Gender Diversity on U.S. Corporate Boards: Are We Running in Place?

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**Abstract**

Despite rhetoric supporting the advancement of women on corporate boards, there is meager evidence of significant progress over the last decade in the U.S. We use archival board data (approximately 3000 U.S. publicly traded firms) from 2002-2011 to show that a female is most likely to be appointed to a corporate board when a woman leaves. There is a similar propensity to reappoint a male when a man leaves, although the effect is smaller than for women. This “gender matching heuristic” can impede progress in attaining gender diversity, regardless of intention. We replicate this effect in follow up lab studies, and show that “what works” to increase the representation of women on boards, irrespective of gender matching, is to increase the number of women in the candidate pool.

**Keywords:** Gender, Corporate Boards, Selection, Decision Heuristic

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INTRODUCTION

Across the globe, corporations are under pressure to increase the number of women on their Boards of Directors. In the U.S., although women comprise roughly 47 percent of the labor force and 51 percent of the management and professional occupations (Bureau of Labor Statistics, 2013), women hold only about 17 percent of corporate board seats (Catalyst, 2014).

Many actors in government, academia, and in the organizations themselves are pushing for more gender parity on corporate boards (e.g., Bilimoria, 1995; Daily and Dalton, 2003; Valenti, 2007; Westphal and Milton, 2000). For example, in 2009, the Securities and Exchange Commission ruled that publicly traded companies must disclose whether and how they consider diversity when selecting directors. Three years later, a survey of more than 2,500 directors of U.S.-based publicly traded companies showed that 75 percent of respondents’ firms had instituted diversity policies (ranging from having a general statement supporting diversity to proactively including boardroom diversity as a meeting agenda topic to having specific criteria and attributes for the boards as a whole). Moreover, an overwhelming majority of the respondents (80 percent) believed that diversity in the boardroom created shareholder value (Spencer Stuart, 2012).

Given that many espouse the advantages of board diversity and yet diversity remains low, an important question seems to be how to best increase the percentages of women on corporate boards. Companies have begun to rely on policies such as requiring a diverse slate of candidates for every open board seat, having the CEO identify diverse candidates from within the company, and asking search firms to include diverse external candidates (Aguilar, 2010). Our research examines whether these methods will be sufficient for producing gender equality within
a reasonable time frame. Our results suggest that current efforts towards gender parity may falter, even when people are highly motivated towards diversity, because of a “gender matching heuristic.” Gender matching in this context is the propensity to select a female candidate when a female board member departs and to select a male candidate when a male board member departs. Owing to this gender matching heuristic, the percentage of women on the boards of U.S. companies will remain virtually constant and not increase meaningfully over time\(^5\).

Moreover, we show that this gender matching process is largely underestimated by people selecting candidates. When respondents are asked to articulate why they select a particular candidate, they offer reasons other than candidate gender (such as prior board experience and the number of other boards on which the candidate sits). Results show that when controlling for these other factors, gender matching still plays a significant role in their selection. Given the gender matching process may be operating largely out of respondents’ awareness, it may be difficult to address. We test three interventions that might lead to more female candidates being selected, regardless of the gender of the departing board member. We find that reminding participants about the importance of diversity does not increase the probability that a female candidate will be chosen. Increasing the salience of board diversity by decreasing the female-to-male ratio of incumbent board members offers a slight increase in the probability that a female candidate will be chosen (but in the experimental data, this effect goes away when the gender of the departing candidate is considered). Finally, “what works” is increasing the ratio of female-to-male board candidates. In our laboratory experiments, this intervention increases the

\(^5\) Such a situation can be quite stable over time and need not result in any radical departure from the status quo gender distribution on the board. A simple Markov Chain illustration of this point is available from the authors upon request.
probability that a female candidate will be selected, yet even with this intervention, a strong and significant gender matching effect remains.

Our results suggest that the slow pace at which women’s participation on boards is increasing stems, in part, from a largely underestimated heuristic that guides people’s decisions towards using the gender of the departing director as a cue to the appropriate choice of a replacement. In this study we contribute to the literature on board diversity by showing that valuing diversity may not be sufficient to increase boardroom gender diversity. We also add to the literature on gender by documenting a new heuristic that explains significant variance in how top-level candidates are selected. Finally, our results have implications for research in decision-making by offering evidence that the cognitive process underlying these selection judgments is consistent with the dual process model of cognition (Evans, 2008; 2010; Kahneman and Frederick, 2002; Sloman, 1996; Stanovich, 1999; Chaiken and Trope, 1999). As we explain in the discussion section, our results suggest that participants combine a conscious, deliberative cognition process using criteria such as candidate board experience with a gender matching process that is largely heuristic. We conclude by discussing the implications of our findings for developing these literatures and for organizations and policy makers concerned with increasing female board representation.

GENDER MATCHING

Organizational decision makers are bounded not only in their rationality, but also in the number of issues to which they can devote attention (Simon, 1991). Employee selection can be a particularly difficult decision problem because there are usually a large number of criteria on which various candidates can differ. Although the classic decision approach calls for a multi-attribute decision model in which candidates are selected by delineating the appropriate criteria,
weighing their relative importance, judging how well each candidate fulfills each criteria, and combining these judgments to discover the best candidate (von Neumann and Morgenstern, 1944; Weber, 1985; Keeney and Raiffà, 1976), there is very little evidence that people actually select candidates in this manner (Schmidt and Hunter, 1998). Some lament that selection processes are not more systematic, arguing that our “stubborn reliance” on factors such as intuition or gut feeling leads to a large number of poor selection decisions (Highhouse, 1997). Others advocate for a more systematic approach using decision aids such as linear modeling (Meehl, 1954; Dawes, 1971; 1979).

Despite the evidence that these multi-attribute models outperform experts’ intuition (Dawes, 1971), people tend to reject prescriptions such as linear modeling. Instead professionals who select personnel for a living (such as HR managers and executive head-hunters) tend to believe they obtain better outcomes by making unaided decisions than by using any tools (Colbert, Rynes, and Brown, 2005), and increased experience only heightens this conviction (Camerer and Johnson, 1991).

One reason that, in reality, unaided decision makers (even experts) perform more poorly than analytical models is because the complexity of the decision problem encourages reliance on decision rules or heuristics that reduce cognitive effort (Kahneman, Tversky, and Slovic, 1982; Tetlock, 2005). Experts rely on these heuristics even when they may not be immediately accessible in conscious thought (Kahneman, 2003). These heuristics have been documented as operating in the boardroom in matters of executive pay determination (e.g., O’Reilly, Main and Crystal, 1988; Shin, 2013), and it is clearly possible that they are also operating when it comes to director selection (e.g., Westphal and Zajac, 1995). One well-established phenomenon in the psychology of reasoning is a matching bias (Evans, Legrenzi, and Girotto, 1999), which is the
tendency to make selections based on a categorical-based cue that is matched between the stimulus and the choice selected. We believe this categorical-based matching can have a powerful effect personnel selection tasks\textsuperscript{6}.

Our argument is that gender is a salient cue people rely on in the board selection process, even though they may be unaware that they are using this. Gender is arguably the most visible and essential social category (Prentice and Miller, 2007), and though it may activate a decision process this activation can be underestimated. Thus gender matching can be a decision heuristic but people may not be aware that it is influencing their personnel choice. Indeed, in a sample of about 300 Fortune 500 firms from 1990 to 1999 Farrell and Hersch (2005) show that when an individual leaves the board, their replacement is more likely to be of the same gender and that this effect is stronger when women leave the board. We extend their work by showing that this pattern continues to persist in this century (2002 to 2011) using a robust sample of ten times as many firms. More importantly, in a series of experiments we show how largely underestimated this decision heuristic is and explore interventions that might attenuate it.

We argue that gender matching occurs because of two competing forces that minimize any progress towards change. On the one hand, companies and directors care about promoting gender diversity either because they believe gender diverse groups make better decisions or because they believe such diversity is needed for firms to signal that they are conforming to the prevailing diversity norms in the larger environment (Meyer and Rowan, 1977; DiMaggio, and Powell, 1983). On the other hand, companies and directors may fear that any change can disrupt the cordial relations among board members (Krawiec, Conley, and Broome, 2013; Lorsch and

\textsuperscript{6} We prefer the term gender matching \textit{heuristic} over \textit{bias}, however, because unlike in deductive logic tasks, in our selection task there is no one normatively correct answer.
MacIver, 1989; Westphal and Zajac, 1995). Thus, gender matching can be a safe way of attending to gender without committing too much effort. Although this matching heuristic may be at work in other demographic dimensions (such as age, ethnicity, and functional specialty) we focus here on gender because of its essential nature (Prentice and Miller, 2007) and, as noted above, because it is an important social category in current discourse about U.S. boards (Westphal and Milton, 2000; Westphal and Zajac, 1995). Gender matching in board selection occurs such that:

H1: Exits of female directors will have a positive impact on the probability of appointing a female board candidate, whereas exits of male directors will have a negative impact on the probability of appointing a female board member.

If gender matching is a heuristic largely inaccessible through conscious thought (Kahneman, 2003), then people should underestimate its weight in their decision process. When asked to articulate the reasons for selecting a particular candidate, the importance of candidate gender and gender matching should be less salient relative to other candidate criteria.

H2: When people are asked to judge the importance of a number of different decision criteria, they will declare gender as significantly less important than other criteria.

H3: When people are asked to explain the criteria that they used in selecting new board members and these conscious explanatory factors are included in analysis, the gender of the departing board member will continue to have a significant influence on the gender of the candidate selected.

INTERVENTIONS TO INCREASE FEMALE REPRESENTATION ON BOARDS
Staying with a current state can be good as long as previous decisions were good enough (Haselton and Nettle, 2006). However, in the context of board selection a lack of progress in changing board demographics might be costly to companies since there has been an increasing emphasis on the importance of gender representation. As a result, companies are under increasing normative pressure to demonstrate that they are making a good faith effort to increase diversity, even if such efforts are primarily symbolic (Meyer and Rowan, 1977). There is a substantial expectation that the board will serve a symbolic role by signaling to outsiders aspects of the organization that are unobservable owing to asymmetry of information (Connelly et al., 2011; Miller and Triana, 2009; Westphal and Zajac, 2014). Conformance to changing norms of boardroom diversity may serve as a signal of good corporate governance (O’Reilly and Main, 2010; Rhode and Packel, 2010) even though the empirical evidence for the impact of boardroom diversity on company performance remains mixed, with some studies finding statistically positive significant effects (Ben-Amar et al., 2013; Carter, Simkins and Simpson, 2003; Jurkus, Park and Woodward, 2008), some finding no effects (Carter et al., 2010; Francoeur, Labelle and Sinclair-Desgagne, 2008; Gregory-Smith, Main and O’Reilly, 2014; Minichilli, Zattoni, Nielsen & Huse, 2012; Rose, 2007), and some finding negative effects (Adams and Ferreira, 2009; Ahern and Dittmar, 2012; Shrader, Blackburn and Iles, 1997; Triana, Miller & Trzebiatowski, 2014; Wellalage and Locke, 2013). However, in terms of organizational reputation (Fombrun and Shanley, 1990; Musteen, Datta and Kemmerer, 2010; Rindova et al., 2005) and norms of equal opportunity, the social expectation is that firms are expected to make efforts to increase diversity of their boards.

Given that gender matching can reduce gender parity on corporate boards, we tested three mechanisms that might prompt participants to increase the number of female board members by
selecting a female candidate. In the first intervention, we make salient the importance of diversity by reminding participants how diverse perspectives can enhance the board’s decisions. In the second intervention, we not only reminded them of the importance of diversity but also decreased the ratio of women on the existing board, aiming to make the gender imbalance more visible. Having a larger gender imbalance may offend participants’ general sense of equity and the diversity prime would then give them justification for selecting more female candidates. In the third intervention, we not only included these first two interventions but also increased the number of women in the candidate pool. We had no a priori theory on which to derive robust hypotheses but expected more female selection as our interventions were additive and the propensity to choose a female might be expected to become larger.

**OVERVIEW OF STUDIES**

Study 1 is an archival field study designed to test Hypothesis 1. Our data includes board representation of more than 3000 companies across a ten year period and tests whether, controlling for other factors, the propensity to appoint a woman as the next director is predicated on a female rather than male director leaving. Studies 2-4 test Hypotheses 1-3 as well as interventions to decrease gender matching. We test for gender matching through the classic reversal test (e.g., Bostrom and Ord, 2006); that is, when a woman departs, a woman should be more likely to be selected than a man; when a man departs, a man should be more likely to be selected than a woman. Further, we test whether gender and gender matching are largely underestimated by people as factors influencing their selection process and whether or not when controlling for peoples’ own espoused selection criteria there remains a significant gender matching effect.
STUDY 1 – ARCHIVAL FIELD STUDY

In Study 1 we test Hypothesis 1, namely that the exits of male directors will increase the probability that a male candidate will be selected and that the departure of female board members will increase the likelihood that a female board candidate will be selected. As noted earlier, Farrell and Hersch (2005) found this effect in their sample of about 300 Fortune 500 companies during the period 1990 to 1999. In this study, we examine gender matching using a more recent and comprehensive sample of more than 3000 companies over the ten-year period from 2002 to 2011.

Method

We use data obtained from Equilar on more than 3000 companies between 2002 and 2011. Equilar collects data on the entire Russell 3000, which represents about 98 percent of the U.S. equity market, as well as on many other companies that file a proxy with the SEC. We utilized fixed effects and random effects logistic analyses to predict whether a newly appointed director was female or male. Thus, each observation represented the appointment of a new director that had not previously been on a focal company’s board. We controlled for each firm’s lagged one-year market return, size in assets, the number of directors on the board, and the percentage of women on the board. Our two key variables of interest were the number of females and males that exited the board. All independent variables were lagged by one year.

Analyses & Results

Table 1 shows the means and correlations of the variables in the study. Model 1 in Table 2 utilizes random effects clustered at the firm level. Firm size and the number of directors increase the chances of a woman being appointed while the percentage of females on the board
the previous year decreases it. Consistent with the findings of Farrell and Hersch (2005) and
Hypothesis 1, the probability of a woman being appointed rises when women left the board in
the previous year. Similarly, while the effect is smaller in magnitude, women are less likely to
be appointed as the number of men who exited the board the previous year increases. In Model 2,
which uses a fixed effects estimator, the effect of a male leaving remains about the same as in the
random effects model, but the coefficient on female exits increases sharply from .6911 to about
1.115.

(insert table 1 here)

(insert table 2 here)

We investigated the strength of these effects by calculating the change in probabilities
that would occur at the mean of the dependent variable when a male or female had left the
previous year. On average 12.8 percent of new directors were women. In the random effects
model (Model 1), if a male director exits the previous year it reduces the probability of choosing
a female from 12.8 percent to about 10 percent. In contrast, if a female exits the previous year
the chances of a female appointment increase from 12.8 percent to almost 23 percent. In the
fixed effects model (Model 2), the change in probabilities associated with a male leaving the
board do not appreciably change, but the likelihood of appointing a woman increases from the
12.8 percent cited above to almost 31 percent. Because the influence on board appointments of
women of a female exit is greater than effect of a male exit, one might expect that the number of
women directors would rise over time. However, this is counterbalanced by the preponderance of
males on the board at the outset. The predominance of male directors results in a self-
perpetuating outcome. The more women on the board the better the chance they will further
increase their representation, but these estimates suggest that it is a slow process, and not a gender-neutral one.

We also investigated whether this differential appointment rate might be narrowed as more women join a board. Possibly, their greater numbers might give them more power and influence and lead to more female appointments. Model 3, which adds an additional variable in the form of the square of the percentage of women on the board, shows some preliminary support for this idea in that the main effect is negative while the squared effect is positive. However, the inflection point at which an increased percentage of women would start to increase the likelihood of female appointments does not occur until the percentage of women reaches about 87 percent, a percentage that is reached in only those companies well above the 99th percentile in the sample.

We repeated a similar analysis in which we used the number of female and male directors instead of the percentage of female directors. Model 4 shows that, as expected and consistent with the findings above, the exit of female directors increases the chance that the next board appointment will be a woman while the number of males exiting decreases it. It can also be seen here that the chances of a woman being appointed to the board are higher when there were more male board members, but that the negative effect associated with having more female board members is over six times larger. In Model 5, we add the squared effects for the number of male and female directors. Similar to our percentage measure, the number of women first reduces the chance of a female appointment but becomes weaker as more women are added. However, the inflection point at having another woman increasing the odds of appointing a woman occurs after seven women are on the board, which is outside the range in our sample. Interestingly, the
positive impact of having more males on the board also fades over time although this effect is relatively weak.

**Discussion**

Overall, we find very strong support for gender matching. A new board appointment is more likely to be a female when a female board member has left than when a male board member has left. In a gender-neutral world, it might be expected that the gender of the appointee and the gender of the retiring member would be independent of each other. The exact probability of appointing a male or a female might depend on the gender mix of the qualified talent pool, but whatever the mix is, the chances of a woman being appointed should be the same irrespective of the gender of the person stepping down. While the gender matching effect of females exiting the board is stronger than that for male exits, this is unlikely to lead to significantly more female representation on the board because as the number and percentage of women on the board increase, the chances of a female appointment decline. Even though this effect fades as more women are board members, the inflection point at which an additional female board member increases the appointment chances of female appointments is almost outside the sample range. Lack of much progress in increasing diversity is confirmed by Figure 1, which shows the percentage of female board representation from 2002 to 2011 for firms that were in our sample for the entire ten years. While the percentage of women on the board increases slightly over the period, the percentage of women remains quite low (well below 15 percent). In the following studies, we examine decision makers’ selection process in more detail.

**LABORATORY STUDIES**
Given the field evidence that exits of female directors prompted female appointments and exits of male directors had the opposite effect, we sought to explore why this effect occurred by replicating this situation in the lab. Specifically, we wanted to: 1) examine people’s explanations for why they selected certain candidates, 2) test whether gender of the departing candidate is still significant when controlling for these explanations, and 3) test the relative importance of gender versus other criteria by having participants rank the importance of 10 salient attributes of the candidates and the board members.

Methodological Overview

Participants were asked to assume the role of the chair of a corporate board’s nominating committee and were told that it was their job to select a replacement for a departing board member (who was variously male, female, or no gender given). Participants were given information about the current nine member board in terms of member age (45-68), gender (three females and six males), functional area (varied), years of board experience (5-17), number of other board memberships (1-5), and whether the member was an insider (a corporate officer) or an outsider. They were told that the company had hired a team of recruiters who had reviewed possible candidates and was going to present the participant with a slate of six candidates. See Appendix 1 for the exact text.

Participants then received six different resumes that had the following information about the candidate: name, title, company, age, years of board experience, and the number of other corporate boards on which she or he sat. Their names were either female (Ellen, Margaret, Sandra, or Karen) or male (John, Mark, William, or Robert). Their titles were either: Executive Vice President (EVP) of Operations, EVP of Marketing, EVP of Purchasing, EVP of Federal
Relations, EVP of Distribution, or EVP of Sales (specifically chosen to denote functional area). The candidates’ companies were respectively named Slidell Company, Larkspur Industries, Nelicore Inc., Krendle Inc., Halfiax Corp., or Euclides Company (all fictitious). Candidate age was randomly varied between 45 and 68; years of board experience was randomly varied between five and 17; and the number of other corporate boards was randomly varied between one and five. Participants were tasked with selecting a candidate and then were asked to explain in their own words why they had chosen that candidate. After they responded, they were asked to rate the importance of various decision criteria, and finally to answer some attention filters and demographic questions. Their responses were all completed online.

**Study 2: Pre-test on company name, candidate functional area, and resume order**

Age, board experience, and the number of boards could all be assigned via a random number generator, but title and company name could not (unless we generated more titles and companies) because the last one assigned would be constrained by the others previously chosen (if we specified sampling without replacement). We also thought participants might become suspicious if two or more candidates had either the same title or the same company (if we specified sampling with replacement). In order to avoid having to construct a 2 (gender of departing candidate) X 6 (order of resumes) X 6 (functional area) X 6 (company name) design, we ran a pre-test to check whether there were any effects for resume order, functional area, or company name. Instead of presenting the resumes of the candidates with names, we simply labeled them Candidate A, B, C, D, E and F (see Appendix 2) and gave no gender information on the candidates. The design was a between-subjects design that manipulated whether a male or female board member was departing.
Participants. Participants (N=200) were recruited through Amazon’s Mechanical Turk (mturk) website and were paid $0.50 for their participation. Mturk has been found to be a reliable non-student source of data (Buhrmester, Kwang, and Gosling, 2011; Paolacci, Chandler, and Ipeirotis, 2010). The subjects’ demographics were as follows: 53 percent male, 80 percent white, 48 percent had completed college, 37 percent had an income of at least $50,000, their average age was 30.4 (s.d. =10.2); they were 44 percent Democrat, 11 percent Republican, and 38 percent Independent.

Procedure and Measures. After reading a short description of the study and clicking their consent, participants received the information in Appendix 1 about the task. They then received the resumes presented in Appendix 2. The dependent variable was their choice (Candidate A, B, C, D, E, or F). After selecting their choice, they responded in their own words why they had selected that candidate. They then were asked an attention filter question to measure whether they were actively involved in task (how many total board members are there at any one time?) and for demographic information.

Analyses and Results. The attention filter was passed by 74 percent of the participants. Using these participants (N=143), there was no overall order effect (Candidate A chosen 18 percent of the time, B=19%, C=13%, D=17%, E=15%, F=18%). Moreover, no one candidate dominated based on the gender of the departing candidate ($\chi^2_{(5)} =3.4; p=.6$). This result relieves us of the need to vary the order of the resumes in terms of functional area or company name.

Study 3: Testing gender matching

Design and Participants. In this study we varied whether the gender of the departing board member: male, female, or no gender information was given (the control group). The
participants (N=232) were undergraduate business students at a large, private East Coast University who voluntarily participated in the exercise in exchange for course credit. Ours was one of a battery of exercises they completed during an hour session. They were 53 percent male and, on average, were 20 years old (s.d. = 2.0).

**Procedure and Measures.** Just as in the pretest, the participants received the information in Appendix 1 about the task after reading a short description of the study and clicking their consent. They clicked on the next screen to receive the six resumes that now had names (and thus gender information). They were then presented with two female candidates and four male candidates. Again, the primary dependent variable was whether they chose a male or a female candidate. After selecting their choice, they described in their own words why they had selected that candidate. On the next screen they were asked to rate (on a five point Likert scale with 1 = not at all to 5= very important) the importance of 12 criteria: the candidate’s corporation, the candidate’s functional expertise, the candidate’s age, the candidate’s gender, the candidate’s years of board experience, the candidate’s other board memberships, the mix of corporations on the board, the mix of functional areas on the board, the mix of ages on the board, the mix of genders on the board, the mix of years of board experience on the board, and the mix of number of other board memberships on the board. They then answered the attention filter, a manipulation check (gender of departing candidate) and provided demographic information.

**Analyses and Results.** Seventy percent of the participants passed the attention filter and were retained for the analyses (Male left N=50; Female left = N=63; control N=50). The manipulation was successful in that those who said a female left were mostly in the female exit condition (94 percent), those who said a male left were mostly in the male exit condition (56 percent), and those who said no gender information was given were mostly in the control
condition (77 percent). We first tested Hypothesis 1 (that the gender of departing board member would match the gender of selected candidate) with a chi-squared test. When there was no gender information on the departing candidate (control), 50 percent of participants selected a female candidate. When the departing board member was female, 68 percent of participants selected a female candidate; when the departing board member was male, 58 percent of participants selected a male. These differences are significant ($\chi^2(2) = 8.55, p=.01$), supporting H1.

We coded participants’ open-ended responses as to why they had selected a particular candidate by creating seven different decision attributes: age, board experience, number of boards, or other (such as functional area). Participants could mention the attribute either in reference to the candidate (e.g., candidate’s age), the board (the mix of ages), or both. Because gender was our primary focus, we further coded for whether participants mentioned gender diversity (“She is someone different from the majority, so she could bring a fresh perspective”), gender matching (“A male to replace a leaving male”), or some other gender-based reason (“She’s female” or “I wanted to choose a woman”). Responses were not mutually exclusive as many participants listed more than one reason (“He has a lot of experience and he has fewer other board obligations”). Two coders blind to conditions and hypotheses coded responses (Cohen’s kappa =.90).

Across all conditions 51 percent of responses mentioned board experience as a factor, followed by 31 percent mentioning number of other boards, 10 percent age, six percent mentioned gender diversity, five percent mentioned gender matching, 23 percent some other gender-based reason (“because she was a woman”), and 15 percent some other factor (usually functional area or something generic like “most qualified”). There were marginally significant
differences across conditions for both the gender diversity ($\chi^2_{(2)} = 4.88, p=.08$) and the gender matching ($\chi^2_{(2)} = 4.69, p=.09$) being articulated more often as a reason when a female board member departed. In addition, female participants were more likely to mention gender diversity than male participants ($\chi^2_{(1)} = 4.22, p=.04$).

To test Hypothesis 2, which posited that when subjects were asked to judge the importance of a number of different decision criteria, they would rate gender as significantly less important than the other criteria, we looked at participants’ ratings of the 12 decision factors we provided. Descriptive statistics of these ratings are shown in Table 3. The candidate’s board experience, other board memberships, and the mix of years of board experience are the top three reasons. The candidate’s gender is ranked eighth out of 12 in importance, and the mix of gender is ranked seventh, both of which are significantly below the top three reasons. A t-test between the mix of board experience on the board (ranked third) and the mix of genders on the board showed that they were significantly different ($t(162) = 4.40, p<.001$); a t-test between the mix of board experience and gender again showed significant differences ($t(162) = 5.15, p<.001$). These results support Hypothesis 2.

(insert table 3 here)

To test Hypothesis 3, that the gender of the departing board member will continue to exert an influence on candidate selection after controlling for the participants’ stated reasons for their choice, we used logistic regression. The dependent variable was whether a female candidate was chosen. We first entered participant demographics, then the randomly varied candidate attributes (e.g., average age, board experience, number of other boards of the current male and female board members), then participants’ articulated reasons, and finally the study
manipulation (the gender of departing candidate). To test whether the condition mattered we used Helmert contrasts because our treatment groups (male versus female departing) were nested within a larger question of whether having gender information at all differs from having no gender information (control). Following standard procedure (Judd and McClelland, 1989) the first contrast is control (=-2) contrasted with having gender information of departing board member (Male departed=-1; Female departed =-1). The second contrast is female leaving (-1) versus male leaving (1) (where control = 0).

Results, shown in our completely specified model (model 4) in Table 3, support Hypothesis 3. When controlling for participant demographics, candidate attributes, and participants’ articulated rationale for their selection, gender information in and of itself had only a marginally a significant effect on whether a female candidate was chosen (Contrast 1). However, as expected by our gender matching hypothesis (Contrast 2), when a female board member departed rather than a male, a female candidate was significantly more likely to be chosen. Interestingly, participants’ own stated diversity-based or gender-matching explanations do not contribute significantly to the variance in selecting a female (after controlling for other variables).

(Insert table 4 here)

**Discussion.** In this experiment, we successfully replicated the gender matching selection process found in the field data whereby a female was significantly more likely to be chosen than a male candidate if a female, rather than male, board member was departing. This occurred despite what might be a weak manipulation (recall that while the majority of respondents in each condition correctly identified their condition, only 56 percent of respondents in the male exit
condition remembered that a male had left). Given this controlled environment, we were able to ask participants to articulate their rationale for selection and very few mentioned gender matching (five percent). Although female participants were more likely than male participants to consciously articulate a gender-based rational for their choice (diversity), they were not more likely than males to mention gender matching. Most mentioned the candidate’s prior board experience and other board memberships. Moreover, when these articulated reasons were controlled for, the departure of a female board member still significantly increased the probability that a female candidate would be selected providing support for gender matching. For most participants, this gender matching process is not consciously articulated as a rationale. This heuristic gender matching helps explain why the rate of increase of female participation on boards is so low, despite the voluminous public discussions about the importance of increasing female representation.

One difference between this study and the field data was the participants’ overall tendency to select a female candidate. In all conditions, students selected a female more often than in the field data and more than the base rate representation of female candidates (33 percent). For example, in the control condition, participants selected a female 50 percent of the time, a base-rate unlikely to occur in board selection committees. Yet, this overall shift in favor of selecting a female, does not threaten the validity of our results. Irrespective of the main effect, we still found evidence of gender matching, whereby a female was selected significantly more often when a female board member departed (68 percent) than when a male board member departed (42 percent). Moreover, the criteria that participants declared they used (such as board experience and other board memberships) were generally not related to their selection, whereas the gender of the departing board member was.
Study 4: Testing interventions

**Design and Participants.** To test the three mechanisms outlined above, we employed a 2 X 3 design where either a female or male was departing the board and either there was: 1- a diversity prime; 2- a diversity prime and a decrease to only two existing female board members (of nine total); or 3- a diversity prime, a decrease to only two existing female board members, and an increase to four female candidates (of six total). Participants (N=944) were recruited from Amazon’s Mechanical Turk\(^7\) and paid $0.50 for their responses. They were 58 percent male, 78 percent white, 50 percent had at least a college education, 40 percent made at least $50,000. Their average age was 31.6 (s.d. =10.8) and they were 39 percent Democrat, 16 percent Republican, and 34 percent Independent.

**Materials, Procedure, Measures.** The materials were slightly altered from Study 3 in that we gave more information about the departing director so that gender was not the only piece of information participants had about him or her. We recognize this slight variation in our materials makes the data less strictly comparable to Study 3, but we wanted to construct a more conservative test of whether or not participants might select new board members based on gender matching. Thus we also assigned each departing director a title (Chief Financial Officer), a company name (Acatel Industries), an age, years of board experience, and the number of other boards on which they serve (all of which were averages of the focal board).

We then created three conditions. For condition 1 (Diversity Prime) participants read:

\(^7\) To ensure that mTurk participants behave similarly to the students we first ran a study (N=248) comparing mTurk responses to student responses and found no significant differences on propensity to select females depending on male versus female board member departure. Details available upon request.
“Because a diverse mix of people on a Board (who bring different skills and perspectives) is good for the company, you have asked the recruiting team to bring you a slate of six different candidates from which you can choose. Their resumes are summarized on the next screen.”

The diversity prime was created after consulting with a female who serves on three Fortune 1000 boards for the language she hears at board meetings on the importance of diversity. For condition 2 (with two current female board members), participants read the diversity prime and were told that the initial board had two females and seven males. For condition 3, participants read the diversity prime, were told that the initial board had two females and seven males, and were presented with a slate of four female candidates and two male candidates.

The rest of the materials, measures, and procedure were identical to Study 3.

**Analyses and Results.** Seventy two percent of the participants passed the attention filter and were retained for the analyses (N=681). The manipulation was successful; in the male exit condition, 88 percent of the remaining participants correctly identified that a male had departed; in the female exit condition, 89 percent of participants correctly identified that a female had departed. Consistent with Hypothesis 1 (that the gender of departing board member will influence the gender of the selected candidate), the results showed that when a female departed, 72 percent of participants selected a female candidate, and when a male departed, only 54 percent of participants selected a female ($\chi^2(1) = 33.00, p=.001$).

To examine the extent to which gender is consciously articulated as a reason for candidate choice, we again looked at the reasons participants gave for their choices. Across all conditions 75 percent of responses mentioned board experience as a factor, followed by 54
percent mentioning number of other boards, 22 percent age, 16 percent mentioned gender diversity, 9.5 percent mentioned gender matching, 12 percent some other gender-based reason, and 20 percent some other factor. There were no differences in any of the gender-based rationales, across any of the different diversity enhancing conditions (diversity prime, only two female board members, and four female candidates). There were significant differences across the gender-based rationales depending on whether a male or female left. Diversity rationales were offered more often when a male departed (20.7 percent of the time) than when a female departed (11.6 percent) ($\chi^2(1) = 10.42, p<.001$). Gender matching was articulated as a reason more often when a female departed (16.5 percent of the time) than when a male departed (two percent) ($\chi^2(1) = 40.44, p<.001$). And the residual “other gender-based rationale” was articulated as a reason more often when a female departed (16.5 percent of the time) than when a male departed (7.5 percent) ($\chi^2(1) = 12.44, p<.001$). Finally, female participants were more likely to mention gender diversity than male participants ($\chi^2(1) = 12.9, p<.001$) and were less likely to mention age ($\chi^2(1) = 5.4, p=.02$).

To test Hypothesis 2, that when asked to judge the importance of a number of different decision criteria, participants will rate gender as significantly less important than other criteria, we again looked at participants’ ratings of the twelve decision factors provided. Just as in Study 3, the candidate’s board experience, other board memberships, and the mix of years of board experience are the rated the highest. The mix of gender is ranked sixth and the candidate’s gender is ranked eighth; both criteria again significantly lower than the third ranked criterion (mix of years of board experience) ($t_{(680)} = 10.5, p<.001$ for Mix of Gender, $t_{(680)} = 13.9, p<.001$
for Candidate Gender), supporting Hypothesis 3. There were no significant differences in ratings of these criteria across any of the different diversity enhancing conditions (diversity prime, only two female board members, and four female candidates). Both the candidate’s gender and the mix of genders on the board were rated as more important when a female departed than when a male departed [candidate gender (female left: mean=3.06, s.d.=1.48; male left: mean = 2.50, s.d. = 1.41, F(1,679) = 25.4, p<.001, eta² = .04); mix of gender (female left: mean = 3.23, s.d. = 1.42; male left: mean = 2.79, s.d. = 1.36, F (1,679) = 16.8, p<.001 eta² =.02)].

To test Hypothesis 3, namely that the gender of the departing board member will continue to exert an influence on candidate selection even after controlling for participants’ stated reasons for their choice, we again used a stepwise binary logistic regression. Just as in Study 3, the dependent variable was whether a female candidate was chosen. We first entered participant demographics, then randomly varied candidate attributes (age, board experience, number of other boards), then participants’ articulated reasons, and finally the gender of the departing candidate.

Results, shown in Table 5, offer support for Hypotheses 1 and 3. When controlling for participant demographics, candidate attributes, and participants’ articulated rationale for their selection (see model 4), the gender of the departing board member still had a significant effect even after we prime diversity, decrease the number of female board members, and increase the number of female candidates. When a female board member departed, a female candidate was more likely to be chosen. Again, diversity reasoning does not contribute significantly to the

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8 Detailed descriptives and t-tests of differences among all twelve decision criteria for this study are available upon request.
9 While these analyses pool all of our diversity manipulations, we will investigate in subsequent analyses, next paragraph, whether the effect of the gender of the departing board member varies between these different conditions and from Study 3 which had no diversity manipulations.
variance in selecting a female (after controlling for other variables). However, participants’
gender matching rationale and their other gender-based reasoning does contribute to the variance
in selecting a female, but even when this is included, the departure of a female board member
still remains positive and significant.

(insert table 5 here)

To determine whether any of the interventions would increase the overall rate at which
women are selected (regardless of who exits), we created dummy variables for each condition
(D1= diversity prime, D2= two female board members, D3= four female candidates) and
compared these data to those of Study 3. We also created interactions between the condition
primes and whether or not a female exited to see if the influence of the departing board
member’s gender was weakened or strengthened by any of the diversity interventions. Results
are shown in Table 6. Model 4, which adds a dummy variable for the first intervention
/reminding people of the importance of diversity/, creates no net benefit of adding more female
board members. This Model also shows that the second intervention (also decreasing the initial
female board members to two) creates no significant change in participants’ tendencies to select
a female candidate. However, the third intervention (that also increased the number of female
candidates to four) does significantly increase participants’ proclivity to select a female
candidate. Model 5, however, confirms that even after priming participants in these various
ways, the gender matching heuristic continues to play a significant role in explaining the gender
of the replacement director (‘Departing Female’). As Model 6 in Table 6 shows, there were no

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10 Our results are unchanged if we run simpler models that exclude either candidate attributes, participant
demographics and/or participants’ articulated rationales for their selection.
interaction effects, meaning that the departing board member’s gender was no less of an influence on the gender of the candidate selected with any of the diversity interventions.

(insert table 6 here)

**Discussion.** Reminding participants of the importance of diversity was not enough to induce participants to select more female candidates. Having a diversity prime as well as decreasing women’s current proportional representation (from 3/9 to 2/9) also did not shift people’s sensibilities towards wanting to add more females. Perhaps these interventions were too subtle; our prime highlighting the benefits of diversity may have been too skills focused rather than demographic diversity focused. Alternatively, highlighting the importance of diversity may not attenuate gender matching because, as mentioned above, we believe this value is already salient (either because people believe diverse groups will perform better or because they believe diversity is important for normative, signaling reasons).

So what works? What did significantly increase participants’ tendency to select a female candidate was when the number of female candidates in the pool increased. This confirms the common sense notion that with a wider choice of female candidates then more women will be selected. Yet even here, the gender matching heuristic continues to play a significant and undiminished role. Indeed, with all of these interventions, the departing board member’s gender continued to have a significant influence on the gender of the candidate who was selected. The effect of gender matching remained strong even when controlling for all manipulated candidate attributes (such as age and years of board experience) and for all participants’ articulated rationales. Given that fewer than 10 percent of participants articulated the influence of gender matching, we believe this heuristic operates out of most participants’ awareness.
GENERAL DISCUSSION

Overall, we find strong evidence for gender matching in board selection. Consistent with Hypothesis 1, both our field and experimental data show that selection of a (fe)male board member is significantly influenced by departure of a (fe)male\textsuperscript{11}. Our lab studies suggest that this process is largely underestimated in that participants identify other criteria as more important than gender and very few explicitly mention gender matching. Yet, when controlling for all these other criteria, gender matching remains a large and significant predictor.

Gender matching can slow progress towards gender parity on boards. In an effort to encourage participants to select more female candidates, we tried three interventions. Two failed to show any increase in female selection--a smaller proportion of women on the board, which could call subjects’ attention to the lack of diversity, and priming diversity prior to respondents’ candidate selection. What worked was including more women in the candidate pool; participants more likely to select a female candidate. Future research should test whether this intervention alone (without a diversity prime) will similarly increase female candidate selection. Below we discuss the implications of our results for the literature and for practice.

Although our study was not designed to test the existence of a dual processing model of cognition (Chaiken and Trope 1999; Evans, 2008; 2010; Kahneman and Frederick, 2002; Sloman, 1996; Stanovich, 1999), our findings are consistent with this research. Dual process theories posit that individuals have two information-processing systems that work together to produce judgments. There are many variants of dual process theories but they generally agree that one cognitive process (System 1), which may be called intuitive, operates rapidly,

\textsuperscript{11} It is worth noting that these field data represent a comprehensive sample of the board of directors for almost all public companies operating in the U.S. over the past decade.
automatically, and without much effort or conscious awareness. System 1 cognition is also associative in that it relies on categorical-based judgment operating by principles of similarity. The other process (System 2), which may be called reflective, is more deliberative, and thus conscious and effortful. It requires manipulation of explicit representations in working memory to produce decisions based on more abstract rules of logic or evidence (see Kahneman, 2011 for a review of this literature).

Our data suggest that board selection is the product of conscious, articulated factors such as candidate age and board experience (System 2 processing), but also when controlling for these System 2 criteria, board selection is also significantly influenced by categorical-based, gender matching (System 1). In the absence of a categorical cue such as candidate gender, decisions were dominated by System 2 processing, as evidenced in our Study 2 pre-test. Here, no one candidate prevailed because the System 2 decision criteria (such as board experience) had been randomly varied across candidates. Yet in the other studies, the gender of the departing board member served as a categorical based cue activating System 1 matching, which was visible in decision outcomes over and above the System 2 criteria. That both types of criteria (and thus both information-processing systems) influence behavior, suggests these two cognitive processes work in concert. We acknowledge that debate exists as to whether our minds house two different cognitive architectures that operate in parallel to each other (Evans, 2010; 2012; Sloman, 1996) or merely two different cognitive modes that operate sequentially (Kahneman and Frederick, 2002; Stanovich, 1999). What our research demonstrates is that these cognitive systems are both operational in complex decision-making.

The gender matching process appeared to be a mostly unarticulated process. Gender was absent from the majority of participants’ open ended responses, and when asked to rank the
importance of gender or gender mix on the board as decision criteria, these criteria were rated as significantly less important than other criteria. Thus, our results contribute to more recent theorizing that heuristics such as gender matching generally operate out of articulated awareness (Kahneman and Frederick, 2002; Evans, 2012). However, for a handful of participants, gender matching was mentioned as a criterion for selection. Prior research has focused on situational contexts that make heuristics more or less salient; our research points to a future need to investigate individual differences in the awareness heuristics and what experiences might have cultivated these individual-based differences.

Prior gender research discusses the discrimination women may face based on stereotypic beliefs that may limit women’s exposure to challenging assignments such as board appointments (King et al., 2012). Similarly, other research has suggested that, gendered expectations for female behavior to be communal rather than agentic (O’Neill and O’Reilly, 2010; Amanatullah & Tinsley, 2013) may put them at a disadvantage for being seen as leaders (Eagly and Karau, 2002; O’Neill and O’Reilly, 2011), which is an important pathway to board membership. Still other research suggests that female board members, lacking mentoring, are less likely to learn and act in according to the “core norms” of the corporate elite and are thus less likely to be reappointed (McDonald and Westphal, 2013; Stern and Westphal, 2010; Westphal and Stern, 2006). In Studies 3 and 4 (conditions 1 and 2), the candidate pool contained 33 percent women and yet in all cases the proportion the selection of a female candidate was well in excess of this level (56 percent in Study 3, and 64 percent in Study 4 Conditions 1 and 66 percent in Study 4 Condition 2). In Study 4 Condition 3, where the candidate pool contained 67 percent women, the proportion choosing a female as a replacement was 79 percent, again in excess of 67 percent base rate. Thus, there is little evidence of explicit discrimination in the lab studies. While our
research does not dispute the possibility of discrimination in female appointments to board memberships in the real world, it does suggest that some selection may simply reflect a heuristic process that acts against change. A related possibility is that the base rate of women being selected in actual board decisions is low because there are very few women in the candidate pool. Our finding that more women in the pool increased the selection of women lends some credence to this possibility. Future (perhaps qualitative) research that examines the selection process of new board members might be a fruitful avenue for future research.

Our research also demonstrates that to simply appeal to logical arguments for diversity may not be likely to be sufficient for creating substantial changes in decision-making (and hence increasing the probability that a female candidate would be selected). This may arise because these logical appeals activate System 2 processing, whereby people have to reason that diversity is good and then act on that reasoning in the face of other reasoning suggesting that one select the most qualified candidate based on criteria deemed important (such as years of board experience). Moreover, we suspect most people do already believe diversity is important (if even for symbolic signaling reasons).

What worked was to increase the proportion of women represented in the candidate pool. However, even in the presence of this common sense and non-discriminatory outcome the gender matching heuristic continued to play a significant role. Thus perhaps one antidote is to change the focus on the categorical cue. Future research might explore other subtle matching substitutions as ways of nudging diversity. For example, selection processes might make salient the proportion of women in upper-middle management (i.e. the talent pool from which board members might be groomed), which could subtly suggest that this higher proportion should be matched at the board level.
One strength of our study is that it has high external validity, given that we were able to show that gender matching has a strong effect using both field and experimental data. The field data demonstrated that gender matching has powerful effects in the real world while the lab studies enabled us to begin explore the decision process in more detail and test interventions for “what works.” Of course, our research also has some significant limitations. Our lab studies suggested that participants for the most part did not consciously articulate gender matching as having a powerful effect on their selection choice. Possibly, however, participants could have perceived that articulating this decision criterion might be viewed negatively by the experimenter since it involved a simple heuristic rather than a more deliberative decision process (e.g., Norton, Vandello & Darley, 2004). We felt, however that this was relatively unlikely given that their responses were anonymous and we could think of few reasons why gender matching would be viewed negatively.

A more serious weakness, in our view, is that our experimental studies did not involve real board members but voluntary participants making hypothetical decisions. In future lab research, it would be beneficial to recruit actual board members and higher-level executives. Executive education programs might offer one avenue through which this could be accomplished. Having said this we do feel, however, that the fact that we find similar results in both our field and lab studies help mitigate concerns about sample validity.

Interestingly, we do see some gender asymmetry in that decision makers are more likely to articulate gender matching as a rationale for selection when a female leaves than when a male leaves. Thus, our data suggest this decision heuristic is probably more activated when a minority member leaves. To some extent, our field study reinforces this view in that the negative effect of the number of women on the board on the probability of selecting a woman reverses when the
number or percentage of women becomes quite high (e.g., the majority). A fruitful avenue for future research would be to investigate this process in settings in which males are more likely to have minority status. Indeed, while we have focused on the selection of board members we believe that gender matching may be a quite common phenomenon that influences selection processes in many other settings.

CONCLUSION

Both archival and laboratory data showed evidence that people use a gender matching heuristic when selecting new corporate board members. When a woman departs, she is more likely to be replaced by a female and, when a man departs, he is more likely to be replaced by a male. This gender matching was not consciously articulated for the vast majority of participants, and is likely one important reason why, despite repeated calls for more gender parity on corporate boards, the representation of women on corporate boards has increased only at a very slow rate over the last 20 years. What works for increasing selection of females is increasing their proportional representation in the candidate pool.

Acknowledgements

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Figure 1: Average Percentage of Women on Boards of Directors by Year
Table 1: Descriptive Statistics and Correlations of Equilar Data

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<th>3</th>
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## Table 2: The Probability of Appointing a Female to the Board: 2002-2011

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<th>Model 3</th>
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<td>Percent Females on Board</td>
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<td>-0.2258**</td>
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<td>(0.007)</td>
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<tr>
<td>Number of Exiting Female Directors</td>
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<td>1.1149**</td>
<td>1.0858**</td>
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<td>1.1895**</td>
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<tr>
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<td>(0.053)</td>
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<td>(0.077)</td>
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<td>-0.2529**</td>
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<td>.5192**</td>
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<td>(0.091)</td>
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<td>(0.109)</td>
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<td>Y</td>
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<td>-3290</td>
<td>-3277.4</td>
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</tr>
<tr>
<td>Standard errors in parentheses</td>
<td>** p&lt;0.01, * p&lt;0.05, + p&lt;0.1</td>
<td>** p&lt;0.01, * p&lt;0.05, + p&lt;0.1</td>
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Table 3: Mean Importance of Candidate Criteria

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<th>Mean</th>
<th>Std. Dev.</th>
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<td>1. Candidate's Years of Board Experience</td>
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<td>0.708</td>
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<td>2. Candidate's Other Board Memberships</td>
<td>4.07</td>
<td>0.681</td>
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<td>3. The Mix of Years of Board Experience on the Board</td>
<td>3.85</td>
<td>0.904</td>
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<tr>
<td>4. The Mix of the Number of Other Board Memberships on the Board</td>
<td>3.71</td>
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<tr>
<td>5. Candidate's Functional Expertise</td>
<td>3.34</td>
<td>1.073</td>
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<tr>
<td>6. Candidate's Age</td>
<td>3.17</td>
<td>1.026</td>
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<tr>
<td>7. The Mix of Genders on the Board</td>
<td>3.13</td>
<td>1.412</td>
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<tr>
<td>8. Candidate's Gender</td>
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<td>1.48</td>
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<tr>
<td>9. The Mix of Ages on the Board</td>
<td>2.91</td>
<td>1.08</td>
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<tr>
<td>10. The Mix of Functional Areas on the Board</td>
<td>2.61</td>
<td>1.097</td>
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<tr>
<td>11. The Mix of Corporations on the Board</td>
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<td>1.05</td>
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<tr>
<td>12. The Candidate’s Corporation</td>
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<td>0.91</td>
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Table 4: The Probability of Appointing a Female to the Board (Study 3)

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<th>Model 4</th>
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<tr>
<td>Age</td>
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<td>0.057</td>
<td>0.028</td>
<td>-0.014</td>
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<tr>
<td>Female</td>
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<td>0.633</td>
<td>0.393</td>
<td>0.461</td>
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<tr>
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<td>-0.035</td>
<td>-0.047</td>
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<td>-0.577*</td>
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<td>-2.113*</td>
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<td>Gender Diversity</td>
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<td>Other Gender Reason</td>
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<td>4.145***</td>
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<td><strong>Gender of Departing Board Member</strong></td>
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<td>Contrast1: Control vs. Gender Information</td>
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<tr>
<td>Contrast2: Female not Male departing</td>
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<td>1.468</td>
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<td>159</td>
<td>159</td>
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<td>-2LL</td>
<td>215.289</td>
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<td>.041</td>
<td>.357</td>
<td>.381</td>
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<td>.055</td>
<td>.478</td>
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All tests are two-tailed. *** p<0.001, ** p<0.01, * p<0.05, + p<.1

Table 5: The Probability of Appointing a Female to the Board (Study 4)

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<th>Study 4</th>
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<th>Model 3</th>
<th>Model 4</th>
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<td>0.007</td>
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<td>0.618***</td>
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<td>0.370*</td>
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45
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<th>Independent</th>
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<td>-0.136*</td>
<td>-0.137*</td>
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<tr>
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<td>0.083</td>
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<td>Exp female</td>
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<td>0.368***</td>
<td>0.376***</td>
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<tr>
<td>Exp male</td>
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<td>-0.471***</td>
<td>-0.470***</td>
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<td>0.337*</td>
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<td>-0.423*</td>
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Robust standard errors in parentheses All tests are two-tailed.

*** p<0.001, ** p<0.01, * p<0.05
Table 6: The Probability of Appointing a Female to the Board (Studies 3 & 4 combined)

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<th>Studies 5</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
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<td>0.012</td>
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<td>0.318</td>
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<td>0.523*</td>
<td>0.529*</td>
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<td>0.214*</td>
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<td>1.951***</td>
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<td>3.037***</td>
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<td><strong>Effect of Interventions</strong>&lt;sup&gt;12&lt;/sup&gt;</td>
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<tr>
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<td>1.762***</td>
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<tr>
<td>Departing Female</td>
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<td>1.290**</td>
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<tr>
<td><strong>Study X Gender of Departing Board Member</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy 1 (Diversity) X Departing .Female</td>
<td>-0.212</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy 2: (2 Female Bd) X Departing Female</td>
<td>-0.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy 3 (4 Female Cand) X Departing Female</td>
<td>-0.413</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.118</td>
<td>0.219</td>
<td>1.2</td>
<td>2.215</td>
<td>1.178</td>
<td>1.163</td>
</tr>
</tbody>
</table>

| Observations | 760 | 760 | 760 | 760 | 760 | 760 |
| -2LL         | 935.67 | 900.711 | 690.933 | 647.226 | 619.139 | 618.716 |
| Cox & Snell R Square | 0.03 | 0.073 | 0.297 | 0.336 | 0.36 | 0.36 |
| Nagelkerke R Square | 0.041 | 0.102 | 0.414 | 0.469 | 0.503 | 0.503 |

Robust standard errors in parentheses All tests are two-tailed.

*** p<0.001, ** p<0.01, * p<0.05

<sup>12</sup> Study 3 is the referent data.
Appendix 1

Basic text of the Laboratory Studies

You are a Board member of a large, publicly traded company. The Board meets once a quarter (every three months) to make sure the company is functioning well and in the best interests of all its stakeholders. You are also the Chair of the Board's Nominating Committee. As such, it is your job to select the replacement for any vacancy that appears on the Board.

By company charter, the Board of Directors is made up of nine Board members. Three of these members are internal to the company, meaning they also serve as company officers. They are the company's Chief Executive Officer, Chief Finance Officer and Chief Operating Officer. The other six Board members are external to the company, meaning they are corporate officers in other companies.

[Stephen/Stephanie] Brooks, one of the external Board members is departing and your task is to select a replacement.

To help you select a new board member, the company has hired a team of recruiters to review possible candidates. This team has narrowed the pool down to six candidates whose resumes are summarized on the next screen.

Your job is to select the candidate whom you think will work best with the remaining Board members. To help in your selection, it may be useful to know about this current Board.

The current Board of Directors is typical of those in the industry. It has three females and six males (including [Stephen/Stephanie] Brooks, who is now departing). The Directors range in age from 45-68 years old. They each sit on anywhere from one to five other corporate Boards. Their years of Board experience range from five to 17 years.

As you read the about the candidates, please think about who will be the best replacement.
Appendix 2
Candidate Choice Set

Below are the Executive Summaries of the six potential Board Candidates

<table>
<thead>
<tr>
<th>Candidate A</th>
<th>Candidate B</th>
<th>Candidate C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title: Executive Vice President of Operations</td>
<td>Title: Executive Vice President of Federal Relations</td>
<td>Title: Executive Vice President of Purchasing</td>
</tr>
<tr>
<td>Age: {insert random age}</td>
<td>Age: {insert random age}</td>
<td>Age: {insert random age}</td>
</tr>
<tr>
<td>Years of board experience: {insert random experience years}</td>
<td>Years of board experience: {insert random experience years}</td>
<td>Years of board experience: {insert random experience years}</td>
</tr>
<tr>
<td># of other boards currently serving on: {insert random # boards}</td>
<td># of other boards currently serving on: {insert random # boards}</td>
<td># of other boards currently serving on: {insert random # boards}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Candidate D</th>
<th>Candidate E</th>
<th>Candidate F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title: Executive Vice President of Marketing</td>
<td>Title: Executive Vice President of Distribution</td>
<td>Title: Executive Vice President of Sales</td>
</tr>
<tr>
<td>Age: {insert random age}</td>
<td>Age: {insert random age}</td>
<td>Age: {insert random age}</td>
</tr>
<tr>
<td>Years of board experience: {insert random experience years}</td>
<td>Years of board experience: {insert random experience years}</td>
<td>Years of board experience: {insert random experience years}</td>
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<tr>
<td># of other boards currently serving on: {insert random # boards}</td>
<td># of other boards currently serving on: {insert random # boards}</td>
<td># of other boards currently serving on: {insert random # boards}</td>
</tr>
</tbody>
</table>

Whom do you select?

Candidate A  
Candidate B  
Candidate C  
Candidate D  
Candidate E  
Candidate F