Gender and Geography in the Boardroom: What Really Matters for Board Decisions?

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ABSTRACT

Recent literature has shown that gender diversity in the boardroom seems to influence key monitoring decisions of boards. In this paper, we examine whether the observed relation between gender diversity and board decisions is due to a confounding factor, namely, directors' geographic distance from headquarters. Using data on residential addresses for over 4,000 directors of S&P 1500 firms, we document that female directors cluster in large metropolitan areas and tend to live much farther away from headquarters compared to their male counterparts. We also reexamine prior findings in the literature on how boardroom gender diversity affects key board decisions. We use data on direct airline flights between U.S. locations to carry out an instrumental variables approach that exploits plausibly exogenous variation in both gender diversity and geographic distance. The results show that the effects of boardroom gender diversity on CEO compensation and CEO dismissal decisions found in the prior literature largely disappear when we account for geographic distance. Overall, our results support the view that gender-diverse boards are "tougher monitors" not because of gender differences *per se*, but rather because they are more geographically remote from headquarters and hence more reliant on hard information such as stock prices. The findings thus suggest that board gender policies, such as quotas, could have unintended consequences for some firms.

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I. Introduction

Recent research suggests that female corporate directors make decisions differently than do their male counterparts. For instance, Adams and Ferreira (2009) find that gender-diverse boards link CEO dismissal decisions more strongly to objective metrics (such as stock-price performance) than do all-male boards. Based on survey evidence in Sweden, Adams and Funk (2012) conclude that female directors are in fact less tradition- and security-oriented and less risk-averse than male directors are. Also, experimental and survey research shows that women are generally more risk averse than men (Eckel and Grossman, 2008; Croson and Gneezy, 2009)[1]. There is also research showing that gender diversity influences financial outcomes. For example, Ahern and Dittmar (2012) find that increases in the gender diversity on the board are associated with increases in financial leverage and acquisition activity. Nevertheless, interpreting and aggregating research on gender diversity in the boardroom is challenging on account of the fact that gender composition could be correlated with many other factors, both observed and unobserved, that influence corporate decisions.

The geographic distance of directors from headquarters is a dimension of board structure that potentially correlates with both gender diversity and corporate outcomes. Recent research reveals that the distance from headquarters is a characteristic that can influence how directors make important monitoring decisions (Alam et al., 2014, 2018). Specifically, Alam et al. document that directors who live farther from headquarters rely more heavily on stock price

[1] Also see the special issue of the *Journal of Economic Behavior and Organization* edited by Croson, Gneezy, and Rey-Biel (2012). Hillman, Shropshire, and Cannella (2007) find that female directors are less likely to be associated with risky firms.

performance in CEO dismissal decisions and in CEO compensation. In practice, directors' geographic distance from headquarters can vary widely with the location of headquarters and the local supply of prospective directors. For instance, Knyazeva, Knyazeva, and Masulis (2013) find that, for most firms, the ability to recruit directors is constrained by the local availability of qualified prospective directors.

Why might boardroom gender diversity vary systematically with the geographic distance of directors? Clustering of the supply of prospective directors is one explanation. Female professionals in the U.S. tend to reside disproportionately in or near large urban areas. A priori, if female directors tend to cluster heavily in a few large metropolitan areas, then it logically follows that firms headquartered outside of such locales will tend to have high gender diversity only if many of their (female) board members are geographically distant. Thus, a joint examination of gender diversity on the board and the geographic location of directors can help us better understand the existing evidence in the literature. To date, however, no research on gender diversity in the boardroom has examined the link between these characteristics and the potential confounding effects of geographic distance of directors.

In this paper, we use data on over 4,000 residential addresses of directors at S&P 1500 firms during 2004-2007 to extend prior research on the effects of gender diversity in the boardroom. Our analysis sheds light on two related empirical questions. First, does gender diversity correlate positively with board distance? Second, do differences in board distance expand our understanding of the existing evidence on how gender diversity in the boardroom relates to key board decisions?

Our empirical evidence also has implications for gender-diversity policy. Governments have increasingly imposed mandates that require gender diversity on the boards of publicly held

corporations.[2] Such regulations, while focusing on the positive attributes of gender diversity, may create unintended consequences relate if they influence the geographic distance between directors and the firms that they monitor and advise. For instance, Alam et al. (2018) find that noncompliant firms with a smaller local supply of qualified independent directors had to extend their geographic reach to meet the independence requirements imposed by the Sarbanes Oxley Act and associated regulatory changes at the stock exchanges. As a result, earnings quality actually declined at these firms in direct contrast to the intent of the regulation. If gender mandates influence firms to broaden their geographic search for female directors, these firms may observe similar unintended outcomes.

Since board decisions largely originate in committee, we focus on directors who sit on monitoring committees and are therefore instrumental in monitoring decisions. As the first step in our analysis, we examine the proportion of monitoring directors who reside more than 100 km from headquarters. We find that the proportion of distant directors increases monotonically with the presence of female directors. For example, over our sample period, 60.8% of the monitoring directors at firms with no female directors are geographically distant, compared to 68.8% at firms with one female on the board. When the firm has two or more female directors, the average proportion of geographically distant directors rises to 76.2%. We find similar monotonic relations between female participation on the board and the average proportion of distant directors on the board across individual years, industry sectors, or geographic regions. For instance, the proportions of distant directors in the manufacturing sector are 55.2%, 71.1%, and 81%, respectively for no female directors, one female director, and two or more female directors. The corresponding proportions in the retail sector are 52.9%, 58.2%, and 71.5%. Thus, the data

[2] Examples from around the world include Norway, Finland, the Netherlands, France, Italy, Belgium, and Israel. In October 2018, the state of California enacted board gender mandates for firms with headquarters in the state.

provide strong evidence that the proportion of distant directors on a board increases monotonically with the presence of female directors regardless of year, industry sector, or region.

In the second step of our analysis, we examine whether gender diversity on the board and the board's distance from headquarters tend to be higher when the board is one that should be seen as more desirable to a director. We conjecture that the positive association between gender diversity and board distance is due to differences in firms' abilities to attract qualified directors who are in short supply. Firms that are more prestigious will have boards that are more desirable to potential director candidates, thus leading to higher proportions of qualified female and distant directors at such firms. To proxy for the desirability of a board, we use three measures of firm size: market capitalization, total assets, and net sales. Our results strongly suggest that gender diversity and the proportion of distant directors increase monotonically with the size of the firm. For instance, the proportion of female directors by quartile of market capitalization is 8.94%, 13.8%, 15.7%, and 17.7%, respectively. The corresponding average proportions of distant directors are 57.9%, 67.1%, 69.5%, and 71.6%. The results are similar when we use the firm's total assets or net sales as proxies for desirability.

To examine more carefully the relations among gender diversity, board distance, and firm size, we estimate a multivariate seemingly unrelated regressions model that controls for a variety of firm attributes, CEO traits, and board characteristics. The multivariate regressions allow for correlations between unobserved disturbance terms that could jointly affect the proportion of female directors and the proportion of distant directors. In line with the view that more desirable boards are better able to attract qualified directors, we find that both gender diversity and board distance are strongly and positively related to each of our three firm-size measures.

Knyazeva, Knyazeva, and Masulis (2013) find that densely populated urban areas tend to have larger pools of qualified director candidates. Having a larger pool of local qualified directors would mitigate the firm's need to attract qualified distant directors from afar. If our premise that female directors and distant directors are both attracted to larger, more desirable firms is correct, then we would expect to observe a weaker relation between gender diversity and distant directors when the firm is located in a large city that provides a larger supply of local qualified directors. To examine the influence of supply constraints, we estimate multivariate regressions explaining gender diversity in terms of board distance for (i) our entire sample; (ii) a subsample of firms with headquarters located more than 100 km. from one of ten largest MSA in the United States; and (iii) a subsample of firms with headquarters proximate to a top-ten MSA. These regressions include additional controls for a variety of firm attributes, CEO traits, board characteristics, year, industry, and headquarters location at the state level.

For the entire sample, we find a strong, significant positive relation between the proportion of females on the board and the proportion of distant directors on the board. This relation is also present and even stronger for the subsample of firms that are not located near a large MSA. However, consistent with the view that labor supply constraints influence both gender diversity and distance, in the subsample of firms located near a top-10 MSA, we do not document any significant relation between the proportion of female directors and the proportion of distant directors.

We then re-examine the issue of whether gender diversity *per se* leads to tougher monitoring. Unlike previous literature on gender diversity in the boardroom, however, we account for the possible confounding effect of board distance on monitoring decisions. Are gender-diverse boards "tougher" monitors because they have larger proportions of female

directors? Or, are such boards "tougher" simply because they have larger proportions of directors who are remote and who thus face high information-acquisition costs? In multivariate logit regressions, we first replicate the finding in Adams and Ferreira (2009) that the likelihood of non-routine CEO turnover is more sensitive to stock price performance when females constitute a larger fraction of directors on key monitoring committees. However, when we add to the regressions an interaction between board distance and performance, the effect of gender diversity largely disappears, and the distance-performance interaction emerges as a significant predictor of non-routine CEO turnover.

Similarly, we find in multivariate regressions that, when considered in isolation, gender diversity in the boardroom is systematically related to the pay-for-performance sensitivity of CEO pay. In particular, when a board has a greater fraction of female directors who sit on key monitoring committees, the CEO tends to have a higher pay-for-performance sensitivity. However, we find quite different results when we include the board's geographic distance. The fraction of female monitoring directors becomes statistically insignificant when we control for the fraction of distant monitoring directors. Thus, we argue that the higher information costs faced by distant directors, rather than inherent male/female differences, can explain why the prior literature has found that gender diverse boards seem to be tougher monitors.

One concern in our study is that the geography of a board and the gender diversity of a board are endogenously determined. To mitigate this problem, we follow the approach in Bernile, Bhagwat, and Yonker (2018) and construct instrumental variables (IV) based on the number of female and total directors (unaffiliated with the subject firm) who can reach corporate headquarters via a direct airline fight. The basic idea behind the IVs is that direct flights expand

the ability of a firm to attract directors from remote locations. Regression analysis based on these IVs yields similar results to our baseline findings.[3]

Altogether, the results illustrate that taking into account the ability of desirable firms to attract distant directors and to attract female directors allows us to better understand the evidence in the literature on the association between board decisions and gender. Growing pressure on firms to create and maintain gender diverse boards creates implicit soft mandates that result in increased demand for female directors, while the incidence of government-imposed hard mandates is growing. The supply of qualified female directors in the area surrounding corporate headquarters, however, may be limited and the firm must expand its search.

Our findings suggest that firms that attract female directors also more attract distant directors. Thus, female directors are more likely to serve on boards that are more geographically remote from headquarters, and the lack of proximate observability affects how these boards acquire and use information. Researchers and policy makers should be cognizant of this relation when examining the influence of gender diversity on board activities. More generally, our results suggest that firm and director geography are important characteristics that can potentially enhance our understanding of empirical relations between board characteristics and board decisions.

The remainder of the paper is organized as follows. In Section II, we describe our data. In Section III, we examine how firm desirability and local geographic supply constraints influence a firm's ability to attract both female directors and distant directors. Section IV presents our analysis of the relation between gender diversity and board distance from headquarters and CEO dismissal decisions and CEO compensation policy. Section V concludes the paper.

[3] Although our instrumental variables appear to be sound based on statistical measures of relevance and seem to meet normal exclusion requirements, we acknowledge that we have only four years of data in this study, which may not result in sufficient exogenous variation. We are expanding our sample to increase the power of these tests.

II. Data

A. Sample

We use a sampling approach that is similar to that in Alam et al. (2014). First, we begin with the set of all firms belonging to the S&P 1500 as of December 31, 2004. In order to obtain a representative sample that includes a wide range of firm sizes while keeping the costs of collecting residential data manageable, we sort these firms by descending market capitalization and select every third firm, starting with the largest. To minimize the influence of outliers we exclude firms with headquarters located outside the 48 contiguous United States or the District of Columbia. We then collect from proxy statements the full names and ages of all the directors of these remaining firms during the 2004 to 2007 period, which results in a sample of 4,329 individual directors at 495 firms.

A key challenge in constructing measures of board distance is to identify the residential locations of individual directors during our sample period. Obtaining accurate residential addresses and linking them to the correct individual directors requires a systematic, two-stage approach.[4] First, we determine individuals' birthdates (month, day, and year) from a variety of publicly available databases, primarily *PeopleFinders* (www.peoplefinders.com) and the Corporate Library's *Board Analyst* database. *PeopleFinders* relies on data from courthouse records, utility company records, and telephone directories, and *Board Analyst* obtains data from proxy statements. When birthdate information is not available from these two sources, we attempt to fill in the missing data with insider trading filings, *Google*, *ZoomInfo, Wikipedia, NNDB.com, BusinessWeek.com,* and *Forbes.com*. Overall, we are able to obtain birthdates for 4,133 U.S.-based individuals, which is 95.5% of the initial sample.[5]

[4] See the Appendix in Alam et al. (2014) for more details on this procedure.
[5] One-hundred and ten directors are located outside the U.S. Our reported tests use data only for U.S. directors.

In the second stage, we use individual names and birthdates as search parameters to obtain residential addresses from the LexisNexis' *Person Locator* database. The *Person Locator* database contains data from both public and non-public sources.[6] The database includes records on over 150 million individuals with U.S. residences and contains information such as full names, birth months, birth years, partial social security numbers, phone numbers, known relatives, and current and historical addresses for up to the past 30 years.

Using address data from *Person Locator* allows us to determine individual directors' locations more accurately and precisely than would be possible with other publicly available sources of data. Most importantly, *Person Locator* reports residential addresses, not business address. Except for a few P.O. boxes, addresses reported in *Person Locator* are apartments or owner-occupied housing. This contrasts with other public sources of individual addresses (e.g., SEC Form 4 insider trading filings) that typically report business addresses or corporate headquarters locations. In addition, *Person Locator* database provides complete residential address information including number, street name, and nine-digit zip code. Thus, we are able to use zip code locations to construct precise measures of distances between directors' residential addresses and corporate headquarters.

It is important for our purposes that directors be associated, as much as possible, with addresses that were actually valid in a given year during the sample period. To minimize the possibility of incorrectly assigning a director to an out-of-date address, we rely on reported occupancy dates in the *Person Locator* database. In *Person Locator*, addresses are reported with beginning and ending occupancy dates or with a beginning date and a designation as "Current." We obtain the address that LexisNexis designates as "Current" and use the beginning date for

[6] These sources include country courthouse records, telephone directories, utility company records, credit bureau data, driving records, property tax assessment records, bankruptcy filings, UCC filings, mortgages, deeds, and the records maintained by the United States Post Office.

that address to establish a conservative time interval of residence up to December 2008.[7] However, if the current and second-most-recent addresses share the same zip code, we use the beginning date of the earlier address to expand our sample.

Upon excluding a small number of P.O. Box addresses, ambiguous addresses, and addresses in Alaska or Hawaii, we obtain a sample of residential addresses for 3,915 individuals (90.4% of the initial sample). We combine these residential address data with information on directors' board service during 2004-2007 from *Board Analyst*, and we exclude a handful erroneous *Board Analyst* observations corresponding to deceased individuals. We also obtain from *Board Analyst* the complete addresses and zip codes for corporate headquarters. To avoid the possibility that our analysis is overly influenced by firm-years for which address data are missing for a large fraction of directors, we exclude a firm-year if valid addresses are not available for at least 50% of board members.[8] After excluding financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949), our final sample comprises 9,928 director-years and 393 firms. Since some individuals hold multiple directorships, the number of director-years exceeds the number of person-years.

B. Distance

To compute the geographic distance between directors' residences and corporate headquarters, we follow the method used in Coval and Moskowitz (1999). First, we map each residential or headquarters zip code to its latitude and longitude coordinates as given in the U.S.

[7] Alternatively, we could use occupancy dates to attempt to establish a chronological history of residential addresses. However, reported dates do not indicate relocation dates with complete accuracy. LexisNexis indicates that public records are frequently not updated immediately after an individual changes his location, and therefore reported beginning and ending dates for addresses may lag actual relocation dates.

[8] This requirement eliminates fewer than 5% of the total number of firm-years. We have verified that our results hold if we do not impose this restriction.

Census Bureau's *Census 2000 U.S. Gazetteer Files*. Then, we use the spherical law of cosines to closely approximate the distance between two locations on the Earth's surface as the great-circle distance between points on a sphere.[9]

C. Firm, Governance, and MSA Data

We rely on Compustat and SDC Mergers and Acquisitions for financial data and data on firm characteristics. Gender information comes from *Board Analyst*. For other director characteristics and governance data, we use corporate proxy statements, *Boardex*, and *Board Analyst*. Specifically, we obtain data on CEO age, tenure, whether the roles of CEO and board chair are combined or separate, unaffiliated block ownership, firm age, board structure, and the ages, tenures, and professional qualifications of individual directors.

To empirically proxy for the potential supply of local male and female directors, we also gather data on the demographic characteristics of Metropolitan Statistical Areas (MSAs). From the American Community Survey (ACS) dataset compiled by the U.S. Census Bureau, we obtain information on the number of full-time U.S. employees living within each U.S. Metropolitan Statistical Area (MSA) in 2007, by gender and by income stratum. In addition, we gather information on the set of zip codes within each MSA from online files provided by the U.S. Department of Labor.

Table 1 provides descriptive statistics for firm, CEO, board, and director characteristics. The mean (median) firm has total assets of $8.4 billion ($1.4 billion), operates in 2.9 (3) business

[9] $\text{Distance}_{a,b} = r \times \arccos[\sin(a_{lat})\sin(b_{lat}) + \cos(a_{lat})\cos(b_{lat})\cos(a_{long} - b_{long})]$
where r is the Earth's approximate radius (6378 kilometers) and a_{lat}, a_{long}, b_{lat}, and b_{long} are the latitudes and longitudes of the two locations expressed in radians.

segments, and has yearly sales growth of 11.1% (8.8%). The mean (median) distance from corporate headquarters to a large (top 50) MSA is about 40 (18 kilometers).

[Insert Table 1 about here]

The average and median board in our sample has nine members. About three-quarters of the directors are classified as independent. Similarly, about three-quarters sit on one of the key monitoring committees of the board. The CEOs in the sample have an average tenure of 9.78 years, and the median CEO has tenure of 8 years. CEO total pay is about $5.2M on average; the median CEO receives about $3.4 million. Equity-based pay comprises on an average 40 percent of the CEOs total pay. Pay-performance sensitivity of CEO pay varies widely across the sample. The mean is about $217 thousand with a standard deviation of $484 thousand.

In an average firm, 14.11 percent of the directors are female. Most firms in our sample have at least one female director, and about 17% have two or more female directors. The average tenure for a board member is 8.33 years. An average director in our sample holds more than two outside board seats. About one-third of the directors have an MBA degree, and about one-half have some type of graduate degree.

III. Determinants of Boards' Gender Diversity and Distance from Headquarters

We first want to examine whether gender diversity and director remoteness are correlated across firms and, if so, whether this correlation arises from the greater ability of some firms to attract scarce director candidates. Our conjecture is that more prestigious firms are better able to overcome supply constraints in the director labor market. Specifically, we hypothesize that the more prestigious a firm is, the more desirable it appears to director candidates, and the better able

it is to attract and recruit not only well-qualified female directors, but also well-qualified "distant" directors who live far away. Thus, to the extent that prestige levels vary within the sample, we expect the proportions of female directors and distant directors to be positively correlated in the cross-section.

To test our conjecture, we require empirical proxies for the level of prestige enjoyed by firms in our sample. We follow Masulis and Mobbs (2014) and use firm size as a measure of prestige and desirability. A large firm is more likely to be seen as desirable by a prospective director candidate because serving on such a firm's board could enhance the candidate's reputation and provide valuable networking opportunities. In addition, the board of a large firm could provide a director with greater visibility (Adams and Ferreira, 2008; Shivdasani, 1993), higher compensation (Ryan and Wiggins, 2004), and better opportunities for obtaining additional directorships (Yermack, 2004; Fich 2005). For our purposes, firm size also has the advantage of being a largely predetermined characteristic that is unaffected by a particular director's decision to accept a board seat. In this regard, firm size is less likely than other alternative measures of "prestige" (e.g., the average number of board seats held by board members or the number of CEOs that sit on the board) to be endogenous to the director-firm matching process.

A. Gender and Board Distance by Year, Industry, and Geographic Region

Table 2 reports averages, by the number of female directors present, for two different measures of board distance: the median distance (km) of a board's directors from headquarters and the proportion of a board's directors who live more than 100 km from headquarters. When measuring distance or diversity, we include only on monitoring directors (i.e., directors on the audit, compensation, or nominating committee) because these are the individuals who are most

directly involved with key monitoring decisions. The choice of 100 km as the threshold distance for our radius-based measure is in line with prior work on director proximity, such as Knyazeva, Knyazeva, and Masulis (2013), who use a 60-mile (roughly 100 km) radius from firm headquarters. A director who resides within 100 km should generally be able to travel to headquarters with a commute of two hours or less, which allows for relatively easy visits on short notice and enhances the director's ability to acquire soft information. The average board distances in Table 2 are reported according to the presence of monitoring females on the board (zero, one, or two or more) and according to year, industry sector, or geographic region.

The striking pattern that emerges from Table 2 is that the proportion of distant directors increases steadily with the presence of female directors. Over our sample period, a mean 60.8% of the monitoring directors on boards of firms with no female monitoring directors are distant compared to a mean of 68.8% for firms with one female on the board. When the firm has two or more female directors, the average proportion of distant monitoring directors rises to 76.2%. With the exception of the technology sector, where the proportion of distant monitoring directors declines slightly from 69.7% for boards with one female director to 67.4% for boards with more than one female director, we find similar monotonic relations regardless of year, industry sector, or geographic region. For instance, the average proportions of distant directors in the manufacturing sector are 55.2%, 71.1%, and 81%, respectively, for boards with zero, one, and two or more female directors. The corresponding proportions in the retail sector are 52.9%, 58.2%, and 71.5%.

[Insert Table 2 about here]

Although we are primarily interested in the radius-based distance measure since it is the proportion of distant directors that should influence a board's decision-making, we also examine the median director distance to gain a sense for how far most directors need to travel to attend board meetings. On average, the median distance of a board's monitoring directors increases monotonically from about 806 km (no female directors) to 845 km (one female director) to 890 km (two or more female directors). With a few exceptions, the data reveal a similar trend. A notable exception, however, is the Northeast region of the United States, where the median director distance is decreasing in the number of female monitoring directors. This is likely due to the high concentration of large metropolitan areas within a relatively compact geographic region, which increases the supply of qualified male and female local directors and reduces the median commute. Nonetheless, under the radius-based measure, board distance rises monotonically with the presence of female directors, even in the Northeast region.

Overall, the data strongly suggest that the proportion of distant directors on a board increases monotonically with the presence of female directors regardless of year, industry sector (except for technology), or region. Moreover, the average required commute to headquarters is increasing in the presence of female directors for nearly all of the regions, years, and industries.

B. Gender and Board Distance by Firm Desirability

Next, we examine whether gender diversity on the board and the proportion of distant directors on the board increase with the desirability of serving as a director on the firm. To the extent that some firms are more prestigious and better able to attract scarce director talent, we would expect gender diversity and distance to be correlated, which could explain the strong associations documented in Table 2. Following Masulis and Mobbs (2014), we use firm size as

an empirical proxy for prestige and for the overall benefits that a board offers to prospective director candidates. We use three measures of firm size: market capitalization, total assets, and net sales. Table 3 presents the results of our univariate analysis, and Figures 1.a through 1.c present these results graphically.

[Insert Table 3 about here]

[Insert Figure 1 about here]

The data in Table 3 indicate that both gender diversity and the proportion of distant directors increase monotonically with the size of the firm. For instance, the proportion of female directors by quartile of market capitalization is 8.9%, 13.8%, 15.7%, and 17.7%, respectively. The corresponding average proportions of distant directors are 57.9%, 67.1%, 69.5%, and 71.6%. When we use the firm's total assets as our proxy for firm prestige, female directors increase monotonically from 9.2% of the board in the lowest size quartile to 17.8% of the board in the largest size quartile. Similarly, the distant directors increase from 60.1 % of the board for firms in the lowest quartile of total assets to 75% in the highest quartile. A similar pattern is present when we measure firm size by net sales. Indeed, female directors comprise only 8.4% of the board for the lowest sales quartile but 19.23% of the board for the highest sales quartile. The percentage of distant directors increases from 60.4 % of the board for the smallest quartile to 75.3% for the largest quartile. In sum, the data in Table 3, illustrated graphically in Figures 1.a through 1.c, suggest that both gender diversity and board distance increase consistently with all three firm size measures.

C. Multivariate Analysis of Gender Diversity on the Board and Board Distance

Although the descriptive statistics in Table 3 provide compelling evidence that both gender diversity on the board and board distance are positively correlated, we recognize that other relevant firm and governance characteristics may also vary along size dimensions. Thus, we conduct a multivariate analysis. Specifically, we estimate a series of Seemingly Unrelated Regressions (SUR) that explain gender diversity and board distance in terms of our size-based proxies for firm prestige and a number of controls for firm, governance, and CEO characteristics. Control variables include intangibles-to-assets, sales growth, business segments, company age and free cash flow. Intangibles-to-assets is a proxy for the relative importance of soft information and is measured as the ratio of a firm's "Other Intangible Assets" (Compustat Item 352) to the total book value of assets. The free cash flow of a firm (scaled by total assets) serves to control for potential agency problems between management and shareholders. We also control for the tenure of the CEO, whether or not a non-CEO serves as board chair, and the firm's board size and composition. Each regression also includes indicators for headquarters locality at the state level, years, and the 48 Fama-French industry classifications. The SUR models do not require the error terms in the paired gender diversity and board distance regressions to be uncorrelated, and thus the models can account for unobserved disturbance terms that may influence both gender diversity and board distance.

[Insert Table 4 about here]

Table 4 presents the results. The SUR coefficient estimates confirm our inferences from Table 3 and provide evidence that both the proportion of female directors and the proportion distant directors are positively associated with various proxies of firm size—our measures of the

desirability of the firm. In Model 1, for example, the coefficients on the firm's market capitalization are 0.019 in the gender diversity equation and 0.029 in the board distance equation, and both coefficients are highly statistically significant ($p < 0.001$). We observe similar results when we use total assets or net revenues as proxies for firm prestige. The coefficients on the size proxies are all positive and significant at the 0.1% level. Breusch-Pagan chi-square statistics range from 26.7 to 27.7 and strongly reject the null hypothesis of uncorrelated error terms. Thus, confirming our hypothesis, the results from the seemingly unrelated regressions suggest that board gender diversity and board distance are influenced by firm size and by correlated disturbance terms.

D. Multivariate Analysis of Gender Diversity and Director Supply Constraints

If our premise is correct, we expect that firms with a large local supply of qualified directors would be more likely to fill their needs from the local supply and less likely to seek distant directors. Thus, we surmise that the percentage of female directors will be positively related to the percentage of distant directors only when the firm is not geographically situated close to a deep pool of qualified director talent. When the firm is located near a large local supply of qualified directors, we expect that firms will be better able to attract qualified local directors, which will relax the supply constraints and weaken or eliminate the positive relation between gender diversity and board distance.

We examine this hypothesis by estimating multivariate regressions that explain the fraction of female directors on the board in terms of board distance. Our main measure of board distance is, as before, the fraction of monitoring directors who live outside of a 100-kilometer radius of headquarters. A possible concern with this measure is that it might be mechanically

associated with gender diversity if female directors on average happen to live farther from corporate headquarters compared to their male counterparts. Therefore, we also use a secondary measure of board distance that avoids this potential spurious correlation: the fraction of male monitoring directors on the board who are more than 100 kilometers from headquarters.

To test our main hypothesis about labor supply constraints, we estimate separate regressions for subsamples defined according to whether supply constraints are *a priori* strong or weak. We use two alternate proxies for the strength of labor supply constraints. First, we measure whether or not headquarters is located within 100 kilometers of a top-10 MSA.[10] Second, we measure whether or not a high (i.e., above-median) number of full-time employees live within 100 kilometers of headquarters and earn over $100,000 annually.

[Insert Table 5 about here]

Table 5 presents the results of our multivariate regressions. First, in Columns (1) and (2), we estimate regressions over the full sample. In Column (1), the coefficient on the fraction of directors located more than 100 km from headquarters is 0.097 (*t*-statistic = 3.55). Column (2) shows a similar result when board distance is measured but with male directors. Thus, consistent with the earlier findings in Tables 3 and 4, board distance and gender diversity are positively associated.

Columns (3) and (5) show that, when headquarters is located near a Top-10 MSA, the coefficients on board distance are again positive and significant. Likewise, in Columns (7) and (8), for firms that are not situated near a large pool of high wage employees, the coefficients on board distance are positive and highly statistically significant ($p < 0.00001$). Moreover, the

[10] Large MSAs are comprised of numerous zip codes. We therefore measure distances between headquarters and MSAs by computing each MSA's geographic "center," which is calculated as the average latitude and average longitude of all zip codes within the MSA.

magnitudes of the coefficients are larger than in Columns (1) and (2). Thus, the relations between distance and gender diversity that we documented earlier in Tables 3 and 4 appears to be driven by constraints that firms face in the local labor market for directors. When supply constraints bind and firms need to seek qualified directors from far afield, only the most prestigious firms are able to easily attract distant directors and female directors.

Table 5 also shows that the positive distance-diversity relation is largely absent when firms do not face director supply constraints. Indeed, as Columns (4), (6), (8), and (10) show, there is no significant relation between the fraction of female directors on the board and the board's distance from headquarters when labor supply constraints are relaxed. Thus, similar to the results in Knyazeva, Knyazeva, and Masulis (2013), the evidence in Table 5 underscores the importance of local labor market supply constraints in the market for director talent. It is the variation in firms' abilities to overcome these constraints that gives rise to the observed empirical relation between gender diversity and board distance.

IV. Gender Diversity on the Board, Board Distance, and Board Decisions

We next turn our attention to how board distance and gender diversity in the boardroom interact to influence board decisions. At its most fundamental level, the board is charged with hiring and firing top management and setting the CEO's compensation. Thus, we examine two key decisions by the board of directors: (i) the removal of the CEO and (ii) how the CEO is compensated and incentivized.

A. Committee Assignments

The major decisions of the board of directors are usually initiated in committee, particularly the monitoring committees consisting of the audit committee, the compensation committee, and the nominating/governance committee (Adams and Ferreira, 2009). Therefore, to provide a backdrop for our analysis of gender and monitoring decisions, we first examine data on yearly board committee participation by male and female directors.

[Insert Table 6 about here]

Table 6 reports the numbers and percentages of independent male and female directors who serve on the board's key monitoring committees. Female directors are significantly more likely to serve on monitoring committees than are male directors. For instance, 84.3% of independent female directors serve on a monitoring committee compared to 69.6% of the male directors. The greater participation rate by female directors is consistent across the individual committees. Female directors are more likely to serve on the audit committee (44.2% compared to 39.0%), the compensation committee (40.5% compared to 37.6%) and the nominating/governance committee (47.3% compared to 37.6%). In general, these data from 2004-2007 confirm earlier findings by Adams and Ferreira (2009) using data from 1996-2003, with one notable exception. Adams and Ferreira do not find that female directors have a higher propensity to serve on the compensation committee. This striking difference in the presence of female directors on compensation committees may be due to the increasing number of female directors over this time period or to changes in exchange regulations that require all members of the compensation committee to meet criteria for independent directors.

On the surface, the higher propensity of female directors to sit on monitoring committees would suggest that differences in the way that gender-diverse and all-male boards monitor reflect the influence of female directors. However, as we have demonstrated, female directors and more distant directors alike tend to gravitate to larger, more prestigious boards in the presence of supply constraints that limit access to local, qualified directors. This dynamic creates an interrelation between board gender diversity and board distance that could confound the effects of gender per se. We investigate this possibility in Sections B. and C. below.

B. Endogeneity and Instrumental Variables

An important issue that arises in studying the effects of gender diversity and geographic distance is that both dimensions themselves could be endogenous due to omitted third factors. Unobserved firm-level heterogeneity could affect gender diversity, geographic distance, or both while simultaneously driving a firm's monitoring outcomes. If not accounted for in the analysis, omitted variables could lead to a distorted picture of the relative importance of gender diversity and geographic distance for monitoring. To address this potential endogeneity, we follow Bernile, Bhagwat, and Yonker (2018) and build on the approaches in Giroud (2013) and Bernstein, Giroud, and Townsend (2016) to construct instrumental variables based on the number of direct flights linking a firm's headquarters to directors located near or in distant MSAs. The basic idea behind these instrumental variables is that they can capture plausibly exogenous variation in the supplies of female directors and geographically distant directors who can reach a respective corporate headquarters via a direct airline flight.

First, we identify all directors not affiliated with a respective firm but that are proximate (within 200 km) to an airline hub (at least 250 km from headquarters) with direct flights to the firm's corporate headquarters. For the geographic proximity of the board, we use the total

number of directors proximate to a hub. For gender diversity, we use the number of female monitoring directors proximate to a hub. We then use the Federal Aviation Administration's T-100 database to collect the number of direct flights between a hub and the firm's headquarters. We count the number of monthly direct flights and compute the average number of monthly direct flights for a particular year. Yearly deviations from intertemporal changes in the number of flight introduces exogenous variation into this metric. In the final step, we multiply the number of total (female) directors proximate to a hub by the number of monthly average direct flights from the hub to headquarters and then sum across all hubs with direct flights to headquarters to create a weighted proxy of director candidates with direct-flight access to headquarters. We use the natural logarithms of these weighted proxies as IVs.

C. Female Directors, Board Distance, and Non-Routine CEO Turnover

In this section, we examine the role of boardroom gender diversity in CEO dismissals. There are two contrasting views regarding the effect of gender diversity on non-routine CEO turnover. The first is based on the research of Adams and Ferreira (2009), who argue that female directors are independent of the "old boys' network" and therefore are "tougher" monitors. In support of this premise, Adams and Ferreira find that female directors are more likely to be appointed to monitoring committees (audit, compensation, and nominating/governance) and that firms with a greater proportion of female directors place greater weight on stock-price performance in making CEO termination decisions. The alternative explanation derives from Alam et al. (2014), who argue that boards use both soft and hard information to make termination decisions and that geographically distant boards face higher costs of acquiring soft information. Alam et al. find that more distant boards tend to base CEO dismissal decisions more

heavily on the hard information in stock prices. This gives rise to our alternative hypothesis that geographic location, and not gender *per se*, explains the observed governance practices of gender-diverse boards.

Since Adams and Ferreira (2009) find that female directors are more likely to be appointed to monitoring committees, we restrict our analysis of CEO turnover to female directors who serve on monitoring committees. This distinction is important for two reasons. First, directors who do not serve on monitoring committees may be more likely to perform the roles of advisory directors in a de facto two-tier board structure (Adams and Ferreira (2007)). To gain the trust of the CEO and facilitate open lines of communication that enhance the quality of their advice, these directors may optimally adopt a more "friendly" attitude toward management. Thus, we expect that they would exert a lesser influence on monitoring intensity. Second, although dismissal of a CEO ultimately requires approval by the entire board, the decision to move forward with a dismissal is likely instigated within monitoring committees and vetted at the committee level prior to being presented to the board at large.

For our CEO turnover analysis, we restrict the sample to those CEOs with tenures of one year or more. We first determine from proxy statements if a CEO in the previous fiscal year still holds the position in the current fiscal year and then verify the CEO's departure from Standard and Poor's *Register of Corporations, Directors, and Officers*. We identify non-routine CEO turnover events using the approach of Denis, Denis, and Sarin (1997). A turnover is categorized as routine if the director departs (1) due to health related reasons or (2) as is required of the normal retirement or succession plan and the director is in the age group between 64 and 66. Following this definition, we identify routine and non-routine turnover events from proxy statements and news articles.

The primary explanatory variables for the CEO turnover regressions are gender diversity, board distance, and their interactions with industry-adjusted performance. Industry–adjusted stock return is measured as the firm's stock return over the current fiscal year minus the contemporaneous median stock return within the same SIC 2-digit industry. We use *fraction of directors who are female* as a proxy for gender diversity and measure this variable as the fraction of female monitoring directors. We measure board distance by the fraction of all monitoring directors who reside more than 100 kilometers from corporate headquarters.

We also control for other board, firm and CEO characteristics. *Independent board* is a binary variable equal to 1 if and only if at least 75% of a firm's board members in a given year are independent according to exchange-listing standards. The distance from the firm's headquarters to closest large MSA captures and controls for the supply of qualified directors. We also control for the distance between the firm's headquarters and the nearest airport hub to take into account the extent to which physical infrastructure can ease travel costs and other distance-related costs for remote board members. Variables that control for potential agency problems and the extent of monitoring required by the board are free cash flow by total assets, CEO tenure, CEO age and CEO stock ownership. We also include indicators to control for industry effects (using 48 Fama-French industries (Fama and French (1997)), state effects, and year effects.

[Insert Table 7 about here]

Table 7 provides our multivariate logit analysis of non-routine CEO turnover. In column (1), we document that the sensitivity of non-routine CEO turnover events to poor industry-adjusted stock performance is greater when there is a higher percentage of female board

members. This result is consistent with the results in Adams and Ferreira (2009). In column (2), we show that the distance of the board interacted with industry-adjusted stock performance is negatively linked to CEO turnover. That is, boards that are more distant factor negative stock performance more heavily into their CEO dismissal decisions. This result is similar to the results of Alam et al. (2014). In column (3), we control for interactions of both board distance and gender diversity with industry-adjusted stock performance. The results in column (3) reveal that, compared to gender diversity, the fraction of proximate directors has a much stronger effect on the sensitivity of non-routine turnover to poor stock performance. Indeed, the influence of gender on the sensitivity of turnover to performance is insignificant after controlling for the distance-performance interaction. Arguably, distant directors face higher soft information acquisition costs, regardless of gender. Thus, the results indicate that distance, rather than gender *per se*, is the explanation for why gender-diverse boards rely more on poor stock price performance in deciding whether to dismiss the CEO.

[Insert Table 8 about here]

Table 8 presents our turnovers analysis based on our instrumental variables. Column (1) presents the first-stage estimate for the gender diversity IV and column (2) present the estimates for the proximity IV. We use all available observations in the first-stage estimation, while second-stage regressions are subject to the requirement that the CEO has a tenure of more than one year. The coefficients on both IVs are significant at p-values less than 1%.[11] The first-stage R^2s are approximately 0.09 and 0.12, respectively.

[11] The relation between gender diversity and the supply-based female director proxy is negative, which may seem counterintuitive at first blush. However, a deeper review of the data reveals that there tends to be large supplies of male directors in geographic areas with large supplies of female directors. However, the opposite is not true. This observation provides a likely explanation for the negative sign.

Column (3) presents the turnover analysis based on our instrument for board gender diversity and column (4) presents the turnover analysis based on our instrument for board distance. In contrast to the base results, the results in column (3) reveal no relation between gender diversity and the sensitivity of turnover to stock-price performance. On the other hand, the results in column (4) show that distant board rely more heavily on stock-price performance in CEO turnover decisions. When we include both gender diversity and board distance in the regression, presented in column (5), the results show that the interaction between board distance and the sensitivity to stock-price performance remains significant at the 5% level, but the relation with gender diversity remains insignificant.

D. Female Directors, Board Distance and CEO Compensation

In this section, we examine how the presence of female directors on the board and the distance of board members from headquarters affect the structure of CEO compensation. We are particularly interested in the pay-for-performance sensitivity of CEO compensation. Holmstrom (1979) and Shavell (1979) show theoretically that when the agent's actions cannot be observed, the principals should tie compensation to observable measures of output, such as stock performance, that correlate positively with the agent's effort. More generally, researchers argue that principals should rely even more heavily on pay-for-performance schemes tied to public measures of output when agents' actions and inputs are harder to observe and monitor directly (e.g., Prendergast (2000, 2002)).

If female directors are excluded from the "old boys'" club and therefore more independent, we expect that gender-diverse boards would act as strong principals and choose higher pay-for-performance sensitivity in CEO compensation. Alternatively, gender-diverse

boards might rely more on pay-for-performance sensitivity simply because they are geographically more remote from headquarters and therefore less able to observe and monitor directly. This alternative possibility is consistent with Alam et al. (2014), who find that firms with more distant boards are associated with higher levels of CEO equity-based pay, more equity pay relative to other forms of compensation, and higher pay-for-performance sensitivities.

CEO compensation data primarily come from Standard and Poor's ExecuComp Database. We also gather data from proxy statements, when available, for the missing observations in our sample. The dependent variables for compensation regressions are the CEO pay at various levels such as total pay, fraction of equity-based pay, and the sensitivity of equity- based pay. Total pay is the sum of cash-based pay (salary and bonus), equity-based pay, LTIP payouts, and other compensation. Equity-based pay includes the total value of option-based pay (valued with a Black-Scholes approach, modified for dividends) and restricted share grants. The ex-ante pay-performance sensitivity (PPS) of equity-based pay is the approximate total change in value of current-year share and option grants that would result from a 1% increase in share price. The PPS is computed using the partial derivative of the Black-Scholes option value (see Yermack (1995)). Since firms may use annual compensation to adjust the CEO's overall pay sensitivity toward some desired level, we include the ex-ante pay-for-performance sensitivity of the CEO's portfolio of stock and options as a control variable. The ex-ante PPS of a CEO's previously granted options and shares is calculated using the approximation method of Core and Guay (2002).

As in our analysis of CEO turnover, the main explanatory variables are the fraction of monitoring directors who are female and the fraction of monitoring directors who reside more than 100 kilometers from corporate headquarters. Most other control variables are similar to the

ones in CEO turnover analysis. In addition, we control for sales growth, market-to-book ratio and volatility.

Table 9 examines the relations between board gender diversity, board distance, and the structure of CEO compensation. Columns (1) and (4) are estimated using OLS; Models (2), (3), (5), and (6) are estimated using one-sided tobit with a lower bound at 0. Column (1) shows that there is no relationship between total CEO compensation and board diversity. This result is inconsistent with research arguing that women on boards lead to higher CEO pay (O'Reilly and Main (2012)). Column (3) shows, however, that the level of pay-performance sensitivity is positively associated with gender-diversity. The result is in line with papers such as Adams and Ferreira (2009), who argue that female directors are tougher monitors.

[Insert Table 9 about here]

When we add board distance to the analysis, however, the association between board diversity and pay-performance sensitivity is no longer significant. The results appear in columns (4) through (6). In column (4), we observe that there is no relation between gender diversity and total CEO pay when controlling for board distance. However, columns (5) and (6) illustrate that board distance is positively associated with the proportion of equity-based pay and pay-performance sensitivity of the CEO, respectively. The gender-diversity variable is insignificant in Column (5) and (6).

[Insert Table 10 about here]

Table 10 presents our compensation analysis based on our instrumental variables. Column (1) shows the first-stage estimation for diversity and column (2) shows the first-stage estimation for distance. Both IVs are significant at less than the 1% level, and R^2s are

approximately 0.14. The results for gender diversity, presented in column (3) – column (5) reveal a similar pattern to our baseline estimates – gender diverse boards appear to use greater pay-for-performance sensitivity in their compensation packages for CEOs. Once again, when we add our distance measure to the specification in column (6) – column (8), we find no relation between incentive pay and gender diversity. In contrast, we document a positive relation with board distance and the fraction of equity pay, significant at the 1% level, and a positive relation between board distance and pay sensitivity, significant at the 5% level. We also find a significant relation between the fraction of equity pay and board distance, but not

The interpretation of these results is similar to that of our findings for CEO dismissals. Distant directors rely more on what they can quantify and observe, e.g., stock prices, when setting CEO compensation. Because of supply constraints in the director labor market, female directors tend to be more remote from headquarters and board distance is correlated with board gender diversity. Thus, it is the distance-based cost of information acquisition, rather than gender *per se*, that explains the link between CEO compensation structure and board gender diversity. In addition, we find no evidence that gender-diverse boards pay CEOs higher amounts of total compensation.

V. Conclusion

Gender diversity in the boardroom is related to the decisions that boards make, but identifying the reasons why this is so is challenging. While women (in general) might have different perspectives and experiences than men do, the subset of women who become directors may not be so different from their male counterparts. If qualified female directors do not in fact differ systematically from qualified male directors in terms of ability, independence, or

monitoring style, then it is important to ask whether an omitted board characteristic could be driving the observed link between gender diversity and board decision-making. Recently research indicates that the geographic location of directors relative to headquarters affects monitoring decisions. Regardless of gender, the evidence suggests that board members sometimes use soft information to make important decisions, and the geographic remoteness of these board members from headquarters can hinder or facilitate the collection of this information. Until now, researchers have not examined board geography in connection with gender diversity. We contribute to the literature by analyzing the combined effect of gender diversity and geographic distance on boards' monitoring decisions.

We use a sample of director residential locations to examine how director distance and gender diversity are related. Our findings indicate that female directors tend to reside further from headquarters and male directors, and gender diverse boards tend to be distant identify the true effects of gender-diversity on board monitoring decisions, and it suggests that caution is warranted when giving causal interpretations of the effects of gender diversity.

We also consider the interplay of gender diversity and board distance in connection with key monitoring decisions. Directors who reside at greater distances from headquarters will find it more costly to obtain information in person, and thus distant directors must rely more on hard information (such as stock prices). Our multivariate tests confirm that gender-diverse boards do rely more heavily on hard information (stock-price performance) when making decisions about CEO compensation and CEO turnover. However, when we include controls for board distance, we find that the impact of gender diversity is much weaker. Thus, geographic distance, as opposed to gender differences *per se*, can help explain why gender-diverse boards tend to be "tough monitors."

More generally, our results suggest that directors' geographic locations vis-à-vis headquarters can affect information-gathering costs and influence observed board decisions. Failure to consider geographic distance and how it affects the costs of acquiring soft information may lead to an incomplete or incorrect understanding of the board's governance and decision-making roles. As Hermalin and Weisbach (2003) suggest, observed board structures represent an endogenous equilibrium that is a constrained optimal solution to agency problems. Hermalin and Weisbach (2003) also argue that researchers should exercise caution in attributing causality from observed aspects of board structure to observed board decisions. Our analysis supports their viewpoint, but it broadens the concept of board structure to include board distance. Consistent with Alam et al. (2018), we also find evidence that being headquartered far away from a large metropolitan area constrains a firm's ability to access local director labor markets. Thus, policies that mandate various levels of gender diversity on boards can have unintended consequences for some firms by increasing board distance and changing the information set by which boards make decisions.

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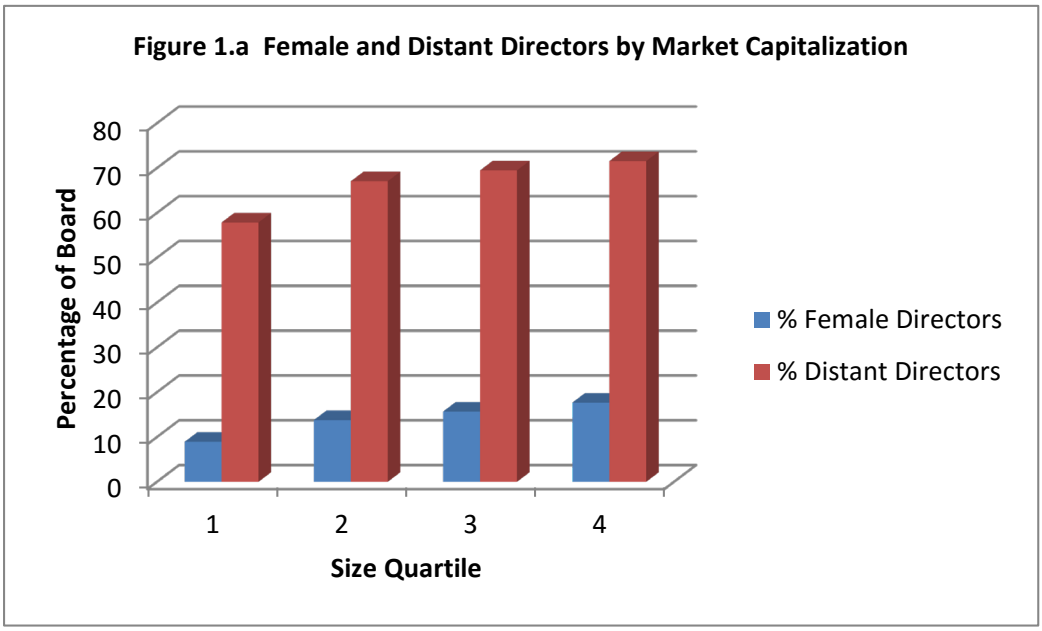
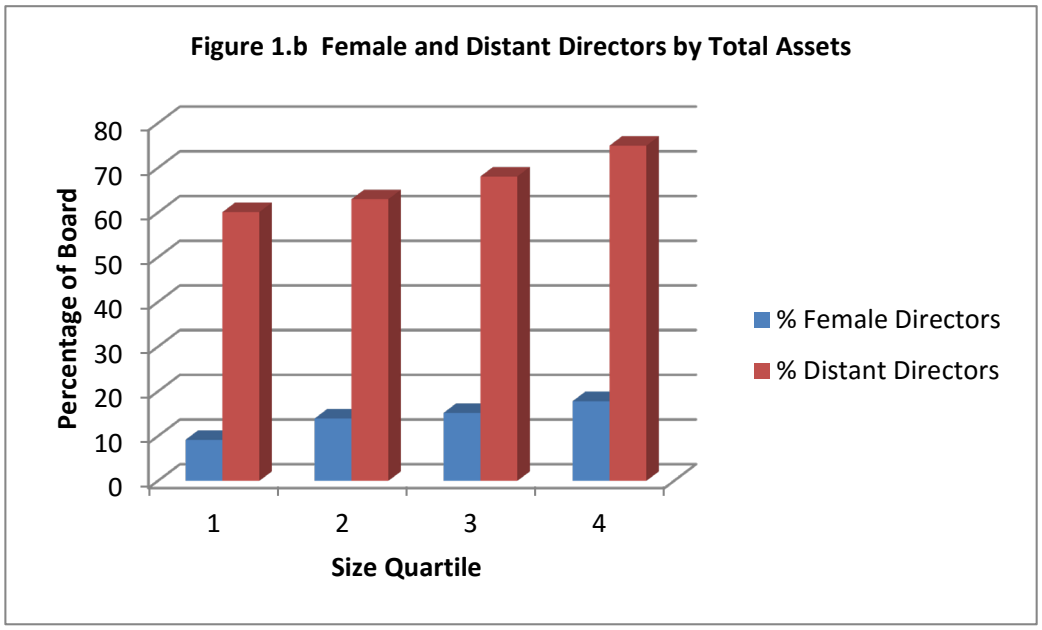
Figure 1: Gender Diversity and Geographic Distance Versus Firm Size
This figure charts board-level measures of gender diversity and geographic distance versus firm size quartiles. The sample consists of a panel of 1,427 firm-year observations from 2004-2007 and excludes financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949). *% Female Directors* is the percentage of monitoring directors (i.e., board members on the compensation, audit, or nominating committee) who are female. *% Distant Directors* is the percentage of monitoring directors who live more than 100 kilometers away from headquarters. Figures 1a, 1b, and 1c measure firm size as market capitalization, total assets, and net sales, respectively. Data on firm size are from Compustat. Data on gender and location are obtained from *Board Analyst* and LexisNexis *Person Locator*.





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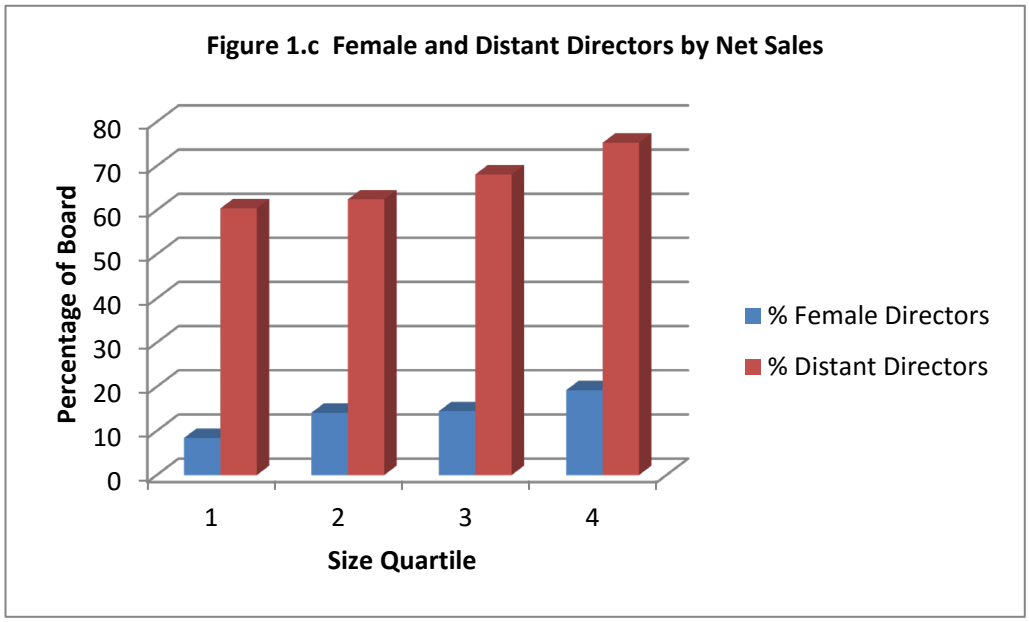

Table 1: Firm, Board, and CEO Characteristics

This table reports summary statistics for firm, board, and CEO characteristics for a panel of 1,427 firm-year observations and 13,132 director-year observations over 2004-2007. The dataset corresponds to 393 firms belonging to the S&P 1500 at year-end 2004. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Data on firm characteristics are obtained from Compustat and *Board Analyst*. Data on board and CEO characteristics are obtained from *Board Analyst* and SEC proxy filings. For each firm-year observation, financial characteristics are measured for the most recent prior fiscal year. *Intangibles-to-assets* is the ratio of Other Intangibles to Total Assets. *Net PP&E-to-assets* is the ratio of Net Property, Plant, and Equipment to Total Assets. *Business segments* is the number of segments reported in the Compustat Segments files. *Sales growth* is the geometric mean annual sales growth rate over the past three years. *FCF to assets* is the ratio of Total Free Cash Flow to Total Assets. *Market-to-book* ratio is the ratio of the share price to the per-share book value of equity. *Volatility* is the annualized standard deviation of daily stock returns, calculated over a five-year period prior to the current year. *Firm age* is the number of years since firm founding. *Prior M&A activity* is a binary variable equal to 1 if and only if the firm was involved in a merger or acquisition during the prior three years. *Unaffiliated blockholder ownership* is the percentage of outstanding shares held in blocks of five percent or more by shareholders with no current or past business affiliations with the firm. A large Metropolitan Statistical Area (MSA) is one that is among the fifty most populous MSAs according to the 2000 U.S. Census. An airport hub is a public-use airport accounting for 0.05% or more of U.S. passenger boardings in 2008 according to the U.S. Federal Aviation Administration. Distances are calculated as geodesic distances using latitudes and longitudes corresponding to zip codes. Independent directors are board members who are deemed independent under the applicable NYSE or Nasdaq regulatory definitions. *Total CEO pay* is the sum of cash-based pay, equity-based pay, LTIP payouts, and other compensation. *Equity-based CEO pay* is the sum of option-based pay (valued using a Black-Scholes approach) and restricted share grants. *Pay-performance sensitivity of equity-based CEO pay* is the change in the value of the CEO's current-year stock and option grants that would result from a 1% increase in share price. A *financial expert* is a director who is deemed to be an audit committee financial expert.

	Obs.	Mean	Median	S.D.
Firm Characteristics				
Total assets ($M)	1,420	8,364.2	1,433.7	41,927.0
Market capitalization, Year-End 2004 ($M)	1,427	8,060.7	1,920.6	25,700
Net sales	1,420	6,684.7	1,629.6	17,817.6
Intangibles to assets	1,352	0.042	0.017	0.06
Net PP&E to assets	1,419	0.256	0.192	0.21
Business segments	1,422	2.919	3	1.82
Sales growth (%)	1,418	11.1	8.8	0.163
FCF to assets	1,419	0.097	0.099	0.098
Market-to-book ratio	1,422	3.308	2.556	2.605
Volatility	1,427	0.349	0.315	0.137
Firm age (yrs. from founding)	1,355	47.36	36	37.36
Prior M&A activity	1,427	0.570	1.00	0.495
Unaffiliated blockholder ownership (%)	1,409	20.2	18.9	13.56
Distance from HQ to closest top-50 MSA (kilometers)	1,427	40.32	18.24	63.19
Distance from HQ to closest top-10 MSA (kilometers)	1,427	291.05	168.66	337.38
Distance from HQ to closest airport hub (kilometers)	1,427	30.18	23.96	33.72
HQ in Northeast	1,427	0.242		0.428
HQ in South	1,427	0.285		0.452
HQ in Midwest	1,427	0.247		0.431
HQ in West	1,427	0.226		0.419

Table 1, Continued

	Obs.	Mean	Median	S.D.
Board Characteristics				
Board size	1,427	9.01	9.0	2.17
Independent directors (%)	1,427	71.4	72.7	14.03
Monitoring directors (%)	1,427	71.8	72.7	12.69
Female directors (%)	1,427	14.11	14.29	15.29
One or more female director	1,427	0.561	1.0	0.496
Two or more female directors	1,427	0.167	0.0	0.374
Median director distance from HQ (kilometers)	1,427	844.43	636.66	831.47
Fraction of directors > 50km from HQ	1,427	0.738	0.80	0.272
Fraction of directors > 100km from HQ	1,427	0.668	0.714	0.284
Fraction of directors > 200km from HQ	1,427	0.610	0.667	0.285
Avg. director age	1,426	61.04	61	4.689
Avg. director tenure	1,426	8.33	7.53	4.351
Avg. # of outside CEO positions	1,427	0.164	0.143	0.181
Avg. # of outside board seats	1,427	2.46	2.33	0.982
# of financial experts	1,427	0.203	0.167	0.203
# with MBA degree	1,416	0.332	0.333	0.247
# with JD degree	1,416	0.116	0.0	0.182
# with graduate degree	1,416	0.510	0.50	0.277
# graduated from Ivy League	1,416	0.303	0.25	0.261
Classified board	1,427	0.57	1.0	0.49
Number of board meetings	1,418	7.73	7.0	3.85
CEO Characteristics				
CEO age (years)	1,424	57.38	58.0	6.85
CEO tenure on the board (years)	1,421	9.78	8.0	8.12
Non-CEO board chair	1,427	0.35	0.0	0.48
Total CEO pay	1,369	5,188.37	3,447.97	6,293.94
Equity-based CEO pay (as fraction of total pay)	1,369	0.40	0.44	0.279
Pay-performance sensitivity of equity-based CEO pay	1,419	217,442	72,287.8	483,727

Table 2: Gender and Board Distance, by Year, Industry, and Geographic Region

This table shows summary statistics for measures of board distance by the number of female monitoring directors and by year, industry, and geographic region. Median Director Distance is the median kilometer distance between headquarters and the board's monitoring directors. % of Directors who are Distant is the percentage of monitoring directors who are located more than 100km away from headquarters. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Industry sectors are defined by 4-digit SIC codes: Manufacturing (SIC 2000-2829, 3400-3569), Technology (SIC 2830-2839, 3570-3579, 3600-3699), Retail (SIC 5200-5990), Services (SIC 7011-8999), and Other. U.S. regions are as defined by the U.S. Census Bureau. Directors' residential locations are ascertained from the LexisNexis *Person Locator* database using individual names and birthdates identified from public sources. Distances are calculated as geodesic distances using latitudes and longitudes corresponding to zip codes.

	Number of Female Directors					
	None		One		Two or More	
	Avg. Median Director Distance (km.)	Avg. % of Directors who are Distant	Avg. Median Director Distance (km.)	Avg. % of Directors who are Distant	Avg. Median Director Distance (km.)	Avg. % of Directors who are Distant
By Year:						
2004	821.3	61.3	803.0	67.1	967.8	76.0
2005	759.9	60.2	867.9	70.1	957.2	75.9
2006	801.3	60.1	857.3	70.4	814.5	75.5
2007	851.0	61.9	855.2	67.8	851.3	77.4
2004-2007	805.7	60.8	845.4	68.8	889.8	76.2
By Industry Sector:						
Manufacturing	500.5	55.2	732.6	71.1	783.4	81.0
Technology	731.7	63.5	993.6	69.7	1,071.6	67.4
Retail	785.5	52.9	798.6	58.2	714.2	71.5
Services	904.7	58.9	905.4	67.3	985.3	75.9
Other	972.0	65.0	847.6	71.7	1,084.5	78.3
By Headquarters Location (U.S. Region):						
Northeast	594.8	63.9	568.4	68.2	534.9	69.0
Midwest	667.2	62.4	838.2	69.9	1,083.3	83.1
South	707.7	59.5	759.9	69.9	989.3	81.5
West	1,183.5	58.6	1,318.6	66.4	1,315.6	70.2

Table 3: Gender and Board Distance, by Firm Size

This table shows summary statistics for measures of the percentage of distant directors and the percentage of female monitoring directors by different measures of firm size. % of Directors who are Distant is the percentage of monitoring directors who are located more than 100km away from headquarters. Measures of firm size include the market capitalization of equity, total assets, and net revenues. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Industry sectors are defined by 4-digit SIC codes: Manufacturing (SIC 2000-2829, 3400-3569), Technology (SIC 2830-2839, 3570-3579, 3600-3699), Retail (SIC 5200-5990), Services (SIC 7011-8999), and Other. U.S. regions are as defined by the U.S. Census Bureau. Directors' residential locations are ascertained from the LexisNexis *Person Locator* database using individual names and birthdates identified from public sources. Distances are calculated as geodesic distances using latitudes and longitudes corresponding to zip codes.

Panel A: Market Capitalization

	Size Quartile			
	Q1	Q2	Q3	Q4
Gender diversity				
# of female directors	0.423	0.674	0.889	0.989
% female directors	8.94	13.8	15.7	17.69
Board distance				
% of directors > 100 km from HQ	57.87	67.06	69.49	71.56
Median director distance from HQ (km.)	667.6	882.7	931.3	877.5

Panel B: Total Assets

	Size Quartile			
	Q1	Q2	Q3	Q4
Gender diversity				
# of female directors	0.402	0.682	0.86	1.03
% female directors	9.19	13.95	15.21	17.82
Board distance				
% of directors > 100 km from HQ	60.11	62.99	68.09	74.97
Median director distance from HQ (km.)	767.2	779.2	823.0	995.4

Panel C: Net Sales

	Size Quartile			
	Q1	Q2	Q3	Q4
Gender diversity				
# of female directors	0.352	0.698	0.796	1.128
% female directors	8.40	14.12	14.46	19.23
Board distance				
% of directors > 100 km from HQ	60.4	62.44	68.09	75.28
Median director distance from HQ (km.)	842.4	701.4	828.6	994.9

Table 4: Seemingly Unrelated Regression Analysis of the Percentage Female Directors and the Percentage Distant Directors

This table presents the results of seemingly unrelated regressions of the fraction of distant monitoring directors and the fraction of female monitoring directors as a function of firm size and control variables. Measures of firm size include the market capitalization of equity, total assets, and net revenues. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Industry sectors are defined by 4-digit SIC codes: Manufacturing (SIC 2000-2829, 3400-3569), Technology (SIC 2830-2839, 3570-3579, 3600-3699), Retail (SIC 5200-5990), Services (SIC 7011-8999), and Other. U.S. regions are as defined by the U.S. Census Bureau. Directors' residential locations are ascertained from the LexisNexis *Person Locator* database using individual names and birthdates identified from public sources. Distances are calculated as geodesic distances using latitudes and longitudes corresponding to zip codes. Control variables are described in Table 1. *z*-statistics, based on robust standard errors, are in parentheses.

	Model 1		Model 2		Model 3	
Independent Variable	Fraction of Directors who Are Female	Fraction of Directors > 100 km. from HQ	Fraction of Directors who Are Female	Fraction of Directors > 100 km. from HQ	Fraction of Directors who Are Female	Fraction of Directors > 100 km. from HQ
Log(Market Capitalization)	0.019***	0.029***				
	(4.51)	(3.97)				
Log(Total Assets)			0.017***	0.026***		
			(4.01)	(3.50)		
Log(Net Sales)					0.017***	0.026***
					(3.99)	(3.51)
Intangibles to assets	-0.076	-0.543***	-0.091	-0.565***	-0.067	-0.528***
	(-0.98)	(-3.97)	(-1.17)	(-4.11)	(-0.86)	(-3.86)
Sales growth	-0.048*	0.111**	-0.043	0.120**	-0.041	0.122**
	(-1.65)	(2.15)	(-1.46)	(2.31)	(-1.41)	(2.36)
Business segments	0.010***	0.006	0.009***	0.005	0.009***	0.004
	(3.40)	(1.18)	(3.15)	(0.99)	(2.95)	(0.83)
Log(Company age)	0.020***	0.020**	0.020***	0.019*	0.020***	0.020*
	(3.53)	(1.97)	(3.39)	(1.86)	(3.46)	(1.91)
FCF/total assets	0.032	0.020	0.063	0.069	0.049	0.048
	(0.67)	(0.24)	(1.34)	(0.83)	(1.04)	(0.57)
Non-CEO board chair	0.009	-0.094***	0.009	-0.095***	0.007	-0.098***
	(0.85)	(-4.96)	(0.81)	(-4.97)	(0.63)	(-5.18)
Log(CEO tenure)	-0.006	-0.046***	-0.007	-0.047***	-0.007	-0.048***
	(-1.08)	(-4.35)	(-1.22)	(-4.48)	(-1.25)	(-4.51)

continued

Table 4, Continued

Board size	0.005*	0.016***	0.004	0.015***	0.004*	0.015***
	(1.85)	(3.42)	(1.60)	(3.16)	(1.68)	(3.23)
Fraction of directors who are independent	0.034	0.125**	0.036	0.128**	0.033	0.123**
	(0.99)	(2.04)	(1.04)	(2.08)	(0.94)	(1.99)
Number of board meetings	0.001	0.006***	0.001	0.006***	0.0005	0.006***
	(0.48)	(2.89)	(0.44)	(2.85)	(0.45)	(2.85)
Log(unaffiliated blockholder ownership)	0.125***	0.140*	0.106**	0.110	0.104**	0.108
	(2.80)	(1.77)	(2.40)	(1.41)	(2.37)	(1.38)
Classified board	-0.006	0.033*	-0.006	0.033*	-0.006	0.034**
	(-0.66)	(1.95)	(-0.66)	(1.95)	(-0.60)	(2.00)
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies and year dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.268	0.329	0.265	0.326	0.265	0.326
Observations	1,067	1,067	1,067	1,067	1,067	1,067
Breusch-Pagan Test: χ^2	26.664***		27.679***		27.694***	

Table 5: Gender Diversity, Distance, and Constraints on the Local Supply of Directors

This table reports the results of multivariate OLS regressions of gender diversity on measures of board distance and other variables. Columns (3) through (6) estimate regressions for subsamples defined by whether or not headquarters is located within 100 kilometers of a Top-10 MSA. Columns (7) through (10) estimate regressions for subsamples defined by whether or not an above- or below-median number of highly-paid employees live within 100 kilometers of headquarters. The dependent variable is the fraction of monitoring directors who are female. *Board Distance* is the fraction of monitoring directors who live more than 100km from Headquarters. *Board distance, male directors* is the fraction of monitoring directors who are male and who live more than 100km from Headquarters. Data sources include Board Analyst, LexisNexis Person Locator, COMPUSTAT, and the American Community Survey (ACS). *t*-statistics, reported in parentheses, are based on robust standard errors clustered by firm. *, **, and *** denote statistical significance at 10%, 5%, and 1%.

	Full sample		Headquarters Located within 100 km of a Top-10 MSA?				# of High-Wage Local Employees			
			No	Yes	No	Yes	Low	High	Low	High
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Board distance	0.097***		0.116***	0.039			0.195***	0.0006		
	(3.55)		(3.48)	(0.95)			(5.80)	(0.02)		
Board distance, male directors		0.076***			0.088**	0.035			0.146***	0.026
		(2.82)			(2.53)	(0.85)			(4.33)	(0.67)
Intangibles to assets	-0.008	-0.028	-0.027	-0.029	-0.069	-0.039	0.042	-0.119	-0.052	-0.111
	(-0.07)	(-0.23)	(-0.17)	(-0.17)	(-0.42)	(-0.23)	(0.23)	(-0.83)	(-0.28)	(-0.76)
Sales growth	-0.052	-0.040	-0.028	-0.026	-0.021	-0.021	-0.093	0.028	-0.064	0.024
	(-1.35)	(-1.08)	(-0.46)	(-0.53)	(-0.33)	(-0.45)	(-1.25)	(0.65)	(-0.86)	(0.58)
Business segments	0.011**	0.010**	0.010	0.014*	0.010	0.012*	0.010	0.015**	0.007	0.015**
	(2.17)	(2.10)	(1.63)	(1.83)	(1.58)	(1.75)	(1.31)	(2.52)	(1.04)	(2.44)
Log(Company age)	0.019**	0.017*	0.002	0.035***	0.0008	0.032***	0.005	0.033***	0.004	0.033***
	(1.96)	(1.84)	(0.13)	(2.83)	(0.05)	(2.85)	(0.43)	(2.62)	(0.36)	(2.62)
FCF/total assets	0.067	0.066	0.003	0.065	-0.013	0.060	0.096	0.071	0.041	0.069
	(1.45)	(1.43)	(0.02)	(1.07)	(-0.10)	(0.99)	(0.66)	(1.18)	(0.27)	(1.16)
Non-CEO board chair	0.009	0.007	0.002	-0.006	-0.002	-0.006	-0.017	0.0001	-0.016	0.004
	(0.48)	(0.41)	(0.09)	(-0.22)	(-0.08)	(-0.24)	(-0.76)	(0.00)	(-0.75)	(0.17)
Log(CEO tenure)	-0.005	-0.005	0.004	-0.037***	0.003	-0.034***	0.002	-0.019*	0.002	-0.017
	(-0.61)	(-0.62)	(0.33)	(-2.89)	(0.21)	(-2.80)	(0.14)	(-1.68)	(0.19)	(-1.51)
Board size	0.007*	0.009***	0.015***	0.003	0.017***	0.005	0.004	0.012***	0.008	0.012**
	(1.80)	(2.62)	(2.90)	(0.40)	(3.10)	(1.05)	(0.62)	(2.62)	(1.64)	(2.57)

Independent directors (fraction of board)	0.030 (0.59)	0.040 (0.78)	-0.017 (-0.24)	-0.029 (-0.45)	-0.006 (-0.08)	-0.018 (-0.29)	-0.005 (-0.08)	0.017 (0.26)	0.035 (0.52)	0.019 (0.28)
Number of board meetings	-0.000 (-0.02)	0.0002 (0.11)	0.001 (0.71)	-0.003 (-1.24)	0.002 (0.75)	-0.002 (-1.10)	-0.002 (-0.71)	0.003 (1.25)	-0.002 (-0.76)	0.003 (1.23)
Log(unaffiliated blockholder ownership)	0.072 (1.27)	0.071 (1.25)	0.045 (0.62)	0.019 (0.23)	0.044 (0.59)	0.014 (0.17)	0.036 (0.57)	0.047 (0.58)	0.036 (0.55)	0.043 (0.54)
Classified board	-0.012 (-0.76)	-0.011 (-0.69)	-0.005 (-0.22)	-0.008 (-0.37)	-0.007 (-0.32)	-0.005 (-0.24)	-0.026 (-1.2)	-0.005 (-0.22)	-0.023 (-1.08)	-0.006 (-0.26)
State dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,067	1,066	572	495	572	494	563	502	562	502
R^2	0.275	0.272	0.385	0.369	0.374	0.371	0.447	0.357	0.431	0.358

Table 6: Committee Membership of Female and Male Directors

This table reports the number of female and male directors who serve on key monitoring committees and the propensity for female directors or male directors to serve on key monitoring committees. The sample consists of 14,978 director-years corresponding to 393 S&P 1500 firms during 2004-2007. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Data on directors' committee assignments are obtained from the *BoardEx* database.

		Monitoring Committee Members		Audit Committee Members		Compensation Committee Members		Nominating/ Governance Committee Members	
	Total #	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Female Directors									
2004	528	439	83.1	236	44.7	219	41.5	237	44.9
2005	538	452	84.0	230	42.8	210	39.0	262	48.7
2006	526	445	84.6	233	44.3	211	40.1	253	48.1
2007	504	431	85.5	227	45.0	209	41.5	239	47.4
All years	2,096	1,767	84.3	926	44.2	849	40.5	991	47.3
Male Directors									
2004	3,932	2,692	68.5	1,521	38.7	1,431	36.4	1,502	38.2
2005	3,948	2,716	68.8	1,489	37.7	1,439	36.4	1,579	40.0
2006	3,739	2,642	70.7	1,500	40.1	1,451	38.8	1,492	39.9
2007	3,359	2,378	70.8	1,338	39.8	1,317	39.2	1,363	40.6
All years	14,978	10,428	69.6	5,848	39.0	5,638	37.6	5,936	39.6

Table 7: Board Distance, Gender, and Non-Routine CEO Turnover

This table reports estimated coefficients from logit regressions explaining the annual incidence of non-routine CEO turnover in terms of gender diversity, board distance, stock performance, and other firm, board, and CEO characteristics. The dependent variable in each regression equals 1 if a firm experienced a non-routine CEO turnover event during a given fiscal year, and it equals zero otherwise. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Non-routine CEO turnover events are defined as in Denis, Denis, and Sarin (1997) and identified from proxy statements and news articles. Only firm-years in which the CEO has held office for more than one year are included. *Fraction of directors who are female* is the fraction of monitoring directors who are female. *Fraction of directors who are distant* is the fraction of monitoring directors who reside more than 100 kilometers from corporate headquarters. *Adjusted stock return* is the firm's stock return over the current fiscal year minus the contemporaneous median stock return within the same SIC 2-digit industry. *Independent board* is a binary variable equal to 1 if and only if at least 75% of a firm's board members in a given year are independent according to exchange-listing standards. Each regression includes year dummies, Fama-French industry dummies, and state dummies for headquarters locations. Other variables are as described in Table 3. *Z*-statistics (reported in parentheses) are based on robust standard errors clustered by firm. *, **, and *** denote statistical significance at 10%, 5%, and 1%.

Independent Variable	(1)	(2)	(3)
Adjusted stock return	-1.301 (-1.34)	1.464 (1.13)	1.366 (1.14)
Fraction of directors who are female	-2.725** (-2.55)		-2.562** (-2.33)
Fraction of directors who are female × Adjusted stock return	-7.941** (-2.01)		-5.888 (-1.44)
Fraction of directors who are distant		-0.878 (-1.39)	-0.794 (-1.26)
Fraction of directors who are distant × Adjusted stock return		-5.617*** (-3.34)	-4.825*** (-2.97)
Independent board	0.657* (1.65)	0.703* (1.76)	0.742* (1.87)
Independent board × Adjusted stock return	0.735 (0.66)	1.420 (1.28)	1.435 (1.40)
Log distance from HQ to closest large MSA	0.286** (2.08)	0.304** (2.12)	0.333** (2.37)
Log distance from HQ to closest large airport hub	0.264 (0.92)	0.303 (1.06)	0.300 (1.02)
Log(Total assets)	-0.246* (-1.90)	-0.341** (-2.40)	-0.304** (-2.21)
FCF/Total assets	-1.248 (-0.54)	-1.811 (-0.76)	-1.771 (-0.75)
Log(company age)	0.275 (1.41)	0.303 (1.48)	0.381* (1.70)

(Continued)

Table 7, continued

Board size	0.055 (0.70)	0.066 (0.75)	0.079 (0.90)
Board meetings	0.127*** (3.31)	0.150*** (3.50)	0.152*** (3.72)
Classified board	-0.383 (-1.20)	-0.349 (-1.05)	-0.361 (-1.07)
Non-CEO board chair	0.112 (0.27)	0.024 (0.06)	0.062 (0.14)
Female CEO	0.196 (0.15)	0.154 (0.12)	0.212 (0.15)
Log(CEO tenure)	-0.077 (-0.24)	-0.138 (-0.41)	-0.153 (-0.44)
Log(CEO age)	0.201 (0.11)	0.476 (0.24)	0.513 (0.26)
Log(CEO stock ownership)	0.105 (0.37)	0.028 (0.09)	0.055 (0.18)
Industry dummies, state dummies, year dummies	Yes	Yes	Yes
Observations	883	883	883
Pseudo R^2	0.194	0.202	0.215

Table 8: Board Distance, Gender, and Non-Routine CEO Turnover with Instrumental Variables

This table reports estimated coefficients from logit regressions explaining the annual incidence of non-routine CEO turnover in terms of gender diversity, board distance, stock performance, and other firm, board, and CEO characteristics. The dependent variable in each regression equals 1 if a firm experienced a non-routine CEO turnover event during a given fiscal year, and it equals zero otherwise. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Non-routine CEO turnover events are defined as in Denis, Denis, and Sarin (1997) and identified from proxy statements and news articles. Only firm-years in which the CEO has held office for more than one year are included. *Fraction of directors who are female* is the fraction of monitoring directors who are female. *Fraction of directors who are distant* is the fraction of monitoring directors who reside more than 100 kilometers from corporate headquarters. *Adjusted stock return* is the firm's stock return over the current fiscal year minus the contemporaneous median stock return within the same SIC 2-digit industry. *Independent board* is a binary variable equal to 1 if and only if at least 75% of a firm's board members in a given year are independent according to exchange-listing standards. Each regression includes year dummies, Fama-French industry dummies, and state dummies for headquarters locations. Other variables are as described in Table 3. *Z*-statistics (reported in parentheses) are based on robust standard errors clustered by firm. *, **, and *** denote statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)
Independent variable:	Fraction Female Directors	Fraction Distant Directors.	Nonroutine Turnover	Nonroutine Turnover	Nonroutine Turnover
Log(female directors near non-local hub weighted by direct flights to HQ)	-1.422***				
	(3.52)				
Log(distant directors near non-local hub weighted by direct flights to HQ)		0.048***			
		(3.58)			
Adjusted stock return			-1.749**	2.022	1.436
			(2.02)	(1.26)	(0.91)
Predicted fraction female directors			-2.568**		-2.455**
			(2.31)		(2.14)
Predicted fraction female directors × Adjusted stock return			-6.120		-4.871
			(1.42)		(1.07)
Predicted fraction distant directors				-1.003	-0.916
				(1.54)	(1.42)
Predicted fraction distant directors × Adjusted stock return				-5.562***	-5.107***
				(3.01)	(2.91)
Independent board	-0.001	0.023	0.621	0.590	0.635*
	(0.74)	(0.98)	(1.61)	(1.52)	(1.65)
Independent board × Adjusted stock return	-0.007	-0.006	0.115	0.806	0.852
	(0.41)	(0.18)	(0.11)	(0.72)	(0.81)

(Continued)

Table 8, continued

Log distance from HQ to closest large MSA	0.005	0.023*	0.252*	0.260*	0.281**
	(0.75)	(1.87)	(1.92)	(1.86)	(2.02)
Log distance from HQ to closest large airport hub	-0.001	-0.009	0.293	0.332	0.316
	(0.15)	(0.49)	(1.00)	(1.11)	(1.05)
Log(Total assets)	0.012*	0.020**	-0.298**	-0.378***	-0.363***
	(1.97)	(1.99)	(2.33)	(2.67)	(2.61)
FCF/Total assets	0.062	0.037	-0.649	-1.101	-1.22
	(1.30)	(0.30)	(0.28)	(0.46)	(0.50)
Log(company age)	0.018**	0.009	0.136	0.201	0.223
	(2.19)	(0.57)	(0.75)	(1.8)	(1.12)
Board size	0.006*	0.008	0.035	0.061	0.058
	(1.73)	(1.13)	(0.44)	(0.71)	(0.70)
Board meetings	0.001	0.004	0.120***	0.140***	0.141***
	(0.43)	(1.45)	(3.08)	(3.30)	(3.44)
Classified board	0.005	0.008	-0.342	-0.294	-0.329
	(0.33)	(0.30)	(1.07)	(0.87)	(0.94)
Non-CEO board chair	-0.013	-0.103***	0.184	0.142	0.215
	(0.75)	(3.40)	(0.44)	(0.33)	(0.51)
Female CEO	0.036	0.011	0.017	0.181	0.128
	(0.78)	(0.18)	(0.01)	(0.14)	(0.09)
Log(CEO tenure)	-0.019*	-0.059***	-0.050	-0.083	-0.070
	(1.93)	(3.00)	(0.15)	(0.25)	(0.20)
Log(CEO age)	-0.014	0.137	0.528	0.585	0.711
	(0.23)	(1.05)	(0.28)	(0.28)	(0.34)
Log(CEO stock ownership)	-0.002	0.004	-0.058	-0.108	-0.074
	(0.19)	(0.20)	(0.20)	(0.33)	(0.23)
Industry dummies, state dummies, year dummies	No	No	Yes	Yes	Yes
Observations	1,272	1,272	856	856	856
R^2 or Pseudo R^2	0.091	0.123	0.184	0.197	0.208

Table 9: Board Distance, Gender, and CEO Compensation

This table shows regressions of measures of annual CEO pay on the fraction of monitoring directors who are female, the fraction of monitoring directors who are distant from corporate headquarters, and other control variables. A director is distant from headquarters if he or she resides more than 100 kilometers away. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Equity-based pay is the total value of option-based pay (valued with a Black-Scholes approach, modified for dividends) plus restricted share grants. Total pay is the sum of cash-based pay (salary + bonus), equity-based pay, LTIP payouts, and other compensation. The pay-performance sensitivity (PPS) of equity-based pay is the approximate total change in value of current-year share and option grants that would result from a 1% increase in share price. The PPS is computed using the partial derivative of the Black-Scholes option value (see Yermack (1995)). The PPS of a CEO's previously-granted options and shares is calculated using the approximation method of Core and Guay (2002). Other variables are as described in Table 3. Distances are calculated using latitudes and longitudes corresponding to zip codes drawn from LexisNexis *Person Locator*. Models (1) and (4) are estimated using OLS; Models (2), (3), (5), and (6) are estimated using one-sided tobit with a lower bound at 0. Each regression includes year indicators, state indicators, and Fama-French industry indicators. T-statistics and *Z*-statistics, reported in parentheses, are based on robust standard errors clustered at the firm level. *, **, and *** denote statistical significance at 10%, 5%, and 1%.

(Continued)

Table 9, continued

Independent Variable	Log Total Pay (1)	Equity Pay Fraction (2)	Log Equity PPS (3)	Log Total Pay (4)	Equity Pay Fraction (5)	Log Equity PPS (6)
Fraction of directors who are female	0.063	0.047	2.230*	0.025	0.015	1.787
	(0.27)	(0.69)	(1.86)	(0.11)	(0.22)	(1.50)
Fraction of directors who are distant from HQ				0.178	0.148***	2.177**
				(1.09)	(3.29)	(2.52)
Log distance from HQ to closest large MSA	0.043	-0.017	-0.184	0.036	-0.023**	-0.271
	(0.75)	(-1.48)	(-0.85)	(0.67)	(-1.98)	(-1.25)
Log distance from HQ to closest airport hub	-0.047	0.035*	0.422	-0.044	0.038*	0.451
	(-0.61)	(1.72)	(1.09)	(-0.58)	(1.88)	(1.16)
Adjusted stock return	0.158	-0.023	0.173	0.152	-0.029	0.115
	(0.86)	(-0.69)	(0.29)	(0.81)	(-0.89)	(0.19)
Log(Total assets)	0.354***	0.024*	0.250	0.352***	0.022*	0.214
	(10.04)	(1.82)	(0.92)	(9.79)	(1.69)	(0.79)
FCF/Total assets	0.630**	-0.031	1.767	0.628**	-0.034	1.706
	(2.05)	(-0.31)	(1.14)	(2.04)	(-0.34)	(1.10)
Sales growth	0.012	0.011	-0.772	0.004	0.006	-0.922
	(0.04)	(0.14)	(-0.55)	(0.01)	(0.07)	(-0.67)
Market-to-book ratio	0.036**	0.008	0.078	0.035**	0.006	0.062
	(2.15)	(1.39)	(0.89)	(2.09)	(1.18)	(0.71)
Volatility	-0.434	-0.122	-9.936***	-0.476	-0.154	-10.451***
	(-1.01)	(-0.71)	(-3.01)	(-1.09)	(-0.90)	(-3.19)
Log PPS of CEO's previously-granted options and shares			0.144			0.154
			(0.84)			(0.89)

(Continued)

Table 9, continued

Independent board	0.172**	0.031	0.483	0.169**	0.029	0.446
	(2.12)	(1.37)	(1.17)	(2.13)	(1.27)	(1.09)
Board size	0.021	0.002	0.097	0.018	0.00003	0.062
	(1.09)	(0.35)	(0.82)	(0.98)	(0.00)	(0.53)
Board meetings	0.003	-0.0006	-0.027	0.003	-0.001	-0.035
	(0.40)	(-0.20)	(-0.52)	(0.33)	(-0.40)	(-0.68)
Non-CEO board chair	0.001	0.009	0.048	0.018	0.023	0.247
	(0.02)	(0.32)	(0.10)	(0.20)	(0.84)	(0.49)
Female CEO	0.097	-0.066	-2.028	0.093	-0.070	-2.067
	(0.60)	(-1.10)	(-1.57)	(0.59)	(-1.13)	(-1.62)
Log CEO age	0.096	-0.294***	-2.409	0.079	-0.306***	-2.625
	(0.28)	(-2.67)	(-1.13)	(0.23)	(-2.81)	(-1.23)
Log CEO tenure	-0.052	-0.035**	-0.824**	-0.044	-0.028	-0.723**
	(-1.26)	(-2.07)	(-2.46)	(-1.04)	(-1.64)	(-2.14)
Industry, state, and year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,328	1,328	1,313	1,328	1,328	1,313
R^2 or Pseudo-R^2	0.423	0.268	0.042	0.424	0.282	0.044

Table 10: Board Distance, Gender, and CEO Compensation with Instrumental Variables

This table shows regressions of measures of annual CEO pay on the fraction of monitoring directors who are female, the fraction of monitoring directors who are distant from corporate headquarters, and other control variables. A director is distant from headquarters if he or she resides more than 100 kilometers away. Financial firms (SIC codes 6000-6799) and regulated utilities (SIC codes 4910-4949) are excluded. Equity-based pay is the total value of option-based pay (valued with a Black-Scholes approach, modified for dividends) plus restricted share grants. Total pay is the sum of cash-based pay (salary + bonus), equity-based pay, LTIP payouts, and other compensation. The pay-performance sensitivity (PPS) of equity-based pay is the approximate total change in value of current-year share and option grants that would result from a 1% increase in share price. The PPS is computed using the partial derivative of the Black-Scholes option value (see Yermack (1995)). The PPS of a CEO's previously-granted options and shares is calculated using the approximation method of Core and Guay (2002). Other variables are as described in Table 3. Distances are calculated using latitudes and longitudes corresponding to zip codes drawn from LexisNexis *Person Locator*. Models (1) and (4) are estimated using OLS; Models (2), (3), (5), and (6) are estimated using one-sided tobit with a lower bound at 0. Each regression includes year indicators, state indicators, and Fama-French industry indicators. T-statistics and *Z*-statistics, reported in parentheses, are based on robust standard errors clustered at the firm level. *, **, and *** denote statistical significance at 10%, 5%, and 1%.

(Continued)

Table 10, continued

VARIABLES	(1) Fraction Female Directors	(2) Fraction Distant Directors.	(3) Log Total Pay	(4) Equity Pay Fraction	(5) Log Equity PPS	(6) Log Total Pay	(7) Equity Pay Fraction	(8) Log Equity PPS
Log(female directors near non-local hub weighted by direct flights to HQ)	-1.364***							
	(5.18)							
Log(distant directors near non-local hub weighted by direct flights to HQ)		0.047***						
		(3.74)						
Fraction of directors who are female			0.069	0.052	2.284*	0.042	0.020	1.857
			(0.28)	(0.74)	(1.88)	(0.10)	(0.35)	(1.54)
Fraction of directors who are distant from HQ						0.2184	0.1364***	2.1242**
						(1.26)	(2.92)	(2.41)
Log distance from HQ to closest large MSA	0.004	0.031**	0.045	-0.017	-0.151	0.045	-0.016	-0.153
	(0.93)	(2.44)	(0.79)	(1.47)	(0.70)	(0.79)	(1.49)	(0.72)
Log distance from HQ to closest airport hub	0.002	-0.009	-0.049	0.040**	0.483	-0.048	0.041**	0.498
	(0.19)	(0.43)	(0.64)	(1.98)	(1.25)	(0.63)	(2.05)	(1.28)
Adjusted stock return	0.0000	-0.0003	0.162	-0.025	0.183	0.155	-0.030	0.126
	(0.03)	(0.01)	(0.88)	(0.76)	(0.31)	(0.84)	(0.91)	(0.21)
Log(Total assets)	0.012**	0.026**	0.346***	0.024*	0.274	0.347***	0.024*	0.286
	(2.58)	(2.23)	(9.61)	(1.75)	(1.02)	(9.68	(1.82)	(1.08)
FCF/Total assets	0.006	-0.005	0.557*	-0.021	1.974	0.550*	-0.026	1.900
	(0.17)	(0.06)	(1.96)	(0.21)	(1.26)	(01.92)	(0.26)	(1.21)
Sales growth	-0.092***	0.065	-0.006	0.022	-1.040	-0.011	0.021	-1.019
	(3.86)	(1.00)	(0.02)	(0.28)	(0.75)	(0.04)	(0.27)	(0.74)
Market-to-book ratio	0.003**	0.007	0.0238**	0.0063	0.0862	0.0241**	0.0065	0.0890
	(2.01)	(1.64)	(1.99)	(1.56)	(1.41)	(1.99)	(1.62)	(1.45)
Volatility	-0.077	0.134	-0.356	-0.094	-9.967***	-0.380	-0.106	-10.106***
	(1.26)	(0.91)	(0.84)	(0.56)	(3.02)	(0.89)	(0.63)	(3.10)
Log PPS of CEO's previously-granted options and shares	0.001	0.001	0.019	0.004	0.143	0.020	0.004	0.154
	(0.24)	(0.15)	(0.75)	(0.43)	(0.83)	(0.81)	(0.53)	(0.90)

(Continued)

Table 10, continued

Independent board	-0.006	0.018	0.179**	0.031	0.459	0.179**	0.032	0.460
	(0.60)	(0.82)	(2.17)	(1.37)	(1.12)	(0.2.18)	(1.40)	(1.13)
Board size	0.006**	0.008	0.019	0.002	0.115	0.016	0.001	0.093
	(2.24)	(1.13)	(1.02)	(0.31)	(0.96)	(0.93)	(0.10)	(0.79)
Board meetings	0.002	0.004*	0.006	-0.001	-0.028	0.006	-0.001	-0.028
	(1.19)	(1.72)	(0.81)	(0.18)	(0.53)	(0.82)	(0.19)	(0.55)
Non-CEO board chair	-0.012	-0.095***	-0.021	0.010	0.035	-0.020	0.012	0.047
	(0.98)	(3.20)	(0.26)	(0.37)	(0.07)	(0.25)	(0.42)	(0.10)
Female CEO	0.013	0.001	0.081	-0.059	-2.002	0.072	-0.065	-2.077
	(0.37)	(0.02)	(0.46)	(0.94)	(1.56)	(0.42)	(1.00)	(1.64)
Log CEO age	-0.037	0.181	0.107	-0.253**	-2.216	0.127	-0.239**	-2.005
	(0.81)	(1.41)	(0.31)	(2.25)	(1.04)	(0.36)	(2.13)	(0.94)
Log CEO tenure	-0.011	-0.065***	-0.081*	-0.044**	-0.851**	-0.085**	-0.047***	-0.889***
	(1.58)	(3.59)	(1.95)	(2.46)	(2.55)	(2.08)	(2.60)	(2.65)
Industry, state, and year dummies	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,304	1,304	1,304	1,304	1,304	1,304	1,304	1,304
R^2 or Pseudo R^2	0.138	0.140	0.428	0.271	0.0416	0.431	0.283	0.0431