Number of Observations	360	347	360	340
Controls	No	Yes	No	Yes
Intercept	Yes	Yes	Yes	Yes
R^2	1.86%	7.0%	4.53%	24.60%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table V. Inside Directors, Firm Performance and R&D Activity

This table presents results from a multivariate regression analysis in a Heckman (1979) framework. We examine the interactive effect of having certified inside director (CID) representation and a firm with a high level of information importance (using R&D as a proxy) on firm performance over the 1997-2006 sample period. The first stage model is the probit regression from Table II, model 3. Estimates from the second stage performance model for firms that have inside directors are reported below. The dependent variables are industry adjusted (Fama-French) firm annual operating cash flow (*CF*) (models 1 to 3) and ln(market-to-book ratio) (*M/B*) (models 4 to 6). *Certified Inside Director representation* (*CID %*) is defined as the percentage of directors who are officers holding at least one unaffiliated outside directorship. *Non-CID* (*%*) is the percentage of directors who are officers not holding an unaffiliated outside directorship. *High (Low) R&D* is an indicator variable that equals one if the firm's year-end R&D/assets ratio is in the top (bottom) quartile of the industry. All other variable definitions are in the appendix. Models 4 to 6 include finance and utility firms. All models include year fixed effects. Models 1, 2, 4 and 5 include industry fixed effects. The standard errors are robust and clustered by firm, with *p*-values reported beneath each coefficient estimate. Control variables, including the inverse Mills ratio, are the same as Table III, but suppressed for brevity. Models 3 and 6 are OLS regressions using firm fixed effects.

	CF	CF	CF	ln(M/B)	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CID (%) X High R&D	0.003***	0.004***	0.0003	0.013**	0.015**	0.010***
	(0.004)	*(0.003)*	*(0.78)*	*(0.03)*	*(0.011)*	*(0.005)*
CID (%) X Low R&D	0.0008	0.0007	0.0005	0.0004	-0.0005	0.001
	(0.296)	*(0.407)*	*(0.294)*	*(0.866)*	*(0.854)*	*(0.53)*
Non-CID (%) X High R&D		0.0003			0.005**	
		(0.453)			*(0.04)*	
Non-CID (%) X Low R&D		-0.0002			-0.002	
		(0.306)			*(0.193)*	
F-test : CID X High R&D = CID X Low R&D						
	0.003*	0.003**	-0.0002	0.012*	0.015**	0.010**
	(0.067)	*(0.047)*	*(0.82)*	*(0.056)*	*(0.017)*	*(0.015)*
Number of Observations	9385	9385	9700	10957	10957	11157
Censored	4732	4732	-	5575	5575	-
Firms with Inside Directors	4653	4653	-	5382	5382	-
Prob > $\chi 2$ / Adjusted R^2	0.00	0.00	53%	0.00	0.00	71%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VI. Shareholder Wealth Effects of Unaffiliated Outside Directorship Appointments for Inside Directors

This table reports results of an analysis of cumulative abnormal returns (*CARs*) for the event window [-1,1] of 87 announcements of non-CEO executives appointed to their own board who later are appointed to unaffiliated outside boards and 118 announcements of non-CEO inside director appointments to outside directorships of non-affiliated independent firms (i.e. becoming a Certified Inside Director). Day 0 is the first announcement of the appointment. The market model is estimated using the value-weighted CRSP index as a proxy for the market returns over days [-210,-10]. The abnormal return is computed for each day in the event window by subtracting the expected return (market model) from the actual return. Panel A reports the mean (median) 3-day CAR and below each estimate is the *p*-value from two-tailed *t*-test (a Wilcoxon signed rank test). The last column reports tests of the hypothesis that the percentage of positive CARs is 50% using a binomial test, with the resulting *p*-values reported beneath each percentage. Panel B reports the results of regression analysis, where the dependent variable is the CAR. *Firm size* is the natural logarithm of total sales. *Director Age <60* equals 1 if the director's age is < 60 years. *2nd Directorship* equals 1 if the inside director is receiving a second outside board appointment in an unaffiliated firm. *Busy Director* equals 1 if the inside director is receiving a third or greater outside board appointment. *Director Ownership* is the director's ownership in the home firm. *Board Tenure* is the number of years a director has served on the board. *Relative Capital Expenditure/Sales* is the ratio of capital expenditure/sales of the appointing firm to that of the executive's home firm. *Relative Firm Size* is the ratio of the appointing firm's assets to that of the home firm. All other variable definitions are in the appendix. The *p*-values based on robust standard errors are beneath each coefficient estimate. Panel C reports the mean, median and the percentage of negative 3-day CARs for departure announcements with *p*-values reported beneath each estimate for the same tests as in Panel A. No Succession reports the CARs only for director departure announcements that did not simultaneously announce a replacement. Retirement reports the CARs only for the announcements indicating the executive is departing due to retirement. Outside Firm Promotions reports the CARs only for the announcements indicating the executive is leaving to become CEO of another firm or start their own firm. Pre- and Post-SOX reports the CARS only for the announcements occurring prior to 2001 and during 2001 or later, respectively.

Panel A: Certified Inside Director Board Appointments

	Own Board Appointment CAR				Independent Outside Board Appointment CAR			
	N	Mean	Median	%>0	N	Mean	Median	%>0
Total	87	-0.0059	0.0008	52%	118	.0084**	0.0045*	59%**
		(0.324)	*(0.477)*	*(0.415)*		*(0.049)*	*(0.095)*	*(0.026)*
Pre-SOX	48	-0.0012	0.0035	54%	68	0.0056	0.0020	56%
		(0.896)	*(0.984)*	*(0.333)*		*(0.386)*	*(0.599)*	*(0.198)*
Post-SOX	39	-0.0117	-0.0021	49%	50	.0122**	0.0069**	64%**
		(0.117)	*(0.230)*	*(0.625)*		*(0.013)*	*(0.041)*	*(0.032)*

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VI. (continued)

Panel B: Dependent Variable: Announcement CARs for Inside Director Appointments to Unaffiliated Directorships

	Model 1	Model 2	Model 3
High R&D	0.022**	0.008	-0.010
	(0.037)	*(0.66)*	*(0.441)*
60% Independent Outsiders		-0.012	-0.006
		(0.185)	*(0.475)*
High R&D X 60% Independent Outsiders		0.021	0.041**
		(0.285)	*(0.03)*
Relative Capital Expenditure/Sales			0.006***
			(0.007)
Relative Firm Size			0.002
			(0.541)
Director Age < 60	0.030*	0.029*	0.031**
	(0.05)	*(0.069)*	*(0.026)*
2nd Directorship	-0.010	-0.011	-0.014
	(0.337)	*(0.334)*	*(0.183)*
Busy Director	-0.040***	-0.039**	-0.008
	(0.008)	*(0.023)*	*(0.561)*
Director Ownership	0.013	0.012	0.032***
	(0.138)	*(0.198)*	*(0.006)*
Board Tenure	0.001	0.0005	-0.001
	(0.375)	*(0.55)*	*(0.278)*
Firm Size	0.007*	0.007*	0.009**
	(0.067)	*(0.073)*	*(0.042)*
Leverage	0.050	0.051	0.021
	(0.164)	*(0.18)*	*(0.551)*
Capital Expense/Sales	0.057**	0.052**	0.076***
	(0.023)	*(0.04)*	*(0.001)*
$CF_{(t-1)}$	-0.003***	-0.002***	-0.002**
	(0)	*(0)*	*(0.011)*
SOX	0.012	0.014	0.010
	(0.322)	*(0.271)*	*(0.332)*
Constant	-0.112***	-0.103**	-0.121***
	(0.004)	*(0.01)*	*(0.006)*
Number of Observations	116	116	100
R^2	13.9%	15.2%	26.8%
F-test:			
60% Independent Outsiders + High R&D X 60% Independent Outsiders=0		0.01	0.03*
		(0.67)	*(0.058)*
High R&D + High R&D X 60% Independent Outsiders=0		0.03**	0.03**
		(0.020)	*(0.016)*

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VI. (continued)

Panel C: Inside Director Departures

	Certified Inside Director CAR				Non-Certified Inside Director CAR			
	N	Mean	Median	%<0	N	Mean	Median	%<0
All Departure Announcements	123	-0.011***	-0.006**	58%*	109	-0.001	0.001	48%
		(0.01)	*(.05)*	*(0.1)*		*(0.89)*	*(.99)*	*(0.71)*
No Succession Announcements	84	-0.010*	-0.005	56%	65	0.0003	0.0003	48%
		(0.07)	*(.25)*	*(0.16)*		*(0.97)*	*(.82)*	*(0.68)*
Retirement Announcements	70	-.008*	-0.009	59%*	71	0.003	0.004	44%
		(0.10)	*(.11)*	*(0.09)*		*(0.59)*	*(.62)*	*(0.87)*
Outside Firm Promotions	22	-0.026	0.003	45%	13	0.011	0.020	38%
		(0.11)	*(.45)*	*(0.74)*		*(0.19)*	*(.22)*	*(0.87)*
Pre-SOX	76	-0.009	-0.005	55%	88	-0.003	-0.005	51%
		(0.12)	*(.26)*	*(0.21)*		*(0.63)*	*(.58)*	*(0.46)*
Post-SOX	47	-0.015**	-0.007*	62%*	21	0.009	0.010	33%
		(0.04)	*(.08)*	*(0.07)*		*(0.16)*	*(.14)*	*(0.96)*

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VII. Acquisition Announcement Returns

This table reports the results of an analysis of bidder cumulative abnormal returns (*CARs*) based on a one-factor market model for the 5-day event window [-2, 2] around an acquisition announcement (measured in percentages). Panel A reports the mean and median CARs for various sub-samples and tests of the corresponding differences. The *p*-value below each mean (median) estimate is from a two-tailed *t*-test (a Wilcoxon signed rank test). The last row in each sub-panel reports results of tests of the hypothesis that the percentage of positive CARs is 50% using a binomial test with *p*-values for each test reported beneath each estimate. Panel B reports results for various CAR regressions. Models 1 and 6 of panel B include all bid announcements. Models 2 through 5 and 7 include only bid announcements for completed acquisitions. Models 3 through 5 are the second stage estimates of the Heckman selection model. The first stage equation is model 3 of Table II. Model 7 only includes acquisitions of public targets where target stock return data are available in the CRSP database. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. *% Cash Financed* is the percentage of the deal that is financed with cash. *Relative Deal Size* is the deal value from SDC scaled by the market capitalization of the acquirer 10 days prior to the acquisition announcement. *Unsolicited Bid* equals one if SDC classifies the acquisition as unsolicited, which they define as offers that are a surprise to the target board. *Diversifying Bid* equals 1 if the target is in a different Fama-French industry from the acquirer. *All-cash deal* equals 1 if the deal is financed with 100% cash. *Stock deal* equals 1 if the deal is partially or fully financed by stock. *Public Target* equals 1 if the target is a publicly traded company. Private Target equals one if the target firm is private. Subsidiary Target equals one if the target is a subsidiary. *Cross-border Deal* equals 1 if the target is in a foreign country. *Tobin's Q* is approximated by the year-end market value of equity plus book value of assets minus the book value of equity all scaled by total assets. *Stock Runup* is the buy and hold return of the firm's stock from day -211 to -10 from the announcement date t=0. The *G-Index* is the index of 24 anti-takeover provisions used in Gompers, Ishi, and Metrick (2003). *Total wealth gain* is the value-weighted bidder and target announcement returns. Definitions of all the other variables are in the appendix. Standard errors are adjusted for heteroskedasticity (White (1980)) and acquirer clustering. The associated *p*-values are reported beneath each coefficient estimate.

Table VII. (continued)

Panel A: Announcement Cumulative Abnormal Returns

		All Firms - all acquisition attempts			
		Whole Sample	CID Present	CID Not Present	Difference
5-day CAR	Mean	-0.344**	0.324	-0.397**	0.721
		(0.020)	*(0.41)*	*(0.01)*	*(0.21)*
	Median	0.045	0.151	0.033	0.118
		(0.54)	*(0.67)*	*(0.45)*	*(0.54)*
	%>0	50.5%	52.9%	50.3%	
		(0.63)	*(0.42)*	*(0.79)*	
Number of obs.		3066	225	2841	
		All Firms - completed acquisitions			
		Whole Sample	CID Present	CID Not Present	Difference
5-day CAR	Mean	-0.157	0.490	-0.210	0.700
		(0.30)	*(0.22)*	*(0.19)*	*(0.22)*
	Median	0.083	0.321	0.064	0.257
		(0.75)	*(0.39)*	*(0.93)*	*(0.44)*
	%>0	51%	54.2%	50.7%	
		(0.30)	*(0.24)*	*(0.47)*	
Number of obs.		2824	212	2612	
		Firms with Inside Directors - all acquisition attempts			
		Whole Sample	CID Present	CID Not Present	Difference
5-day CAR	Mean	-0.517**	0.324	-0.668***	0.992*
		(0.01)	*(0.41)*	*(0.004)*	*(0.08)*
	Median	-0.195	0.151	-0.248*	0.399
		(0.11)	*(0.67)*	*(0.06)*	*(0.23)*
	%>0	48.4%	52.9%	47.6%*	
		(0.22)	*(0.42)*	*(0.09)*	
Number of obs.		1478	225	1253	
		Firms with Inside Directors - completed acquisitions			
		Whole Sample	CID Present	CID Not Present	Difference
5-day CAR	Mean	-0.366*	0.490	-0.525**	1.02*
		(0.08)	*(0.22)*	*(0.03)*	*(0.08)*
	Median	-0.114	0.321	-0.233	0.554
		(0.35)	*(0.39)*	*(0.17)*	*(0.18)*
	%>0	48.9%	54.2%	47.9%	
		(0.43)	*(0.24)*	*(0.16)*	
Number of obs.		1358	212	1146	

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VII. (continued)

Panel B: Multivariate analysis

Dependent Variable:	5-day CAR	5-day CAR	5-day CAR	5-day CAR	1 if 5-day CAR >0 0 otherwise	1 if withdrawn 0 otherwise	Total Wealth Gain
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
CID (%)	0.137***	0.148***	0.171***		0.010***	-0.04	0.167***
	(0.01)	*(0)*	*(0)*		*(0)*	*(0.37)*	*(0.01)*
CID (%) X High R&D				0.233**			
				(0.02)			
CID (%) X Low R&D				0.040			
				(0.51)			
5-day CAR						-0.023*	
						(0.08)	
5-day CAR x CID (%)						-0.011*	
						(0.07)	
Non-CID Inside Directors (%)							-0.061**
							(0.03)
Deal Characteristics							
% Cash Financed	0.022***	0.017***	0.014	0.014	0.001	-0.013*	0.022***
	(0.001)	*(0.01)*	*(0.11)*	*(0.12)*	*(0.32)*	*(0.07)*	*(0)*
Relative Deal Size	-2.88***	-1.54**	-3.14***	-3.12***	-0.1*	0.94***	-0.188
	(0.01)	*(0.04)*	*(0)*	*(0)*	*(0.06)*	*(0)*	*(0.82)*
Unsolicited Bid	1.222	-0.052	-0.368	-0.083	-0.213*	2.832***	2.169
	(0.35)	*(0.97)*	*(0.83)*	*(0.96)*	*(0.1)*	*(0)*	*(0.32)*
Diversifying Bid	-0.266	-0.247	-0.198	-0.113	0.012	0.116	-0.228
	(0.44)	*(0.48)*	*(0.66)*	*(0.8)*	*(0.65)*	*(0.65)*	*(0.66)*
Public Target x Stock Deal	-3.90***	-4.00***	-2.81***	-2.84***	-0.08*	1.00**	
	(0)	*(0)*	*(0)*	*(0)*	*(0.08)*	*(0.01)*	
Private Target x Stock Deal	-0.994**	-1.183**	-0.962	-0.930	-0.051	-0.533	
	(0.04)	*(0.02)*	*(0.15)*	*(0.16)*	*(0.22)*	*(0.22)*	
Public Target x All-Cash Deal	-2.86***	-2.41***	-2.39**	-2.45**	-0.11	2.13***	
	(0)	*(0)*	*(0.02)*	*(0.02)*	*(0.14)*	*(0.01)*	
Private Target x All-Cash Deal	-2.42***	-2.26***	-1.19	-1.17	0.04	-1.16	
	(0)	*(0)*	*(0.29)*	*(0.31)*	*(0.55)*	*(0.37)*	
Subsidiary Target x All-Cash Deal	-1.775***	-1.594**	-0.927	-0.885	0.005	0.863	
	(0.01)	*(0.02)*	*(0.33)*	*(0.36)*	*(0.95)*	*(0.3)*	
Cross-border Deal	-0.074	0.003	0.378	0.362	0.049	0.180	
	(0.84)	*(0.99)*	*(0.45)*	*(0.47)*	*(0.14)*	*(0.53)*	
Firm Characteristics							
Ln(Assets)	-0.317**	-0.362***	-0.422**	-0.385**	-0.032***	-0.137	-0.201
	(0.01)	*(0.01)*	*(0.01)*	*(0.02)*	*(0)*	*(0.15)*	*(0.24)*
Leverage	2.15	3.42*	1.91	2.19	0.17	-0.07	1.319
	(0.25)	*(0.07)*	*(0.47)*	*(0.41)*	*(0.21)*	*(0.95)*	*(0.62)*
ln(Tobin's Q)	-0.596	-0.529	-0.482	-0.409	0.018	0.206	-0.991
	(0.17)	*(0.22)*	*(0.37)*	*(0.47)*	*(0.48)*	*(0.34)*	*(0.2)*
Stock Runup	-0.94**	-1.02**	-1.22*	-1.26*	-0.08***	-0.91***	-1.07*
	(0.03)	*(0.02)*	*(0.1)*	*(0.08)*	*(0.01)*	*(0)*	*(0.06)*
G-Index	-0.028	-0.050	-0.002	0.002	0.001	-0.024	-0.036
	(0.66)	*(0.41)*	*(0.98)*	*(0.986)*	*(0.89)*	*(0.584)*	*(0.67)*
RD / Assets				-2.30			
				(0.59)			
Inverse Mills Ratio			-0.224	-0.114	0.010		
			(0.68)	*(0.88)*	*(0.77)*		
Number of Observations	3023	2786	1240	1240	1240	2805	874
Year/Industry fixed effects	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*
Adjusted R^2 / Prob > χ^2 / Pseudo-R^2	8.56%	8.14%	0.00%	0.00%	0.00%	26.25%	16.63%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table VIII. Cash Holdings

This table reports results from an analysis of cash holdings in our sample of firms from 1997-2006. The dependent variable is the natural logarithm of cash and cash equivalent holdings scaled by total sales. In model 3, the dependent variable is adjusted for the Fama-French industry median level of its cash to sales ratio. Models 4 and 5 are the second stage equations in the Heckman Self-Selection model. The first stage equation is model 3 of Table II. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. *Ln(Board size)* is the natural logarithm of the number of directors on the firm's board. *Insider Ownership* is the percent of common shares outstanding held by all inside directors and the CEO. Definitions of all the other variables are in the appendix. All models include year and industry fixed effects and *p*-values are beneath each coefficient estimate and are for robust standard errors clustered by firm.

		Industry Adjusted			
Dependent Variable:	Cash Holdings	Cash Holdings	Cash Holdings	Cash Holdings	Cash Holdings
	Model 1	Model 2	Model 3	Model 4	Model 5
Certified Inside Directors (%)	0.014**	0.016***	0.015**	0.016**	
	(0.02)	*(0.01)*	*(0.02)*	*(0.03)*	
Certified Inside Directors (%) X High R&D					0.031***
					(0.01)
Certified Inside Directors (%) X Low R&D					0.011
					(0.18)
G-Index		-0.0335***	-0.0350***	-0.0264*	-0.0255
		(0)	*(0)*	*(0.1)*	*(0.11)*
Ln(Board Size)		-0.4396***	-0.4461***	-0.6013***	-0.6055***
		(0)	*(0)*	*(0)*	*(0)*
Insider Ownership		0.0069*	0.0068*	0.0154***	0.0153***
		(0.05)	*(0.05)*	*(0)*	*(0)*
CEO Duality		-0.0228	-0.0297	-0.0047	-0.0087
		(0.61)	*(0.51)*	*(0.94)*	*(0.9)*
Ln(Assets)	0.0024	0.0537**	0.0491**	0.1345***	0.13***
	(0.925)	*(0.04)*	*(0.05)*	*(0)*	*(0)*
Leverage	-1.75***	-1.72***	-1.63***	-2.60***	-2.58***
	(0)	*(0)*	*(0)*	*(0)*	*(0)*
R&D/Assets	4.06***	4.06***	4.10***	7.04***	6.92***
	(0)	*(0)*	*(0)*	*(0)*	*(0)*
Capital Expense / Sales	0.03***	0.03***	0.03***	0.42***	0.42***
	(0)	*(0)*	*(0)*	*(0)*	*(0)*
Stock Volatility	5.84***	5.48***	4.88***	7.28***	7.27***
	(0)	*(0)*	*(0)*	*(0)*	*(0)*
Inverse Mills Ratio				0.99***	0.97***
				(0)	*(0)*
Number of Observations	9798	9798	9798	4666	4666
Adjusted R^2 / Prob > χ^2	47.49%	48.08%	15.68%	0.00%	0.00%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IX. Earnings Restatements

This table reports results of an analysis of the likelihood of firms restating earnings from fiscal years 1997-2002. The dependent variable in models 1 through 3 equals one if the firm overstated earnings and subsequently restated earnings for that fiscal year and zero otherwise. Model 1 includes year fixed effects. Model 2 includes year and industry fixed effects. Model 3 is the second stage of the Heckman Self-Selection model. The first stage is model 3 of Table II. The dependent variable in models 4 and 5 is the absolute value of the proportion of total sales that were restated for the sub-sample of firms for which restatement values are available. The dependent variable in models 6 and 7 equals 1 if the restatement was an irregularity and zero otherwise. An accounting *irregularity* is defined as an intentional misstatement (Hennes, Leone and Miller (2008)). Model 7 is the second stage of the Heckman Self-Selection model. The data for models 6 and 7 are for the entire sample period, 1997-2006. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. All other variable definitions are in the appendix. Standard errors are robust and clustered by firm. The *p*-values are reported beneath each coefficient estimate.

Dependent Variable:	Misreported	Misreported	Misreported	Amount Restated	Amount Restated	Irregularity	Irregularity
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Certified Inside Directors (%)	-0.114*	-0.112*	-0.007**	-0.021***		-0.150**	-0.003*
	(0.089)	*(0.082)*	*(0.015)*	*(0.007)*		*(0.028)*	*(0.073)*
Certified Inside Directors (%) X High R&D					-0.004**		
					(0.031)		
Certified Inside Directors (%) X Low R&D					-0.0001		
					(0.963)		
Ln(Sales)	0.174***	0.135***	0.006***	-0.007*	-0.006	0.131***	0.004***
	(0)	*(0.001)*	*(0.001)*	*(0.073)*	*(0.147)*	*(0.002)*	*(0)*
Certified Inside Directors (%) X Ln(Sales)	0.015*	0.015*	0.001***	0.002***	0.0001	0.018**	0.0004**
	(0.062)	*(0.053)*	*(0.005)*	*(0.009)*	*(0.387)*	*(0.034)*	*(0.039)*
G-Index	0.043**	0.042**	0.002**	0.0002	-0.0002	-0.02	-0.001
	(0.014)	*(0.021)*	*(0.043)*	*(0.889)*	*(0.897)*	*(0.234)*	*(0.202)*
Operating CF	-1.392***	-1.189***	-0.041**	-0.017	-0.027	-1.707***	-0.026**
	(0)	*(0.001)*	*(0.015)*	*(0.55)*	*(0.457)*	*(0)*	*(0.028)*
Market-to-Book	0.009	0.002	0.001	0.006***	0.005***	-0.112**	-0.0004
	(0.537)	*(0.902)*	*(0.115)*	*(0)*	*(0)*	*(0.019)*	*(0.478)*
Ln(Board Size)	-0.217	-0.027	-0.041**	-0.018	-0.016	-1.707***	-0.026**
	(0.273)	*(0.902)*	*(0.015)*	*(0.373)*	*(0.537)*	*(0)*	*(0.028)*
Outside Director Holdings	0.0003	0.001	0.001	-0.0001	-0.0002	-0.112**	-0.0004
	(0.964)	*(0.927)*	*(0.115)*	*(0.779)*	*(0.638)*	*(0.019)*	*(0.478)*
CEO Age	-0.019**	-0.018**	0.0115	-0.001	-0.001	-0.574**	-0.008
	(0.031)	*(0.043)*	*(0.221)*	*(0.327)*	*(0.291)*	*(0.017)*	*(0.18)*
Founder Present	0.276**	0.192	-0.0001	-0.016	-0.016	-0.0029	0.0003
	(0.03)	*(0.127)*	*(0.82)*	*(0.118)*	*(0.165)*	*(0.508)*	*(0.105)*
Post-SOX	-0.286**	-1.272***	-0.001**	0.005	0.007	-0.009	0.00003
	(0.024)	*(0)*	*(0.015)*	*(0.813)*	*(0.807)*	*(0.216)*	*(0.89)*
Recent M&A	0.219**	0.238**	0.024***	0.005	0.004	-0.227	0.001
	(0.019)	*(0.013)*	*(0)*	*(0.564)*	*(0.703)*	*(0.132)*	*(0.699)*
RD / Assets					-0.020		
					(0.896)		
Inverse Mills Ratio			0.022**				0.015***
			(0.02)				*(0.004)*
F-test:	-0.099*	-0.097*	-0.006*	-0.018***	-0.004*	-0.132**	-0.003*
CID + CID X Ln(Sales)=0	*(0.09)*	*(0.08)*	*(0.054)*	*(0.007)*	*(0.096)*	*(0.028)*	*(0.081)*
Number of Observations	6137	5118	3609	123	123	9185	4220
Clustering	*firms*	*firms*	*firms*	*firms*	*firms*	*firms*	*firms*
Industry/Year fixed effects	*no/yes*	*yes/yes*	*yes/yes*	*no/yes*	*no/yes*	*no/yes*	*no/yes*
Pseudo R^2 / Prob > χ^2 / Adjusted-R^2	11.20%	14.25%	0.00%	26.99%	23.23%	8.08%	0.00%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Appendix: Variable Definitions

Variable	Definition*
Performance Measures & Key Explanatory Variables	
Operating Cash Flow (CF)	(Annual Cash Flow from Operations) / Beginning-year Total Assets: data308/lag(data6). Source: Compustat.
Market to Book (M/B)	(Total Assets – Book Equity + Market Value of Equity) /Total Assets: (data6 – data60 + data199*data25)/data6 : All year end values. Source: Compustat.
Certified Inside Director	non-CEO operating officer-director who holds an outside directorship. Source: IRRC.
Certified Inside Director (%) CID (%)	The percentage of Certified Inside Directors on the board.
Non-certified Inside Director	non-CEO operation officer-director who does not hold an outside directorship. Source: IRRC.
Non-Certified Inside Director(%) Non-CID (%)	The percentage of Non-Certified Inside Directors on the board.
Director Characteristics	
Director Age	Director age. Source: IRRC.
Board Tenure	The number of years a director has served on the board. Source: IRRC.
Director Ownership	Percent of common shares outstanding held by the director, including stock options. Source: IRRC.
Director Blockholder	Indicator variable: equals 1 if the director own more than 5% of the common shares outstanding and is 0 otherwise. Stock percentage ownership is from IRRC.
Founder Director	Indicator variable: equals 1 if the founder is on the board and is 0 otherwise. Source: hand collected from proxies.
Founder Family Director	Indicator variable: equals 1 if a relative of the founder is on the board and is 0 otherwise. Source: hand collected from proxies.
Director Age<60	Indicator variable: equals 1 if the director's age is less than 60 years.
2nd Directorship	Indicator variable: equals 1 if the inside director is receiving a second outside board appointment in an unaffiliated firm. Source: Hand collected from proxies.
Busy Director	Indicator variable: equals 1 if the inside director is receiving a third or greater outside board appointment in an unaffiliated firm. Source: Hand collected from proxies.
CEO & Board Characteristics	
Ln (CEO Tenure)	Natural logarithm of the number of years the CEO has served on the board. Source: IRRC
CEO Percent Ownership	Percent of common shares outstanding held by the CEO at year-end, including stock options. Source: IRRC.

* All dataxx variables refer to the corresponding variable identifiers in the COMPUSTAT annual data base

Board Ownership	Percent of common shares outstanding held by all directors of the board at year-end, excluding the CEO, including stock options from IRRC.
Board Size	Number of directors on the board at year-end. Source: IRRC.
Percent Independent Outside Directors	Percentage of outside directors on the board identified as independent of the CEO and firm. Source: IRRC
60% Independent Outsiders	Indicator variable: equals 1 if the percent independent outside directors is greater than 60% and is 0 otherwise. Source: IRRC
Percent Affiliated Directors	Percentage of "Linked" outside directors on the board identified as affiliated with the firm. Source: IRRC
Total number of Inside Directors	Number of non-CEO inside directors on the board at year-end. Source: IRRC.
Separate CEO and Chair	Indicator variable: equals 1 if the CEO is not the chairperson and is 0 otherwise. Source: IRRC
CEO Duality	Indicator variable: equals 1 if the CEO is the chairperson and 0 otherwise. Source: IRRC
Influential Outside Director	Indicator variable: equals 1 if there is at least one independent outside director on the board who holds the title of Chairman on another board
Firm Characteristics	
CEO Entrenchment	Factor score from Principle Component Analysis (PCA) using CEO tenure, CEO ownership and an indicator if the CEO is also the chair.
Organizational Complexity	Factor score from Principle Component Analysis (PCA) using the natural logarithm of market capitalization (or sales for the market to book regressions), the natural logarithm of the number of business segments, the natural logarithm of the number of geographic segments and the natural logarithm of firm age.
R&D Intensity	R&D/Assets: Max(year-end R&D expense,0) / year-end Total Assets: max(data46,0)/data6 Source: Compustat database.
High CEO Entrenchment	Indicator variable: equals 1 if the CEO Entrenchment factor score for the firm is above the median CEO entrenchment factor score.
Low CEO Entrenchment	Indicator variable: equals 1 if the CEO Entrenchment factor score for the firm is below the median CEO entrenchment factor score.
High Complexity	Indicator variable: equals 1 if the Organizational Complexity factor score for the firm is above the median complexity factor score.
Low Complexity	Indicator variable: equals 1 if the Organizational Complexity factor score for the firm is below the median complexity factor score.
High R&D Firm	Indicator variable: equals 1 if the firm's R&D/Assets is in the top quartile of the industry and is 0 otherwise.
Low R&D Firm	Indicator variable: equals 1 if the firm's R&D/Assets is in the bottom quartile of the industry and is 0 otherwise.
Capital Expenditure Intensity	Capital Expense/Sales: Year-end Capital Expenditure/ year-end Total Assets: (data128/data12) Source: Compustat database.

Depreciation Expense/Sales	Year-end Depreciation Expense/ year-end Total Sales: (data14/data12) Source: Compustat database.
Ln (Sales)	Natural logarithm of year-end sales, (data12) Source: Compustat database.
Ln (Assets)	Natural logarithm of year-end assets, (data6). Source: Compustat database.
Equity Capitalization	Market value of equity at year end, (data25xdata199). Source: Compustat database.
Tangible Assets	Percentage of year-end total assets that are tangible: (1-data33/data6)*100%. Source: Compustat database.
EBITDA	Annual earnings before interests, taxes, depreciation & amortization, data13. Source: Compustat database.
Growth Rate of Assets	Growth rate in total assets from prior year to current year.
Leverage	(Year-ending Long-term Debt plus Debt in Current Liabilities) / year-end Total Assets: ((data9 + data34)/data6). Source: Compustat database.
Cash Holdings	cash and cash equivalent holdings / total sales. Source: Compustat database.
Ln (# of Business Segments)	Natural logarithm of the number of business segments listed in Compustat.
Ln (# of Geographic Segments)	Natural logarithm of the number of geographic segments listed in Compustat.
Firm Age	Number of years a firm is listed in CRSP.
Stock Volatility	Standard deviation of most recent 3 years of monthly stock returns from CRSP.
Recent M&A	Indicator variable: equals 1 if the firm engaged in M&A activity within the current or previous year from the SDC M&A database.
G-Index	Number of anti-take over provision from the IRRC governance database as in Gompers et al. (2003). We use the most recent G-Index for missing years, unless otherwise noted.
Misreported Earnings	Indicator variable: equals 1 if the firm later restated earnings for any quarter during the year, due to an earnings overstatement. Source: Burns and Kedia (2006)
Amount Restated	absolute value of restatement amount/total sales during the restatement period. Source: Burns and Kedia (2006)
Irregularity	Indicator variable: equals 1 if the restatement is classified as an intentional misstatement following the procedure in Hennes, Leone and Miller (2008).
% Cash Financed	Percentage of the deal financed with cash. Source: SDC M&A database.
All-Cash Deal	Indicator variable: equals 1 if the acquisition is financed with 100% cash and 0 otherwise. Source: SDC M&A database.
Stock Deal	Indicator variable: equals 1 if the acquisition is financed with stock and 0 otherwise. Source: SDC M&A database.
Relative Deal Size	Deal value from SDC scaled by the market capitalization of the acquirer 10 days prior to the announcement. Source: SDC M&A database.

Unsolicited Bid	Indicator variable: equals 1 if the acquisition was a surprise to the target board and 0 otherwise. Source: SDC M&A database.
Diversifying Bid	Indicator variable: equals 1 if the target is in a different Fama-French industry from the acquirer and 0 otherwise.
Public Target	Indicator variable: equals 1 if the target is a publicly traded company and 0 otherwise. Source: SDC M&A database.
Private Target	Indicator variable: equals 1 if the target is private and 0 otherwise. Source: SDC M&A database.
Subsidiary Target	Indicator variable: equals 1 if the target is a subsidiary and 0 otherwise. Source: SDC M&A database.
Cross-border Deal	Indicator variable: equals 1 if the target is a foreign company and 0 otherwise. Source: SDC M&A database.
Stock Runup	Buy and hold return of the acquiring firm's stock from day -211 to -10 of the acquisition announcement date.
Post-SOX	Indicator variable: equals 1 if the observations occurs in fiscal year 2001 or later and is 0 otherwise.
Industry Competition	Herfindahl Index: calculated using all available firms for each of the SIC 2-digit industry definitions as Σ_i $(data12_i/data12_{ind})^2$, where i is the number of firms in the industry.
High (Low) Competition	Indicator variable: equals 1 if a firm's 2-digit SIC industry is at or above the 75th percentile (below the 75th percentile) of industry Herfindahl Index levels and is 0 otherwise.
Relative Capital Expenditure/Sales	The ratio of capital expenditure/sales of the appointing firm to that of the executive's home firm.
Relative Firm Size	The ratio of the appointing firm's assets to that of the executive's home firm.

Internet Appendix to "Are All Inside Directors the Same?"*

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Internet Appendix to "Are all inside directors the same?"

A. Sample Firm Descriptive Statistics

Table IA.I.A shows descriptive statistics for key characteristics of our sample firms. On average (at the median), firms have total assets of $5.3 ($1.1) billion, 2 (1) business segments and a 9 member board, consisting of 6 independent outside directors, 1 affiliated director, 1 inside director and the CEO. These board characteristics are similar to other studies such as Coles et al. (2008) and Bhagat and Black (2002).

Average (median) CEO and board ownership levels are 3.6% (1.3%) and 6.4% (1.7%) respectively. This is comparable to Bhagat and Black (2002) who report average ownership by the CEO of 3.8% and by officer/directors of 9%. In addition, 7% of sample firms have at least one non-CEO inside operating officer-director with an unaffiliated outside board seat.

B. Univariate Comparisons of Firms with Certified and Uncertified Inside Directors

Examining Table IA.I.B, we see that firms with CIDs are not significantly different from firms with other inside directors in terms of R&D intensity, capital expenditure intensity or depreciation to sales ratios. On the other hand, firms with CIDs are significantly larger, older, financially more stable and have more business segments than firms with non-CIDs. They also have higher equity capitalization and better operating performance on average than do firms with non-CIDs, suggesting that firms with CIDs tend to have lower agency costs and are better managed.

Firms with CIDs also tend to have larger boards, which are typically associated with weaker governance (Yermack (1996)). Although, Coles et al. (2008) finds that larger boards can be optimal for larger firms when they need more specialized advice, which CIDs can help provide. CIDs are associated with lower CEO and board ownership and a higher frequency of CEO-chair duality, which are suggestive of firms with higher agency costs. However, firms with CIDs are also associated with a greater percentage of independent outside directors on their boards, which suggests greater board monitoring, less entrenched CEOs, and thus lower shareholder-manager agency costs. These descriptive statistics suggest that CIDs

may help offset some corporate governance weaknesses and complement some governance strengths, but a more powerful multivariate analysis approach, which is reported in the main text, is needed to disentangle these conflicting associations.

C. Determinants of Inside Board Representation

Table IA.II reports results examining determinants of CID and non-CID representation, where the lower bound of the dependent variable is censored at zero, since many firms have no inside directors (other than the CEO) on the board. After accounting for the fact that many firms have no inside directors using Tobit regressions, the resulting estimates are similar to the earlier findings in Table II.

D. An Alternative Approach to Endogeneity: instrumental Variables

An alternative approach to addressing endogeneity is a two-stage least squares (2SLS) instrumental variable (IV) model, where inside director representation, the endogeneous covariate, is regressed on a set of instruments correlated with it, but uncorrelated with the firm performance regression's error term. We use determinants of inside directors on the board from Table II (specifically, firm leverage, capital expenditures, geographic segments, industry competition and the Sarbanes-Oxley indicator) to obtain an instrumented variable for CID and non-CID representation. The disadvantage of this approach is that it does not correct for self-selection of all inside directors and it forces the control variables to have the same slope for firms with and without inside directors.

Table IA.III.A presents results for this 2SLS-IV model. The estimates in panel A are consistent with our previous findings in Table III that CIDs have positive associations with operating performance and market-to-book ratios. F-tests for regressions of the IVs on inside director representation reveal they have significant explanatory power. Hansen J-statistics reveal that we cannot reject these IVs as valid instruments, orthogonal to the second-stage firm performance measures, in all but the first regression. Table IA.III.B presents results conditioning on high and low firm R&D intensity, as in Table V, using the 2SLS-IV model. F-tests for significant differences between high and low R&D intensity firms are reported at

the bottom of the table. Model 1 reveals a stronger relation with CIDs and firm operating performance in more R&D intensive firms, though the association of CIDs with market-to-book ratios is similar for high and low R&D intensity firms in model 2.

E. Certified Inside Directors: CEO Entrenchment, Firm Complexity and Product Market Competition

Our primary tests for the importance of firm-specific information utilized one measure, R&D intensity, but the importance of timely director access to firm-specific information can be reflected in other firm characteristics in addition to its internal growth opportunities. Here we consider several characteristics that can reflect the importance of firm-specific information to board decision making. These characteristics, capture several dimensions of firm complexity, namely firm size, age and the number of business and geographic segments. We jointly examine these dimensions of complexity by creating a composite measure of organizational complexity based on the first principle component of these firm characteristics. CIDs are expected to be more important to board oversight functions as this measure of firm-specific information's importance rises.

The importance of timely director access to information also rises as board oversight becomes more critical to a firm's survival. Gillan et al. (2004) observes that product market competition raises the importance of well informed directors and finds that greater competition serves to increase demand for strong corporate governance and forces managers and directors to work harder and more efficiently to survive. Furthermore, in poorly performing firms, managers risk losing their jobs, while directors risk loss of reputation and reduced demand for their corporate director services (Gilson (1990), Kaplan and Reishus (1990), Fich and Shivdasani (2007), and Yermack (2004)). As a board's role becomes more critical to a firm's financial health, collaboration between inside and outside directors has a greater impact on firm performance (Harris and Raviv (2008)). Therefore, if CIDs enhance board decision making, then we expect a stronger positive association with firm performance and valuation when competitive forces are stronger. The next hypothesis captures these predictions.

AH1: CIDs are associated with better firm performance and higher firm value when firms have one or more of the following attributes (1) a large, complex organizational structure and (2) highly competitive product markets.

As with R&D intensity, organizational complexity and product market competition are associated with a greater need for board access to firm-specific information. Examining the relations of CIDs and firm performance, conditioning on these measures allows us to assess more clearly whether outside directorships increase inside director independence or if they are only a signal of inside director value. More specifically, if the outside directorship is only a signal, then there should be no difference in the strength of the association of CIDs and performance in more versus less complex or competitive firms.

In Table IA.IV, we jointly consider alternative measures of the importance of directors having timely access to firm-specific information and CEO entrenchment. We use our composite measure from principle component analysis as our measure of firm complexity. We also use principle component analysis and several measures of CEO power and influence (CEO tenure, ownership and CEO-board chair) to construct a single measure of entrenchment.[1] Models 1 and 5 jointly consider firm complexity and CEO entrenchment. The significant positive coefficient on the interaction of CID representation and high firm complexity (having an above the median factor score) indicates that CIDs add significant value in complex firms, perhaps by limiting agency costs. The generally insignificant coefficient on the interaction of CID representation and a highly entrenched CEO indicator (having an above median factor score) suggests that CIDs may offset the negative impact of an entrenched CEO, possibly because of their improved incentives.

In models 2 and 6, we measure the importance of well informed directors in high growth firms by an indicator for firms having above median R&D intensity.[2] The operating performance results are weaker than when we use firms in the top quartile of R&D intensity as a high growth indicator, but the market-to-

[1] Our primary measures are based on CEO tenure as in Hermalin and Weisbach (1998). However, for robustness we also experimented with another proxy for CEO entrenchment, the number of key anti-takeover provisions, which isolates a CEO from the external market for corporate control, measured by the E-index of Bebchuck, Cohen and Ferrel (2009). We find significant, though weaker results using the E-index, including it in principle component analysis or as a separate variable.

[2] To be consistent with the other information measures, we define high R&D firms as those with above median R&D intensity.

book results are consistent with the earlier findings in Table V. In models 3 and 7 of Table IA.IV, we also find evidence that the net effect of CIDs is stronger in highly competitive industries, where timely director access to firm-specific information is more important. Finally, in models 4 and 8 of Table IA.IV, we jointly consider all the interactions. We find CIDs have stronger relations with operating performance and firm value in complex firms. In all the models, a highly entrenched CEO weakens the positive associations of CIDs with firm operating performance and firm value. Tables IA.V and IA.VI respectively show results for firm complexity and product market competition in isolation. We again find that the interactions of high firm complexity and high levels of competition with CID representation are positive and significant. The interaction of less competitive industries with CID representation is also significantly positive, but it is of a smaller magnitude than the interaction with highly competitive industries in most of the regressions.

Complementing the prior findings, we also find that when firm-specific information is highly important to board monitoring and decision making, CIDs have stronger positive relations with firm operating performance and market-to-book ratios. Thus, when directors' timely access to proprietary information is particularly important, CIDs appear to be more valuable. Conversely, we find no relation between non-CIDs and measures of firm performance. Instead, we find evidence to the contrary, that non-CIDs are associated with lower operating performance when firms face a more competitive environment.

F. Board Characteristics: CIDs and Measures of Board Outside Independence

The prior hypotheses focus on firm and CEO characteristics. However, board characteristics can also dictate a varying need for firm-specific information. For example, boards with a non-CEO chairperson or a large majority of independent outside directors are more independent of a CEO, increasing their monitoring incentives, but they suffer from having less direct knowledge of firm operations, which makes board monitoring less effective. Thus, board decision making in such firms can benefit from timely access to firm-specific information. It follows that if more independent inside directors lead to better-informed

boards, then when boards have enough independence to act on this information, firms with CIDs should exhibit better operating performance and stock valuation.

> AH2: CIDs are associated with stronger firm performance when (1) the chairman of the board is not the CEO or (2) the board includes a large majority of independent outside directors.

F.1. Certified Inside Directors and Board Monitoring Mechanisms

In Table IA.VII, we examine the association of CIDs and firm performance and value when their boards have a large majority of independent outsiders, a non-CEO chairperson, or an influential outside director (defined below) by interacting CID representation with indicators for these three board characteristics. The first proxy for board independence is a binary variable that equals one if independent outside directors represent 60% or more of the board, and is zero otherwise. The second proxy for board independence is a binary variable that equals one if the CEO does not chair the board of directors. Reformers have long thought that separating these two positions is beneficial to shareholder interests. Nevertheless, a large majority of publicly listed US companies continue to have a dual CEO-board chairperson. Brickley, Coles and Jarrell (1997) argue that in large firms the cost of separating these two positions could outweigh their benefits. One potentially important cost they emphasize is transferring critical firm-specific information to a chairperson, which is likely to be a greater task in larger firms where information complexity is substantial. If CIDs help transfer firm-specific information within a board at low cost, then when there is a separate board chairperson, we should expect CIDs to be associated with enhanced firm performance.

Finally, we consider whether the presence of an influential outsider may better motivate inside directors to improve their performance and to reveal more internal firm information to the board. Because inside director certification is based on external labor market forces, we focus on board members who can offer greater outside career opportunities to inside directors. If inside directors perceive that an outside

director has a strong reputation as a director, then they should have greater incentive to impress this director so as to further their own careers. Brickley, Linck and Coles (1999) show that former CEOs with strong labor market reputations are more likely to stay on their board as chairperson and to have more directorships after retirement. Thus, outside directors who are chairs of other corporate boards represent directors with strong reputations, who can provide greater incentives for inside directors to share their inside knowledge. Given their stronger reputations, they have greater incentives to carefully monitor the performance of firms and CEOs where they sit on the board and to seek better access to firm-specific information that a CID could supply. We examine this possibility by using an indicator variable that equals one if at least one independent outside director on the board holds a title of chairperson in another firm.[3]

Model 1 of Table IA.VII shows that after controlling for CID representation, neither a board with a substantial majority of independent outside directors, nor a board with a non-CEO chairperson is associated with a significant improvement in firm performance. In model 2, we examine the CID-performance relation when boards have a non-CEO chairperson. While the interaction term is not significant, an F-test reveals that operating performance is statistically greater in firms with CIDs *and* a non-CEO chairperson. In model 3 of Table IA.VII, we test the CID-performance relation when boards have a majority of independent outside directors. Contrary, to our expectations, we find no evidence that CIDs enhance a board with a majority of independent outside directors. This could reflect the fact that the CID variables enter too many times in this regression, diluting their individual marginal influences. Interestingly, firm performance is not positively associated with the existence of a non-CEO chairperson *and* a majority of independent outside directors. In model 4 of Table IA.VII, we consider firms where CID incentives are greater due to the presence of an influential outside director. We find the strongest relation with operating

[3] Our definition of influential directors is different from prior literature that uses block holdings to indicate influential outside directors.

performance when the board has a CID *and* an influential outside director. This finding underscores the importance of the incentives for inside directors arising from the external labor market for directors.

Market-to-book regression estimates shown in models 6-9 are also consistent with the earlier operating performance results. Non-CEO chairs provide valuable independent oversight, but when their timely access to firm-specific information is poor, measured by the lack of a CID, board oversight can be less effective. Moreover, greater exposure to labor market forces (given the presence of an influential outside director) strengthens the association of CIDs and firm value. Finally, models 5 and 10 estimate the relation between CIDs and firms with non-CEO chairpersons using a 2SLS–IV model. When using a sample of all firms, including those without inside directors in a 2SLS-IV framework, the incremental effect of having CIDs and a non-CEO chair is insignificant.

In the above models, the association of firm performance with a majority of independent outside directors and a separate non-CEO chairperson is statistically insignificant, which is consistent with Adams and Ferreira's (2007) conjecture that better monitoring incentives may be insufficient for effective board oversight, if the board lacks critical firm-specific information. One interpretation of the results in Table IA.VII is that CIDs enhance information transfers to a non-CEO chair, facilitating improved oversight of management, which reduces agency costs associated with manager-shareholder conflicts of interest.

In summary, we find evidence that suggests CIDs are more beneficial when other board monitoring mechanisms are strong. Specifically, we find the interaction of CIDs with an indicator for a separate non-CEO Chair or an independent director with a strong reputation in the labor market is associated with improved firm operating performance and market-to-book ratios. These results suggest CIDs are more valuable when a board's chairperson is less familiar with firm operations and investment opportunities, but is independent of the CEO or when the forces of the external directorship market are particularly strong.

G. ROA Decomposition

To explore the reasons for the observed association of CIDs with better firm operating performance further, we analyze the components of operating performance to see whether CIDs enhance board monitoring of operational efficiency, growth of assets, or controls on overhead costs. For this purpose, we decompose ROA into three components following Chhaochharia et al. (2009) and Ang, Cole and Lin (2000) to better understand the causes for the CID and ROA relation. Defining ROA as EBITDA/Assets,[4] we decompose it as follows:

$$\frac{\text{EBITDA}}{\text{Assets}} = \frac{\text{EBITDA}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} = \frac{(\text{Sales} - \text{COGS} - \text{SGA})}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \quad \text{(A1)}$$

where EBITDA/Sales represents a firm's profit margin and Sales/Assets represents asset turnover. EBITDA can be further decomposed into cost of goods sold (COGS) and sales and general administrative expenses (SGA). These components reveal how effective the board is at controlling operating and overhead costs and measures the effects of agency conflicts. Asset turnover measures the effectiveness of a firm in managing assets to generate sales and has an inverse relation to agency problems manifested in poor investment decisions or managerial shirking. COGS captures the efficiency of production and SGA captures overhead costs associated with running the firm apart from production. COGS and SGA together determine a firm's profit margin. If managers are performing their operating duties effectively, then we expect to find high asset turnover and low COGS and SGA relative to sales (implying a high profit margin).

In Table IA.VIII, we estimate the association between CID representation and ROA. In model 1, we find greater CID representation in high R&D intensity firms is associated with significantly better operating performance, consistent with our earlier findings in Table V using cash flow from operations. In the next 4 models we examine various components of ROA. In model 2, we examine asset turnover and find CID representation in high R&D firms is associated with significantly higher asset turnover. This suggests that

[4] We previously used cash flow from operations, rather than EBITDA, in the numerator in our definition of ROA for reasons defined earlier. Here we use EBITDA for two reasons. First, it serves as a further robustness test of our earlier results. Second, this is the definition used by others when decomposing ROA into various components.

CIDs improve board monitoring of management, leading to increased revenue from a firm's existing assets. In model 3, we examine operational efficiency (COGS/Sales) and find greater CID representation is associated with significantly lower COGS in information sensitive firms, suggesting that CIDs also improve operating efficiency in such firms. In model 4, we analyze overhead expenses, SGA/Sales, and surprisingly find a positive relation between CIDs and greater overhead costs, regardless of the level of firm R&D intensity. Greater overhead cost serves to reduce ROA. However, the associated benefits of greater operating efficiency and better use of firm assets more than offset the higher overhead expense for high R&D firms, based on model 1. Finally, in model 5, we combine the effects of COGS/Sales and SGA/Sales into profit margin. By focusing on profit margin, we can see whether the positive effect of greater operational efficiency or the negative effect of greater overhead expense is dominant. We find CIDs are associated with significantly greater profit margins in firms with high R&D intensity, where timely firm-specific information is most critical to boards. In summary, CIDs appear to help boards more efficiently manage firm assets. Though CIDs are associated with greater overhead costs, this is more than offset by the association with greater operating efficiency and better use of assets.[5]

H. Further Analysis of Discovering CIDs

If CIDs are a firm's most valued executives, their board presence should be associated with better firm performance, even prior to an outside directorship. If outside directorships are also a source of improved inside director incentives, we should see higher firm valuation in the year an undiscovered inside director acquires an outside directorship. In Table IA.IX, we find undiscovered CIDs are positively related to firm operating performance and market-to-book ratios, consistent with the results of Table III. In models 2 and 4, we evaluate the impact of an inside director acquiring an outside directorship on firm performance and valuation by regressing firm operating performance and market-to-book on an indicator for the year an

[5] Examining the correlations of the logs of one plus COGS/Sales and SGA/Sales for high and low R&D firms separately, we find that they are negatively correlated in both high and low R&D firms.

undiscovered CID first acquires an outside directorship and other control variables, including firm-fixed effects. For operating performance, the inside director discovery year indicator is insignificant, which is not surprising since a firm's current year operating performance is unlikely to change immediately after a mid-year improvement in governance. It is more likely that these improvements would show up in the following year, which is what we find in our DID analysis. However, in the market valuation regressions, the inside director discovery year indicator has a significant positive coefficient, which is to be expected if the market immediately capitalizes expected future improvements in firm governance and performance. This is consistent with the earlier findings in Table IV using a DID analysis; so we again conclude that recognition by the external market for directorships improves inside director's incentives to be a more active and independent director, which enhances board effectiveness and puts greater pressure on a CEO to perform.

I. Inside Directors with Independent Outside Directorships Prior to Joining Their Own Board

We next examine CIDs who hold outside directorships prior to joining their own board. Specifically, we try to distinguish whether these prior outside board seats arise due to strategic initiatives by the firm or are the result of broader labor market forces. The evidence reported in Table IA.X, suggests the latter and that these prior directorships are reflective of these insiders having stronger management and decision control skills. Specifically, these insiders are more likely to have seats on boards of more visible S&P500 firms and NYSE listed firms relative to CIDs who receive their inside board seats first. Firms with CIDs holding prior outside directorships are also more likely to have a common outside director who serves on both boards the CID sits on than is true for other firms with CIDs. CIDs with prior outside board seats also on average have shorter subsequent tenure, which is consistent with their leaving more frequently for other outside positions. In sum, the evidence is consistent with CIDs with prior outside board seats exhibiting greater labor market sensitivity, rather than being motivated by strategic considerations of the firm. It is interesting to note that there are no significant differences in growth rate of assets, firm performance or firm value between the two sets of firms, so both sets of firms with CIDs exhibit similar performance levels.

Table IA.I. Descriptive Statistics of Sample Firms

The sample consists of 10,767 firm-year observations for 2,137 firms from fiscal year 1997-2006, excluding finance and utility firms and firms with CEOs 64 years old or older. All variable definitions are in the appendix. The ownership variables are winsorized at the 1% and 99% levels. Certified inside directors (CIDs) are operating officers on the board who hold at least one outside directorship in an unaffiliated firm. Non-certified inside directors do not sit on the board of an unaffiliated firm. *Certified Inside Director Present* equals one if the firm has at least one CID on the board.

Panel A: Firm Level					
	N	**Mean**	**Median**	**P25**	**P75**
Firm Characteristics					
Assets ($1,000,000)	10686	5,260	1,118	470	3,252
Number of Business Segments	10767	2	1	1	3
Firm Age	10624	21	14	7	30
Leverage	10655	0.2	0.2	0.1	0.3
Capital Expense / Sales	10570	0.12	0.04	0.03	0
Depreciation Expense / Sales	10641	0.08	0.04	0.03	0
R&D / Assets	10686	0.03	0.00	0.00	0.0
Stock Volatility	10592	0.13	0.12	0.09	0.16
Equity Capitalization ($1,000,000)	10658	7,089	1,350	557	4,105
Tangible Assets as % of Total Assets	9532	83	89	74	98
EBITDA ($1,000,000)	10644	721	154	59	454
Growth Rate of Assets (%)	10674	24	9	-0.04	22
Operating CF/Assets	10666	0.12	0.11	0.06	0.17
Market-to-book	10655	2.35	1.71	1.27	2.56
Ownership and Board Characteristics					
CEO Ownership (%)	10352	3.63	1.27	0.50	3.10
Board Ownership (excluding CEO) (%)	10369	6.43	1.70	0.48	6.11
Founder Director Present	10767	0.17	0	0	0
Founding Family Director Present	10767	0.09	0	0	0
Board Size	10767	8.9	9.0	7.0	10.0
Percent Independent Outside Directors (%)	10767	66%	66.7%	55.6	80%
Percent Affiliated Directors (%)	10767	13.5%	11.1%	0	22.2%
Separate CEO and Chair	10767	0.40	0	0	1
Certified Inside Director Present	10767	0.07	0	0	0

Table IA.I. (continued)

Panel B: Sub-Sample Univariate Analysis: Firms with Non-CEO Inside Directors

	Means		
	Firms with Non-Certified Inside Directors	Firms with Certified Inside Directors	Difference
Firm Characteristics			
Assets ($1,000,000)	4,903	11,831	-6928***
Number of Business Segments	2.11	2.59	-0.48***
Firm Age	18.30	28.42	-10.13***
Leverage	0.22	0.24	-0.02**
Capital Expense / Sales	0.12	0.10	0.01
Depreciation Expense / Sales	0.08	0.07	0.02
R&D / Assets	0.03	0.03	0
Stock Volatility	0.14	0.11	0.03***
Equity Capitalization ($1,000,000)	6869	18994	-12125***
Tangible Assets as % of Total Assets	84.0	83.0	0.93
EBITDA ($1,000,000)	661	1756	-1095***
Growth Rate of Assets (%)	27.59	21.68	5.91
Operating CF/Assets	0.12	0.13	-0.01**
Market-to-book	2.38	2.68	-0.30***
Ownership and Board Characteristics			
CEO Ownership (%)	4.93	2.96	1.97***
Board Ownership (excluding CEO) (%)	8.92	6.11	2.82***
Founder Director Present	0.24	0.17	0.07***
Founding Family Director Present	0.13	0.14	-0.01
Board Size	9.09	10.96	-1.87***
Percent Independent Outside Directors (%)	56.94	61.81	-4.87***
Percent Affiliated Directors (%)	14.00	11.98	2.02***
Separate CEO and Chair	0.47	0.27	0.20***

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively, based on a two-tailed t-test of the difference in the means.*

Table IA.II. Determinants of Inside Director Board Representation – Tobit Regressions

This table presents Tobit regression estimates of the determinants of inside operating officer representation on corporate boards for firms in the 1997-2006 sample period. The dependent variable in model 1 (2) is the percentage of all Non-Certified Inside Directors (Certified Inside Directors) on the board. *Certified* (*non-certified*) *inside directors* are defined as non-CEO inside directors who hold at least one (no) outside directorship in an unaffiliated firm. All variable definitions are in the appendix. All models include year and industry fixed effects. The associated *p*-values are reported beneath each coefficient estimate.

	% Non-Certified Inside Directors	% Certified Inside Directors
	Model 1	Model 2
	Tobit	Tobit
Information Importance		
R&D/Assets	-21.05***	10.28
	(0)	*(0.193)*
Capital Expenditure/Sales	-0.15	0.21
	(0.256)	*(0.148)*
Ln(Sales)	-0.77***	4.92***
	(0)	*(0)*
Leverage	-3.49***	-2.40
	(0.003)	*(0.292)*
Ln(# Business Segments)	-1.42***	-0.40
	(0)	*(0.481)*
Ln(# Geographic Segments)	-2.55***	1.45**
	(0)	*(0.024)*
Industry Competition	0.002***	-0.005***
	(0)	*(0)*
CEO/Board Characteristics		
Ln(CEO Tenure)	3.38***	3.08***
	(0)	*(0)*
CEO Percent Ownership	0.27***	-0.07
	(0)	*(0.246)*
Board Ownership%	0.27***	0.07**
	(0)	*(0.04)*
Founder Director Present	6.46***	1.46
	(0)	*(0.166)*
Founder Family Director Present	2.05***	0.40
	(0.003)	*(0.735)*
Firm Performance & Activity		
Stock Volatility	3.46	-13.14
	(0.327)	*(0.111)*
Operating $CF_{(t-1)}$	0.08	-0.01
	(0.53)	*(0.889)*
Recent M&A	0.81*	1.29
	(0.077)	*(0.105)*
Post-SOX	-8.28***	-2.35
	(0)	*(0.382)*
Number of Observations	9523	9523
Psuedo-R^2	4.04%	5.96%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.III. Inside Directors and Firm Performance Estimated by a 2SLS Instrumental Variables Model

This table presents a multivariate regression analysis using a two-stage least squares instrumental variable framework to examine the effect of inside directors with unaffiliated outside directorships (certified inside directors (CID)) on firm performance for firms in the 1997-2006 sample period. We use a Sarbanes-Oxley indicator, firm leverage, capital expenditure intensity, geographic segments and industry competition to instrument for the portion of CIDs and non-CIDs on the board. The instrumented variable is then used in the second stage performance regressions reported here. The dependent variables are industry adjusted (Fama-French) annual operating performance in models 1 and 2 and the natural logarithm of year-end market-to-book ratio in models 3 and 4. All variable definitions are in the appendix. Standard errors are robust to heteroscedasticity (White (1980)) and are adjusted for firm clustering. The *p*-values are reported beneath each coefficient estimate. All models include year and industry fixed effects. Beneath the table we report the *p*-value for the F-test of the significance of the first stage endogenous variable regression and we report the Hansen J statistic to test for the exogeneity of the instruments. Panel B reports results conditioning on firm R&D intensity as in Table V of the main text.

Panel A:	CF	CF	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Certified Inside Directors (%)	0.121***	0.108**	0.228**	0.220*
	(0.001)	*(0.014)*	*(0.035)*	*(0.066)*
Non-Certified Inside Directors (%)		0.023**		0.0422
		(0.036)		*(0.141)*
CEO Percent Ownership	-0.003	-0.017**	-0.010	-0.035*
	(0.367)	*(0.03)*	*(0.125)*	*(0.057)*
CEO Percent Ownership^2	0.0001	0.0003*	0.0003*	0.0008**
	(0.49)	*(0.057)*	*(0.057)*	*(0.032)*
Board Ownership	-0.0004	-0.0036**	0.0008	-0.0050
	(0.376)	*(0.028)*	*(0.489)*	*(0.228)*
Founder Director Present	-0.003	-0.084**	0.021	-0.125
	(0.846)	*(0.046)*	*(0.593)*	*(0.233)*
Founder Family Director Present	0.001	-0.022	-0.057	-0.097
	(0.972)	*(0.433)*	*(0.227)*	*(0.113)*
CF			1.506***	1.525***
			(0)	*(0)*
$CF_{(t-1)}$			0.353***	0.317***
			(0)	*(0.001)*
$CF_{(t-2)}$			-0.047*	-0.059**
			(0.067)	*(0.037)*
Ln(Assets)	-0.051***	-0.038**	-0.080*	-0.064
	(0.001)	*(0.043)*	*(0.077)*	*(0.22)*
Number of Business Segments	-0.004	-0.003	-0.019**	-0.017*
	(0.297)	*(0.567)*	*(0.017)*	*(0.074)*
R&D / Assets	-0.568***	-0.421**	2.000***	2.249***
	(0)	*(0.01)*	*(0)*	*(0)*
Depreciation Expense/Sales	-0.016***	-0.013**		
	(0.007)	*(0.022)*		
Capital Expense/Sales			0.005***	0.007***
			(0)	*(0)*
Ln(Firm Age)	-0.016**	-0.002	-0.050***	-0.026
	(0.034)	*(0.818)*	*(0.004)*	*(0.319)*
Stock Volitility	-0.184*	-0.177		
	(0.073)	*(0.168)*		
Number of Observations	9285	9285	9186	9186
F-test of first stage (*p* -value)	0.03	0.03	0.00	0.00
F-test of first stage (*p* -value) (for non-CID)		0.00		0.00
Hansen J-statistic (exogeneity of IVs)	8.53**	1.33	2.79	0.84

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table AI.III. (continued)

Panel B:	CF	ln(M/B)
Explanatory Variables	Model 1	Model 2
Certified Inside Directors (%) X High R&D	0.107***	0.117***
	(0)	*(0.003)*
Certified Inside Directors (%) X Low R&D	0.051***	0.111***
	(0)	*(0)*
R&D / Assets	-0.61***	2.23***
	(0)	*(0)*
CEO Percent Ownership	-0.002**	-0.009**
	(0.022)	*(0.014)*
CEO Percent Ownership^2	0.00004*	0.0003***
	(0.058)	*(0.003)*
Board Ownership	-0.0003**	0.0003
	(0.014)	*(0.647)*
Founder Director Present	0.001	0.041*
	(0.861)	*(0.072)*
Founding Family Director Present	-0.002	-0.053**
	(0.636)	*(0.035)*
CF		1.466***
		(0)
$CF_{(t-1)}$		0.429***
		(0)
$CF_{(t-2)}$		-0.016
		(0.387)
Ln(Assets)	-0.027***	-0.040***
	(0)	*(0.001)*
Number of Business Segments	-0.005***	-0.016***
	(0)	*(0)*
Depreciation Expense/Sales	-0.011**	
	(0.034)	
Capital Expense/Sales		0.004***
		(0.006)
Ln(Firm Age)	-0.009***	-0.029***
	(0)	*(0.001)*
Stock Volitility	-0.195***	
	(0)	
F-test : CID X High R&D = CID X Low R&D		
	0.056***	0.006
	(0.001)	*(0.82)*
Number of Observations	9285	10809
Adjusted R^2	15%	27%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.IV. Certified Inside Directors and Firm Performance Classified by Information Importance and CEO Entrenchment

This table presents the second stage of the Heckman (1979) MLE regression analysis to examine the different interactive effects of certified inside directors (CID) and indicators of firm-specific information importance and CEO entrenchment on firm performance for firms in the 1997-2006 sample period. The first stage is the probit model in Table II model 3. The dependent variables are industry adjusted annual operating performance and ln(market-to-book ratio). *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. *High R&D* is an indicator if R&D expenditures are above the median. All other variable definitions are in the appendix. All models include year and industry fixed effects. The standard errors are robust and clustered by firm, with *p*-values reported beneath each coefficient estimate. Additional controls are the same as in Table III and are suppressed for brevity.

	CF	CF	CF	CF	ln(M/B)	ln(M/B)	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
CID (%) X High CEO Entrenchment	-0.001	-0.001	-0.001	-0.001	-0.003	-0.004	-0.003	-0.0045
	(0.146)	*(0.162)*	*(0.179)*	*(0.14)*	*(0.475)*	*(0.324)*	*(0.473)*	*(0.325)*
CID (%) X High Complexity	0.0019**			0.0019*	0.0112**			0.0099*
	(0.029)			*(0.053)*	*(0.033)*			*(0.053)*
CID (%) X High R&D		0.001		-0.00003		0.008*		0.007
		(0.486)		*(0.978)*		*(0.087)*		*(0.176)*
CID (%) X High Competition			0.001	0.001			0.006	0.004
			(0.417)	*(0.377)*			*(0.315)*	*(0.515)*
CID (%)	0.001	0.001	0.002*	0.0004	0.004	0.006	0.010**	-0.0001
	(0.596)	*(0.171)*	*(0.091)*	*(0.724)*	*(0.494)*	*(0.174)*	*(0.016)*	*(0.98)*
High CEO Entrenchment	-0.004	-0.005	-0.005	-0.004	-0.020	-0.018	-0.020	-0.018
	(0.366)	*(0.338)*	*(0.34)*	*(0.36)*	*(0.38)*	*(0.407)*	*(0.379)*	*(0.41)*
High Complexity	0.014***			0.014***	-0.021			-0.033
	(0.009)			*(0.009)*	*(0.386)*			*(0.174)*
High R&D		0.001		-0.001		0.216***		0.218***
		(0.834)		*(0.939)*		*(0)*		*(0)*
High Competition			0.011	0.011			0.059	0.051
			(0.404)	*(0.397)*			*(0.175)*	*(0.22)*
F-test								
CID X High CEO Entrench+ CID =0	-0.0008	0.0001	0.0003	-0.0010	0.0007	0.0012	0.0065*	-0.0046
	(0.26)	*(0.92)*	*(0.56)*	*(0.2)*	*(0.876)*	*(0.73)*	*(0.033)*	*(0.29)*
CID X High Complex+ CID =0	0.002**			0.002*	0.015***			0.010**
	(0.011)			*(0.06)*	*(0)*			*(0.025)*
CID X High R&D+ CID =0		0.002**		0.0003		0.014***		0.006
		(0.04)		*(0.79)*		*(0.006)*		*(0.37)*
CID X High Competition+ CID =0			0.003**	0.001			0.016**	0.004
			(0.039)	*(0.27)*			*(0.021)*	*(0.61)*
Number of Observations	9506	9510	9510	9506	9450	9450	9450	9450
Censored	4732	4732	4732	4732	4732	4732	4732	4732
Firms with Inside Directors	4774	4778	4778	4774	4718	4718	4718	4718
Prob > $\chi 2$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.V. Certified Inside Directors and Firm Performance Classified by Organizational Complexity

This table presents the second stage of the Heckman (1979) MLE regression analysis to examine the different interactive effects of certified inside directors (CID) and firm complexity for firms in the 1997-2006 sample period. Principle component analysis is used to extract a complexity factor from firm size (market capitalization for operating performance regressions and sales for market to book regressions), geographic and business segments and firm age. A factor score is estimated for each observation using the outcomes of this analysis. *High (Low) Complexity* is an binary variable that equals one if the factor score for the observation is above (below) the median. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. The first stage equation is the probit model in Table II model 3. Estimates of the second equation are reported below and explore subsequent performance of high and low complexity firms selecting inside directors. All models include year and industry fixed effects. The standard errors are robust and clustered by firm, with *p*-values reported beneath each coefficient estimate. Models 5 and 6 report estimates for second stage 2SLS IV regression model. The control variables are suppressed for brevity and are the same as used in Table III.

	CF	ln(M/B)	CF	ln(M/B)	CF	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CID (%) X High Complexity	0.0017***	0.0119***	0.0017**	0.0114***	0.0727***	0.1236***
	(0.007)	*(0)*	*(0.013)*	*(0)*	*(0)*	*(0)*
CID (%) X Low Complexity	-0.0003	0.0011	-0.0004	0.0032	0.0594***	0.0087
	(0.651)	*(0.813)*	*(0.566)*	*(0.507)*	*(0)*	*(0.775)*
Non-CID (%) X High Complexity			-0.00001	-0.00055		
			(0.987)	*(0.726)*		
Non-CID (%) X Low Complexity			-0.0001	0.0026		
			(0.623)	*(0.107)*		
High Complexity	0.013**	-0.019	0.011	0.030	-0.007	-0.139***
	(0.013)	*(0.42)*	*(0.154)*	*(0.419)*	*(0.261)*	*(0)*
Number of Observations	9506	9450	9506	9450	9482	9373
Censored	4732	4732	4732	4732	-	-
Firms with Inside Directors	4774	4718	4774	4718	-	-
Prob > $\chi 2$ / Adjusted R^2	0.00	0.00	0.00	0.00	10%	25%
F-test : CID X High Complexity = CID X Low Complexity						
	0.002**	0.011**	0.002**	0.008	0.013**	0.115***
	(0.017)	*(0.042)*	*(0.018)*	*(0.135)*	*(0.02)*	*(0)*

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.VI. Certified Inside Directors and Firm Performance Classified by Product Market Competition

This table presents estimates from the second stage of the Heckman (1979) MLE regression analysis to examine the different interactive effects of certified inside directors (CID) and product market competition on firm performance for firms in the 1997-2006 sample period. *High (Low) competition* equals 1 if the Herfindahl Index is below (above) the 25th percentile. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. The first stage equation is the probit model in Table II model 3. Estimates of the second equation are reported below for the relations between firms selecting inside directors in more and less competitive environments and their subsequent performance. All models include year and industry fixed effects. The standard errors are robust and clustered by firm, with *p*-values reported beneath each coefficient estimate. Models 5 and 6 report estimates for the second stage of the 2SLS IV regression model. The control variables, which are the same as those used in Table III, are suppressed for brevity.

	CF	ln(M/B)	CF	ln(M/B)	CF	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CID (%) X High Competition	0.002**	0.019***	0.001	0.019***	0.109***	0.067*
	(0.049)	*(0.002)*	*(0.341)*	*(0.003)*	*(0)*	*(0.075)*
CID (%) X Low Competition	0.001*	0.007**	0.001*	0.008***	0.062***	0.076***
	(0.062)	*(0.011)*	*(0.099)*	*(0.005)*	*(0)*	*(0.007)*
non-CID (%) X High Competition			-0.0015**	0.0007		
			(0.04)	*(0.82)*		
non-CID (%) X Low Competition			-0.0001	0.0014		
			(0.813)	*(0.285)*		
High Competition	0.005	0.044	0.026*	0.055	-0.052***	0.066
	(0.627)	*(0.316)*	*(0.092)*	*(0.415)*	*(0)*	*(0.144)*
Number of Observations	9385	9347	9385	9347	9285	9215
Censored	4732	4732	4732	4732	-	-
Firms with Inside Directors	4653	4615	4653	4615	-	-
Prob > $\chi 2$ / Adjusted R^2	0.00	0.00	0.00	0.00	13%	27%
F-test : CID X High Competition = CID X Low Competition						
	0.001	0.012*	0.000	0.011*	0.047***	-0.01
	(0.284)	*(0.068)*	*(0.877)*	*(0.094)*	*(0)*	*(0.761)*

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.VII. Certified Inside Directors, Firm Performance and Other Board Monitoring Mechanisms

This table presents a multivariate regression analysis within the Heckman (1979) two-stage framework to examine the interactive effect of certified inside directors (CID) and other board monitoring mechanisms on firm performance for firms in the 1997-2006 sample period. The first stage equation is the probit model in Table II model 3. Estimates of the second stage model of the performance of firms selecting inside directors is reported below. The dependent variables are the industry adjusted (Fama-French) annual operating performance in models 1-5 and the ln(market-to-book ratio) in models 6-10. *60% Independent Outsiders* is a binary variable equal to one if the board has at least 60% independent outside directors. *Separate CEO and Chair* is a binary variable that equals one if the CEO is not also the Chairman. *Influential Outside Director* equals one if the board has at least one independent outside director who holds the title of Chairman on another board. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. All other variable definitions are in the appendix. All models include year and industry fixed effects. The standard errors are robust and clustered by firm, with *p*-values reported beneath each coefficient estimate. Models 5 and 10 report the results from the second stage of the 2SLS IV model. Controls are the same as in Table III and are suppressed for brevity.

	CF	CF	CF	CF	CF	ln(M/B)	ln(M/B)	ln(M/B)	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Certified Inside Directors (%)	0.0012**	0.0010*	0.0011	-0.0003	0.0712***	0.0081***	0.0064**	0.0050	0.0012	0.0700**
	(0.021)	*(0.077)*	*(0.172)*	*(0.66)*	*(0)*	*(0.001)*	*(0.018)*	*(0.181)*	*(0.746)*	*(0.017)*
60% Independent Outsiders	0.006	0.006	0.004			0.004	0.003	-0.012		
	(0.192)	*(0.194)*	*(0.422)*			*(0.846)*	*(0.863)*	*(0.618)*		
Separate CEO and Chair	-0.007	-0.007	-0.008	-0.008	0.005	-0.026	-0.035	-0.044*	-0.036	-0.028
	(0.194)	*(0.158)*	*(0.134)*	*(0.126)*	*(0.403)*	*(0.233)*	*(0.122)*	*(0.08)*	*(0.111)*	*(0.193)*
Influential Outside Director				-0.0016					0.0004	
				(0.706)					*(0.983)*	
CID(%) X Separate CEO and Chair		0.0007	0.0006	0.0010	0.0012		0.0081*	0.0080*	0.0093*	-0.0008
		(0.534)	*(0.554)*	*(0.373)*	*(0.825)*		*(0.089)*	*(0.096)*	*(0.055)*	*(0.97)*
CID(%) X 60% Independent Outsiders			0.00003					0.003		
			(0.976)					*(0.434)*		
60% Independent Outsiders			0.003					0.026		
X Separate CEO and Chair			*(0.694)*					*(0.362)*		
CID(%) X Influential Outside Director				0.0022***					0.0082**	
				(0.003)					*(0.041)*	
F-test										
CID X Separate CEO and Chair + CID =0		0.0017*	0.0017*	0.0006	0.0724***		0.0145***	0.0129***	0.0105**	0.0692**
		(0.06)	*(0.06)*	*(0.49)*	*(0)*		*(0.005)*	*(0.004)*	*(0.02)*	*(0.02)*
CID X Influential Outside Director + CID =0				0.0018***					0.0094***	
				(0)					*(0)*	
Number of Observations	9385	9385	9385	9385	9285	9347	9347	9347	9347	9215
Censored	4732	4732	4732	4732	-	4732	4732	4732	4732	-
Firms with Inside Directors	4653	4653	4653	4653	-	4615	4615	4615	4615	-
Prob > $\chi 2$ / Adjusted R^2	0.00	0.00	0.00	0.00	12%	0.00	0.00	0.00	0.00	27%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.VIII. Certified Inside Directors and ROA Performance Decomposed

This table reports the OLS regression analysis of the components of ROA. We decompose ROA into selling, general and administrative costs (*SGA*), cost of goods sold (*COGS*), asset turnover (*sales/assets*) and *profit margin*. We employ the same control variables as in Table V. *Certified Inside Director* representation (*CID %*) is defined as the percentage of board members who are non-CEO inside directors and hold at least one unaffiliated outside directorship. Definitions of the control variables are found in the appendix. All regressions include year and industry fixed effects. The associated *p*-values are beneath each coefficient estimate and are for robust standard errors clustered by firm.

Dependent Variable:	Ln(1+ROA)	Ln(1+Sales/Assets)	Ln(1+COGS/Sales)	Ln(1+SGA/Sales)	Ln(1+Profit Margin)
	Model 1	Model 2	Model 3	Model 4	Model 5
CID (%) X High R&D	0.005***	0.003**	-0.007***	0.002*	0.005***
	(0)	*(0.04)*	*(0)*	*(0.05)*	*(0.01)*
CID (%) X Low R&D	0.0002	-0.0005	0.0001	0.0018***	0.00004
	(0.7)	*(0.69)*	*(0.84)*	*(0)*	*(0.96)*
CEO Percent Ownership	0.0010	-0.0030	0.0013	0.0001	0.0024**
	(0.18)	*(0.19)*	*(0.22)*	*(0.88)*	*(0.03)*
CEO Percent Ownership^2	-0.00003	0.0001	-0.00003	0.000001	-0.0001**
	(0.23)	*(0.17)*	*(0.24)*	*(0.98)*	*(0.04)*
Board Ownership	-0.0004**	0.0001	0.00002	0.0006***	-0.0007***
	(0.01)	*(0.83)*	*(0.94)*	*(0)*	*(0.01)*
Founder Director Present	0.0186***	-0.0172	-0.0081	-0.0093	0.0233***
	(0)	*(0.19)*	*(0.32)*	*(0.1)*	*(0.01)*
Founder Family Director Present	-0.0051	0.0181	0.0019	0.0014	-0.0018
	(0.31)	*(0.34)*	*(0.81)*	*(0.82)*	*(0.78)*
Ln(Assets)	-0.0030	-0.0465***	-0.0022	-0.0113***	0.0131***
	(0.12)	*(0)*	*(0.42)*	*(0)*	*(0)*
Number of Business Segments	-0.0041***	0.0066*	0.0097***	-0.0041***	-0.0065***
	(0)	*(0.05)*	*(0)*	*(0)*	*(0)*
R&D / Assets	-0.5366***	-0.2609***	0.1717	1.0071***	-0.5436***
	(0)	*(0.01)*	*(0.34)*	*(0)*	*(0)*
Depreciation Expense/Sales	-0.0331***	-0.0361*	0.1439***	0.1788***	0.0975
	(0)	*(0.05)*	*(0)*	*(0)*	*(0.35)*
Ln(Firm Age)	-0.0065**	0.0209***	0.0069**	0.0036	-0.0172***
	(0.01)	*(0)*	*(0.02)*	*(0.17)*	*(0)*
Stock Volitility	-0.5048***	-0.6304***	0.1891**	0.186***	-0.503***
	(0)	*(0)*	*(0.01)*	*(0.01)*	*(0)*
Number of Observations	9695	9707	9620	8955	9601
Year/Industry fixed effects	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*	*yes/yes*
Adjusted R^2	19.52%	44.51%	38.82%	57.16%	14.58%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.IX. Firm Performance Regressions with Undiscovered Certified Inside Directors

This table presents multivariate regression estimates based on a Heckman (1979) two-stage framework to examine the effects of CIDs on firm performance prior to their receiving their first outside directorship (models 1 and 3) and a firm-fixed effects regression analysis examining the impact of the year the inside director acquires their first outside directorship (models 2 and 4). *Undiscovered Certified Inside Director* representation is defined as the percentage of board members who are non-CEO inside directors and will obtain at least one unaffiliated outside directorship, but currently have none. *Inside Director Becomes a CID* is a binary variable that equals one if the board has an inside director who acquired their first outside directorship in the current year. All other variable definitions are in the appendix. The *p*-values are reported beneath each coefficient and are based on robust standard errors.

	CF	CF	ln(M/B)	ln(M/B)
Explanatory Variables	Model 1	Model 2	Model 3	Model 4
Undiscovered Certified Inside Directors (%)	0.0027***		0.0084**	
	(0)		*(0.034)*	
Inside Director Becomes a CID		-0.0020		0.0645**
		(0.815)		*(0.026)*
CEO Percent Ownership	-0.002**	0.001	-0.012***	0.001
	(0.039)	*(0.361)*	*(0.005)*	*(0.649)*
CEO Percent Ownership^2	0.00003	-0.00002	0.0004***	-0.0001
	(0.264)	*(0.29)*	*(0.001)*	*(0.325)*
Board Ownership	-0.001***	-0.001***	-0.001	-0.001**
	(0)	*(0)*	*(0.582)*	*(0.018)*
Founder Director Present	-0.012*	-0.003	0.024	-0.05***
	(0.072)	*(0.475)*	*(0.46)*	*(0.002)*
Founder Family Director Present	-0.015**	0.007	-0.087***	0.038*
	(0.03)	*(0.281)*	*(0.009)*	*(0.072)*
CF			1.742***	0.944***
			(0)	*(0)*
$CF_{(t-1)}$			0.550***	0.231***
			(0)	*(0)*
$CF_{(t-2)}$			-0.034***	-0.03
			(0.003)	*(0.303)*
Ln(Assets)	-0.008***	-0.010***	0.012	-0.243***
	(0.001)	*(0.002)*	*(0.212)*	*(0)*
Number of Business Segments	-0.003*	0.0004	-0.009	-0.001
	(0.067)	*(0.686)*	*(0.104)*	*(0.784)*
R&D / Assets	-0.317***	-0.321***	2.109***	-0.014
	(0)	*(0)*	*(0)*	*(0.909)*
Depreciation Expense/Sales	-0.013***	0.006***		
	(0)	*(0.003)*		
Capital Expense/Sales			0.036***	0.001
			(0)	*(0.251)*
Ln(Firm Age)	-0.008***	-0.010**	-0.032**	-0.126***
	(0.004)	*(0.036)*	*(0.02)*	*(0)*
Stock Volitility	-0.263***	-0.142***		
	(0)	*(0)*		
Inverse Mills Ratio	-.132***		-0.108*	
	(0)		*(0.086)*	
Number of Observations	9385	9697	9347	9509
Censored	4732		4732	
Firms with Inside Directors	4653		4615	
Prob > $\chi 2$ / F.E. Within R^2	0.00	2.6%	0.00	3.3%

*Symbols *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.*

Table IA.X. Certified Inside Directors with and without Prior Outside Directorships

This table reports the analysis of the inside directors with unaffiliated outside directorships (CIDs) prior to joining their own board. *Priors* are inside directors with outside directorship who had at least one outside directorship prior to joining their own company's board. The *p*-values are based on a two-tailed t-test of the difference in the means.

Firm Characteristics	**Priors - CIDs**	**No Priors- CIDs**	**Difference**	*p* -value of Difference
Firm Size	19594	9076	10518	0.00
Firm Complexity	0.96	0.66	0.30	0.00
S&P 500 Firm	0.73	0.62	0.11	0.02
Traded on NYSE	0.89	0.78	0.10	0.08
CEO Entrenchment	0.04	0.32	-0.28	0.00
Technical Industry	0.24	0.39	-0.15	0.00
Influential Outside Director (CEO)	0.75	0.67	0.08	0.04
Influential Outside Director (Chair)	0.77	0.64	0.13	0.00
Other non-CEO executives on the board	1.70	1.92	-0.22	0.02
CEO Age	54.91	55.23	-0.32	0.50
Common Independent Director	0.098	0.052	0.045	0.03
Growth Rate of Assets	22.601	20.175	2.426	0.57
Market-to-book	0.137	0.147	-0.010	0.80
Operating CF/Assets	0.011	0.015	-0.004	0.57
Inside Executive Positions				
President	0.30	0.37	-0.07	0.08
Vice President	0.07	0.01	0.05	0.00
Executive Vice President	0.28	0.19	0.09	0.01
Chief Operating Officer	0.31	0.29	0.02	0.59
Chief Financial Officer	0.19	0.16	0.03	0.42
Treasury	0.01	0.03	-0.01	0.27
Secretary	0.04	0.03	0.01	0.27
Director Characteristics				
Director Ownership	0.48	0.82	-0.34	0.08
Director Age	56.78	55.51	1.28	0.03
Board Tenure	3.27	7.84	-4.57	0.00