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# The Rise and Run of Women Corporate Leaders

Alicia R. Ingersoll
*Utah State University*

# THE RISE AND RUN OF WOMEN CORPORATE LEADERS

by

Alicia R. Ingersoll

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Approved:

| | |
|---|---|
| Christy Glass, Ph.D.<br>Major Professor | Ronda Callister, Ph.D.<br>Committee Member |
| So-jung Lim, Ph.D.<br>Committee Member | Merideth Thompson, Ph.D.<br>Committee Member |
| Gabriele Ciciurkaite, Ph.D.<br>Committee Member | Richard S. Inouye, Ph.D.<br>Vice Provost for Graduate Studies |

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Logan, Utah

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# ABSTRACT

The Rise and Run of Women Corporate Leaders

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Alicia R. Ingersoll, Doctor of Philosophy

Utah State University, 2019

Major Professor: Christy Glass, Ph.D.
Department: Sociology

In light of the renewed emphasis on the need for more women in corporate leadership it is important to understand the characteristics of women who have ascended the corporate ladder thus far. Examining the mechanisms that work to overcome existing barriers is key in helping more women to achieve corporate leadership positions. This study analyzed three sequential and interconnected facets of women corporate leaders: (1) educational attainment and networks; (2) risk taking; and (3) presence and influence. Using an author-constructed data set of all S&P 500 organizations, the study offers a theory-driven expansion of existing research in order to extend our understanding of the conditions under which women attain corporate leadership opportunities. Findings reveal some of the complexity in both the antecedents and consequences of gender diversity within top leadership of large U.S. firms. Taken together, the results convey the organizational and societal contexts that lead to more diverse corporate leadership.

(188 pages)

# PUBLIC ABSTRACT

## The Rise and Run of Women Corporate Leaders

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The purpose of this research was to understand the contexts that support the barriers to women's advancement and to identify the conditions under which women leaders overcome the barriers to attain top corporate leadership positions. I have identified and discussed three distinct approaches for understanding how we can increase women's representation and influence in the executive and director ranks within top U.S. corporations. The first approach investigates the complexities of leveraging the social and cultural capital attained through post-secondary education in order gain entry into the corporate elite. The second approach examines gendered stereotypes of risk-taking versus the organizational risk-taking realities that are inherent in women corporate leaders' climb to the top. The final approach considers the impact of external pressures in increasing the prevalence, power and influence of women corporate directors. Findings reveal some of the complexity in both the antecedents and consequences of gender diversity within top leadership of large U.S. firms. Taken together, the results convey the organizational and societal contexts that lead to more diverse corporate leadership.

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# CHAPTER 1

# INTRODUCTION

Although women have made inroads within organizations since the 1960s, they are still severely underrepresented within the top leadership of our largest corporations. Women account for only slightly more than 5% of the Chief Executive Officers (CEOs) within S&P 500 indexed organizations (Catalyst, 2017a), which are some of the largest and most prestigious organization within the U.S. Additionally, only 15% of global boards of director positions are held by women (Catalyst, 2017b), a statistic that includes directors in countries that have imposed quotas for gender parity. Women's underrepresentation in leadership positions as a symptom of greater gender inequality has led scholars to suggest that the progress of women has slowed, or even stalled (Cohen, Huffman, & Knauer, 2009; England, 2010).

The recent #MeToo movement has unearthed gender inequalities within all fields of work and has demonstrated the need for more women leaders. Scholars emphasize that women occupying corporate leadership positions are the key to decreasing the amount of sexual harassment and inequality within the workplace (Dobbin & Kalev, 2017). Popular news stories and polls also demonstrate that both men and women would prefer to see more women leaders (Holden, 2017; McGregor, 2017). However, similar reports suggest that the recent climate has left men feeling uneasy in their workplace dealings with women. Some men are now unwilling to mentor ascending women, thus exacerbating an obstacle for women trying to reach a position of leadership (Thomas & Brown-Philpot, 2018; Zarya, 2018). While we may have seen an overall increase in the number of

women within top corporate positions over the past few decades, the numbers are not keeping pace with women's workforce representation (Terjesen, Aguilera, & Lorenz, 2015). Further, even given the consequences of women's exclusion from the corporate elite, the barriers to women's mobility seem firmly intact. In light of the renewed emphasis on the need for women within corporate leadership and combined with the current climate of fortifying the barriers that keep women from reaching these positions, it is important to understand the forces driving women to overcome obstacles to attain top leadership positions. The women who have successfully navigated the existing barriers give potential voice and power to other aspiring women leaders not only by example, but by providing the route maps to leadership. Further, understanding women who have successfully navigated the obstacles assists in recognizing the conditions under which these barriers can be overcome. Thus, a key in helping more women to attain corporate leadership positions is to understand what has led us to this point. Why are women not better represented in corporate leadership roles? Specifically, what factors help or hinder corporate women in their trajectories to top leadership positions?

In order to answer the research questions, I examine three sequential and interconnected facets of women corporate leaders: (1) educational attainment and networks; (2) risk taking; and (3) presence and influence. The first phase of the research study examines the importance of educational attainment and educational networks for women leaders. This initial work examines not only the human capital and experience of women corporate executives as measured by degree(s) awarded, but also the educational networks developed through the school(s) they attended and how each of these areas

differ from male executives. The second phase of research analyzes risk taking among women corporate executives and directors compared to their male counterparts. Research suggests that women must take risky assignments all along their path to a leadership position (Glass & Cook, 2016). Thus, risk can be posed as both a barrier and a conduit to women reaching top positions. This work analyzes if firms with women leaders are more apt to take on risk than those led by men. Finally, I examine the presence and influence of women corporate directors. I propose that key institutional pressures have led to changes in women's presence and level of influence on corporate boards, such as in the number of women directors and the number of boards on which they serve. Additionally, I suggest these same institutional pressures have also impacted the influence of women corporate directors in board roles and committee assignments.

This research contributes to the existing body of research in important ways. First, an update and expansion to previous work examining the human capital and social networks of women in top corporate leadership is offered through the first phase. Previous studies, such as Hodigere and Bilimoria (2015), examined human capital and social networks among corporate directors for the period 2005-2010. The study expands upon this earlier work to examine corporate executives, versus directors, for the period 2009-2013 using a new author constructed dataset. Further, the quantitative analysis focuses solely on higher education and educational networks, thus providing a unique look into the social capital of top women executives.

Next, the research is theory driven and brings key sociological insights to bear upon organizations in new ways. I begin he first phase by exploring Bourdieu's

explanations of social class and education, then I advance through an examination of risk taking and the tension between job role and gender roles in the second phase before concluding with institutional theory to explain the changes we see in the number of and power of women directors.

Finally, the research extends our understanding of the conditions under which women attain corporate leadership opportunities. Analyzing when change happens, in terms of increased representation for women, and the context around that change enables scholars to critically evaluate institutional mechanisms and change models surrounding women's advancement in the corporate world.

I begin addressing the research question by first discussing what we know about the barriers faced by women in climbing the corporate ladder. Scholars have identified a myriad of issues that women face throughout their career trajectories and I present research that identifies these existing obstacles. After a review of the barriers to women's mobility, I present a brief introduction for each of the three phases, which will be explored in more detail within each chapter. I conclude the introduction with a discussion of the contribution of the project.

## Literature Review of Barriers to Advancement

The persistent underrepresentation of women in organizational leadership has created a puzzle for scholars of gender and organizations. Previous research has distinguished between supply side and demand side explanations for the underrepresentation of women in corporate leadership (Gabaldon, De Anca, Mateos De

Cabo, & Gimeno, 2016). The supply side explanations include elements such as work family conflicts, social gender role ascription and gender differences in values and attitudes (Terjesen, Sealy, & Singh, 2009). Another commonly held supply side assumption within the corporate realm is that women lack the necessary human capital to serve as corporate leaders (Burke, 2000). However, research demonstrates that women are just as highly qualified as their male counterparts (Peterson & Philpot, 2007). In fact, women's educational and work experience gains over the past few decades have provided the human capital necessary to fill the pipeline with qualified women (Goldin, 1990; Goldin & Mitchell, 2017; Jacobs, 1992). A 2008 study by Singh, Terjesen, and Vinnicombe found that women corporate directors are more likely to have an MBA degree and prior international business experience. The advanced education element is supported by findings from Hillman, Canella, and Harris (2002), who find that women directors are much more likely to have an advanced degree than their male counterparts. Indeed, research suggests women corporate leaders are more highly invested in the accumulation of human capital versus their male peers (Ward, Orazem, & Schmidt, 1992). Corporations also benefit from the human capital of their women leaders with research suggesting that women directors contribute unique functional experience to their boards, leading to a higher monetary value for the firm (Kim & Starks, 2016). Unfortunately, even when women directors have the same levels of corporate and board experience as men, they occupy lower level leadership positions, are less powerful and earn considerably less than men directors (Zelechowski & Bilimoria, 2004). The dearth of women occupying top organizational leadership positions demonstrates there may be

more to the story than human capital accumulation.

Another supply side explanation for the scarcity of women in corporate leadership positions posits that women opt out of the high-power career paths leading to these positions (Stone, 2008). The rationale behind opting out is that women choose to spend more time at home, where they are primarily responsible for home and child care (Stone, 2008). Women have to devote more time to home and family than men, yet are expected to work the same number of hours professionally (Hochschild, 1997; Hochschild & Machung, 1989). The time constraints and lack of flexibility with corporate jobs deters women from joining corporate leadership (Fuller & Hirsh, 2013) and leads to unequal opportunities for career (Straub, 2007). However, confirmation of the work-family barrier is inconclusive, as research indicates that not all women experience work-family conflict (Powell & Greenhaus, 2010).

Other supply side research has noted that cultural beliefs concerning gender may bias women's perception of themselves as corporate leaders, leading them to lean away from corporate leadership roles (Correll, 2004). The perceived conflict between the gendered self-image of the women and the gendered image of the corporate leadership role means that some women may not even attempt upper level managerial roles (Eddleston, Veiga, & Powell, 2006). In this case, gender norms have been socialized strongly enough to create a gender self-schema (Bem, 1981), which does not align with corporate leadership roles (Schein, 1973).

Further explanations from the supply side perspective include gender differences in attitudes and values (Terjesen et al., 2009). Gender differences regarding the

motivation to attain top leadership roles may impact organizational outcomes (Eagly, 2005). Research suggests that women are less power-motivated than men (Adams & Funk, 2012) and may be more conservative than men in corporate settings (Baixauli-Soler, Belda-Ruiz, & Sanchez-Marin, 2015). A less innocuous example of gendered attitude difference is found in women's negative recruitment experiences (Brands & Fernandez-mateo, 2016). Brands and Fernandez-Mateo suggest that women leaders may not pursue future opportunities if they have previously been denied opportunities by the company.

Demand side proponents look to sources external to the women in order to identify barriers for women's advancement (Gabaldon et al., 2016). Proponents of the "glass ceiling" metaphor contend that it is more difficult for women to be promoted to positions of authority than men and that there are obstacles they face as they move up within the organizational hierarchy (Baxter & Wright, 2000). This unseen and unbreachable barrier constrains women's rise up the corporate ladder, despite their qualifications or achievements (Federal Glass Cieling Commission, 1995). The concept of the glass ceiling permeates gender research, but empirical tests have resulted in mixed findings. Previous work by Cotter, Hermsen, and Vanneman (2001), along with work by Maume (1999), find support for the glass ceiling through a panel study of income dynamics. However, Morgan (1998) suggests that a cohort effect better explains the penalties women are said to face due to the glass ceiling, while Baxter and Wright (2000) find no glass ceiling effects at higher levels of the organizational hierarchy. Others suggest that the glass ceiling metaphor itself is outdated and changing to a "firewall"

metaphor would better capture the contextual complexity of the barriers women face (Bendl & Schmidt, 2010). Regardless, the glass ceiling metaphor continues to dominate current organizational research and to act as the metaphor for the various barriers women face in career advancement (Faniko, Ellemers, Derks, & Lorenzi-Cioldi, 2017; Fernandez & Campero, 2017; Mun & Jung, 2017; Ng & Sears, 2017).

Research has also identified cognitive bias as a primary barrier throughout women's career trajectories. Cognitive bias refers to the distortion of information during the decision-making process based upon categorical or ascriptive beliefs (Bielby, 2000; Reskin, 2000). The human brain relies on heuristics, or snap judgments, in the processing of information. Research suggests that cultural schemas based upon ascriptive beliefs form the basis of our heuristics (Gorman, 2005). In the workplace, cognitive bias begins when employers classify job candidates or employees into positions based upon heuristics and beliefs (Ridgeway, 1997). The categorical distinctions stemming from these judgments give rise to status beliefs, which attach value to status and lead to inequities between statuses (Stainback, Tomaskovic-Devey, & Skaggs, 2010).

One of the consequences of status beliefs is stereotype creation (Gorman, 2005; Ridgeway & Correll, 2004). Status beliefs are reflected within stereotypes where status inequity is reified through attributing cultural beliefs to all group members. One of the earliest studies of gender stereotypes within organizations uncovered the "think manager, think male" phenomenon where psychological sex typing was identified as a barrier for women's advancement (Schein, 1973). This barrier was found to be still intact in a global replication of Schein's work conducted almost three decades later (Schein, 2001). Bielby

and Baron (1986) contend that employers find it unduly costly to ascertain differences between individuals for different jobs. Therefore, employers rely on stereotypes to differentiate between applicants and employees when placing them into positions. Once a job is sex labeled through this process, it becomes very difficult to change (Bielby & Baron, 1986). Similarly, Gorman's (2005) study of U.S. law firms demonstrates how stereotypes based on gender traits creates schemas for job roles. She argues,

> Organizational decision makers are likely to form the opinion that male candidates possess stereotypically masculine characteristics, such as decisiveness and assertiveness, whereas they are likely to see female candidates possessing stereotypically feminine characteristics, such as friendliness. (Gorman, 2005, p. 704)

The formation of status characteristics, status expectations and stereotypes are firmly rooted in the societal construction of gender roles. Parsons (1942) discussed how social roles developed within his classic examination of American families. He posits women play the mother role at home and teach girl children home making skills while men play the breadwinner role and leave the home for work. Each gender supports the other and their roles are "symmetrical." Parson's sex roles theory focuses on the home and work as the places of the production and reproduction of gender roles. While Parson's work was very much a product of the time and place in which it was written, the culturally expected roles for men and women within the U.S. discussed in his work continue to influence modern society. Most notably, as women seek positions of power within the workforce, gender roles become much more salient. Eagly and Karau (2002) suggest that perceived incongruity between women's gender role and the leadership role leads to viewing women's occupation of leadership roles less favorably than men and

also to evaluating women less favorably than men when they do occupy the leadership role. Women leaders also face injunctive norms based upon their prescribed gender role (Bielby, 2000). Men in leadership positions have much more freedom in how they lead and the style in which they lead without reaping negative repercussions (Eagly & Carli, 2007; Eagly & Karau, 2002; Eagly, Makhijani, & Klonsky, 1992; Koenig, Eagly, Mitchell, & Ristikari, 2011). This leaves women leaders to negotiate a "double-bind" in having to demonstrate masculine leadership traits, such as assertiveness, along with prescribed feminine traits, such as warmth, and facing backlash for both (Eagly & Karau, 2002; Kelly, Ammons, Chermack, & Moen, 2010; Ridgeway & Correll, 2004). Even outside of the context of leadership, research suggests women workers are viewed as women first and workers second (Bobbitt-zeher, 2011).

The research discussed thus far indicates that cognitive bias reaches into the policies and practices of employers and creates inequality in outcomes based on gender, thus creating barriers to mobility. Employees are segregated and ranked based upon preconceived categorical bias instead of skill or ability. The cognitive biases leading to workplace inequality are driven by group differentiation. In *Economy and Society*, Weber (1978) discusses a process of differentiating between groups, which he termed "social closure." As Weber (1978) describes it,

> One frequent economic determinant is the competition for livelihood. Usually one group takes some externally identifiable characteristic of another group of competitors…as a pretext for attempting their exclusion. (pp. 341-342)

Thus, salient categories become a means of evaluating others where dissimilar characteristics are viewed as less favorable (DiTomaso, Post, & Parks-Yancy, 2007).

Proponents of social closure as a mechanism that limits women's mobility suggest that those in positions of power as a majority group have a vested interest in maintaining the status quo (Smith, 2002). In what has been referred to in the social psychology literature as in-group bias, this stream of research demonstrates that people tend to favor those that have similar demographic characteristics or status distinctions (Fiske, 1998, 2002). The in-group categorical distinctions translate into boundaries used to limit access to positions and resources by outsiders (Elliott & Smith, 2001; Stainback, 2008; Stainback, Kleiner, & Skaggs, 2016; Tomaskovic-Devey & Stainback, 2007).

Kanter (1977a) finds that men in high-level management positions tend to hire other men into top management in a concept she terms homosocial reproduction. This concept is explored extensively within extant research (Britton & Logan, 2008; Glass & Cook, 2016; Gorman, 2006; Huffman, Cohen, & Pearlman, 2010; Kalev, 2009; Skaggs, Stainback, & Duncan, 2012). Homophily is another concept similar to Kanter's homosocial reproduction used in social network analysis to explain why contact occurs between similar people at a higher rate than among dissimilar people (Mcpherson, Smith-lovin, & Cook, 2001). Studies of gender and social networks have found that men have a greater degree of homophily within their networks, while women have more network ties outside of their sex (Ibarra, 1992). Further research on the effects of homophily among managerial networks suggest that women in positions of power may need access to the resources provided by a broader array of network contacts (Ibarra, 1997). Unfortunately, the extant research suggests that senior women may find it difficult to expand their work-based network due to homophily and male resistance to include them within work

networks (Charles & Davies, 2000; Martin, 2006; Tsui & O'Reilly, 1989).

Stemming from the concepts of homophily and homosocial reproduction, scholars suggests that more women in positions of organizational power may erode gender inequality within the organization. Studies show that women in organizational power positions may further the career prospects of all women within the organization through enhancing opportunities for networking and mentorship (Ibarra, 1993; Konrad, Kramer, & Erkut, 2008), along with reducing overall gender stereotypes (Ely, 1995). Hultin and Szulkin (1999), found that women's wages tend to be higher in organizations with a greater number of women in leadership. In a later study they found even greater support of the effects of women in leadership roles in decreasing the gender wage gap (Hultin & Szulkin, 2003). In further studies Cook and Glass (2014, 2015) found that having a woman on the corporate board increased the likelihood of a woman being appointed CEO of the organization. Similar studies also point to the power of women as "change agents" (Cohen & Huffman, 2007), where organizations with women managers show less overall sex segregation (Stainback & Kwon, 2012). However, in a follow-up study the effect sizes of women leaders on sex segregation appear to be small with results indicating that women would need to occupy 55% of board positions in order to eliminate managerial gender segregation (Skaggs et al., 2012). Thus, a lack of women in leadership has consequences for all women in the workforce.

While research suggests that women in power can act as change agents for other women within organizations, the negative consequences for women in these positions can be severe. Since women are in a minority within senior leadership ranks, they are

susceptible to what Kanter (1977a) describes as token pressures. Those in an extreme numerical minority can face social isolation, enhanced scrutiny and increased stereotype. While they may feel overlooked, they are actually highly visible due to their minority status. Tokens face extreme stereotyping by the majority group and feel pressure to behave in ways that may undermine stereotypes (Kanter, 1977a). Tokens also face boundary heightening where the dominant culture is exaggerated in order to create difference and polarization (Kanter, 1977b). Extant research also suggests that gender is highly salient as a category for organizational exclusion, making women token employees differentially disadvantaged (Turco, 2010).

While the barriers for women trying to ascend the corporate ladder are well-established, less well understood are the mechanisms that enable women to overcome these barriers and to achieve top leadership roles. I now turn to consider the research design for the three potential mechanisms: education, risk taking and institutional isomorphism.

## Research Design

### Data

All three phases of the research rely upon a common author-constructed dataset. The dataset includes over 200 variables collected from over 500 companies for each year of the study. I analyze this unique dataset consisting of all S&P 500 executives and directors covering the period 2009-2013. The dataset is a consolidation of multiple sources of secondary data. The Compustat database, available through Wharton Research

Data Services (WRDS), provides a list of all companies on the S&P 500 index for each year of the study. I add all corporate executives for each firm as reported by the Execucomp database and the Institutional Shareholder Services database, both available through WRDS. Additional data on executive tenure and educational attainment is collected from biographical websites and added to the dataset.

**Phase 1: Education and Experience**

Prior research suggests that a range of barriers bar women from corporate leadership roles. Factors such as employer preference, discrimination, biased employment practices, and economic pressures all work in ways to limit women's mobility (Baron, 1984; Bielby, 2000; Bielby & Baron, 1986; Reskin, 1993). Kanter's (1977a) seminal work on homosocial reproduction argues that top-level corporate leaders prefer to hire those with the same demographic characteristics as themselves. The argument is that we are most comfortable, or share perceived common interests, with people who are similar to ourselves. It both consciously and unconsciously creates an in-group in our own image (Kanter, 1977a).

Homosocial reproduction persists on levels that interact specifically with class and gender as well. In her 2009 audit study, Michelle Jackson found that employers were more receptive to job candidates from higher social classes, while Rivera and Tilcsik (2016) found that gender moderates the effect of social class signals when hiring for elite corporate positions.

The unresolved debate regarding the interaction between homosocial reproduction and social class influence fuels the need for further research. Education is a powerful tool

and I suggest it is a potential mechanism for overcoming homosocial reproduction not only through educational attainment, but through educational networks. However, how corporate leaders take advantage of educational networks is uncertain and leads me to ask do women executives receive similar advantages as men executives based upon attainment of baccalaureate and advanced degrees? Additionally, does the reputation of the institution attended by corporate executives provide occupational benefits that differ according to gender?

**Phase 2: Risk Taking**

Recent research examining the prevalence of narcissism among CEOs of S&P 1500 companies indicates that narcissistic women CEOs undertake as much risk as narcissistic men CEOs (Ingersoll, Glass, Cook, & Olsen, 2017). Key findings of the study indicate that women CEOs high in narcissism are as risk taking, but more ethical than narcissistic men CEOs. Similarly, other studies show that men CEOs exhibit higher levels of overconfidence compared with women CEOs and that corporate risk taking reduces with the transition to a woman as CEO (Faccio, Marchica, & Mura, 2016). Further research also suggests that gender diversity within the top management team leads to more conservative behavior by the firm, versus those companies with a less diverse top management (Baixauli-Soler et al., 2015). However, the latter study examined risk taking in the context of employee stock option grants, which could be influenced by the gender pay gap. While the extant research suggests that women corporate leaders are more risk-adverse than their male counterparts, separate research streams focused specifically on how gender is experienced in corporate leadership find that women have to take risks in

order to get ahead within the organization (Glass & Cook, 2016). Indeed, research shows that the "think manager, think male" mantra (Schein, 1973, 2001) is often sidelined when the firm is facing pressures from lack of performance (Ryan, Haslam, Hersby, & Bongiorno, 2011). Additional experimental research has also called into question gender stereotypes concerning risk aversion by finding that women are just as willing as men to take risks (Schubert, Brown, Gysler, & Brachinger, 1999). Given that women are required to take risks in order to move up the corporate ladder and that they are more likely to be placed in leadership roles within poor performing organizations, we need to ask if women corporate leaders are required to pursue greater risk than their male peers in order to obtain and fulfill leadership roles? Specifically, do firms led by women CEOs, women Chief Financial Officers (CFO), women executives, or women directors undertake greater organizational risks than those led by men?

**Phase 3: Presence and Influence**

The importance and influence of a corporate board as defined by the composition of the directors has grown from a hot topic for scholars to a point of concern for all corporate stakeholders. Recent legislation in European countries mandating female board representation, or quotas, has enlivened the conversation and has sparked research into the gender composition of corporate boards. Extant research has analyzed the gendered differences of human and social capital within the boardroom (Hodigere & Bilimoria, 2015; Ibarra, 1993; Singh et al., 2008), as well as the networks that drive board relations (Borgatti & Foster, 2003; Galaskiewicz, 1985; Westphal & Zajac, 1995). Further research also examines the impacts of diverse boards on firm performance and strategy (Glass,

Cook, & Ingersoll, 2016; Konrad et al., 2008; Torchia, Calabro, & Huse, 2011).

While current research helps to explain the business case for the inclusion of women on boards it fails to problematize the corporate board as a gendered institution. Instead of searching for the answers to opening the door to the boardroom, we need to understand the underlying pressures responsible for maintaining the status quo. Questions on how gender inequality is produced and sustained through the corporate board structure have not been adequately addressed. In order to understand what opportunities have arisen and how they have led to change, we need to examine the institutional pressures to appoint women directors and their impact not only on the number of women directors, but on their authority within the corporate boardroom. Examining the longitudinal trajectory of women directors helps us to understand not only how change has occurred in the number of women on boards, but in the power granted to women who reach director seats. Phase three of the study addresses the research question of how have isomorphic institutional pressures influenced the appointment of women directors over time? In addition, what impacts are there from institutional pressures to the overall number of women directors, and in the authority and influence of women directors?

## Contribution and Limitations

The proposed dataset is a major source of strength for the research. Phase one, analyzing the educational attainment and networks of all executives in the S&P 500 over the course of five years expands upon current research conducted by Brint and Yoshikawa (2017), who examined educational attainment and reputation, but only for a

single year of 2014 with a select group of approximately 3,000 executives. Additionally, gender effects were not explored in their research. My dataset includes over 13,000 executive/year observations spanning a five-year period. The additional observations and longitudinal data lend themselves to more robust statistical testing.

Additional contribution to the literature is made in the phase two analysis of gender and firm financial risk across all levels of top organizational leadership. Previous studies have examined gender and risk taking among CEOs (Elsaid & Ursel, 2011; Faccio et al., 2016; Khan & Vieito, 2013) or boards of directors (Adams & Funk, 2012), but none have combined the board and the entire senior executive team. Using data from all S&P 500 listed firms over the period 2009-2013, I examine risk taking in terms of both accounting-based measures of corporate expenditures and market-based measures of stock price volatility in order to present a unique picture of gender and corporate risk.

The study design of phase three also contributes to fill a gap in literature through the longitudinal nature of the data on U.S. firms. The majority of existing work examining institutional factors and board gender composition focus on either cross-sectional data or data specific to European countries. This study examines how isomorphic pressures help to shape U.S. board gender composition.

As with most research the study has limitations. First, the proposed research is specific to large U.S. companies. It does not speak to if the same gendered elements are present with women executives and directors of smaller U.S. firms or within a wider international context. Available data is a major limitation when seeking to expand the scope away from large U.S. firms.

A second limitation of the research is the sole focus on gender. Race is treated as a control variable in the study when it may speak to many of the same issues we see with executive and director gender within corporations. Further, gender norms and stereotypes vary across cultures and ethnicities. Examining the relationship between gender and race could help to uncover potential paths and pitfalls to career mobility for ethnic and racial minorities within organizations.

Finally, while the dataset itself is a potential source of strength for the project, the scope of the collection effort and reliance on secondary sources could limit the examination. Gaps in collection and inaccurate data from the secondary sources present potential problems. Further, data may become unavailable through a lapsed subscription at any point during the study leading to problems with replication.

## References

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management Science*, *58*(2), 219-235. http://doi.org/10.1287/mnsc.1110.1452

Baixauli-Soler, J. S., Belda-Ruiz, M., & Sanchez-Marin, G. (2015). Executive stock options, gender diversity in the top management team, and firm risk taking. *Journal of Business Research*, *68*, 451-463. http://doi.org/10.1016/j.jbusres.2014.06.003

Baron, J. N. (1984). Organizational perspectives on stratification. *Annual Review of Sociology*, *10*(1), 37-69. http://doi.org/10.1146/annurev.so.10.080184.000345

Baxter, J., & Wright, E. O. (2000). The glass ceiling hypothesis. *Gender & Society, 14*(2), 275-294. http://doi.org/10.1177/089124300014002004

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, *88*(4), 354-364. http://doi.org/10.1037/0033-295X.88.4.354

Bendl, R., & Schmidt, A. (2010). From 'glass ceilings' to 'firewalls': Different metaphors for describing discrimination. *Gender, Work & Organization*, *17*(5), 612-634. http://doi.org/10.1111/j.1468-0432.2010.00520.x

Bielby, W. T. (2000). Minimizing workplace gender and racial bias. *Contemporary Sociology*, *29*(1), 120-129.

Bielby, W. T., & Baron, J. N. (1986). Men and women at work: Sex segregation and statistical discrimination. *American Journal of Sociology*, *91*(4), 759-799. http://doi.org/10.1086/228350

Bobbitt-zeher, D. (2011). Gender discrimination at work: Connecting gender stereotypes, institutional policies, and gender composition of workplace. *Gender & Society*, *25*(6), 764-786. http://doi.org/10.1177/0891243211424741

Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, *29*(6), 991-1013. http://doi.org/10.1016/S0149-2063(03)00087-4

Brands, R. A., & Fernandez-mateo, I. (2016). Leaning out: How negative recruitment experiences shape women' s decisions to compete for executive roles. *Administrative Science Quarterly, 62*(3), 405-442. http://doi.org/10.1177/0001839216682728

Brint, S., & Yoshikawa, S. R. K. (2017). The educational backgrounds of American business and government leaders: Inter-industry variation in recruitment from elite colleges and graduate programs. *Social Forces*, *96*(2), 561-590. http://doi.org/10.1093/sf/sox059

Britton, D. M., & Logan, L. (2008). Gendered organizations: Progress and prospects. *Sociology Compass, 2*(1), 107-121. http://doi.org/10.1111/j.1751-9020.2007.00071.x

Burke, R. J. (2000). Company size, board size and numbers of women corporate directors. In R. J. Burke & M. C. Mattis (Eds.), *Women on corporate boards of directors* (pp. 157-167). Netherlands: Springer.

Catalyst. (2017a). *Women CEOs of the S&P 500*. Retrieved from http://www.catalyst.org/knowledge/women-ceos-sp-500

Catalyst. (2017b). *Women on corporate boards globally*. Retrieved from http://www.catalyst.org/knowledge/women-corporate-boards-globally

Charles, N., & Davies, C. A. (2000). Cultural stereotypes and the gendering of senior management. *Sociological Review*, *48*(4), 544-567.

Cohen, P. N., & Huffman, M. L. (2007). Working for the woman ? Female managers and the gender wage gap. *American Sociological Review*, *72*(2), 681-704.

Cohen, P. N., Huffman, M. L., & Knauer, S. (2009). Stalled progress? *Work and Occupations*, *36*(4), 318-342. http://doi.org/10.1177/0730888409347582

Cook, A., & Glass, C. (2014). Above the glass ceiling: When are women and racial/ ethnic minorities promoted to CEO? *Strategic Management Journal*, *35*(7), 1080-1089. http://doi.org/10.1002/smj.2161

Cook, A., & Glass, C. (2015). Diversity begets diversity? The effects of board composition on the appointment and success of women CEOs. *Social Science Research*, *53*, 137-147. http://doi.org/10.1016/j.ssresearch.2015.05.009

Correll, S. J. (2004). Constraints into preferences: Gender, status, and emerging career aspirations. *American Sociological Review*, *69*(1), 93-113. http://doi.org/10.1177/000312240406900106

Cotter, D. A., Hermsen, J. M., Ovadia, S., & Vanneman, R. (2001). The glass ceiling effect. *Social Forces, 80*(2), 655-681. http://doi.org/10.1353/sof.2001.0091

DiTomaso, N., Post, C., & Parks-Yancy, R. (2007). Workforce diversity and inequality: Power, status, and numbers. *Annual Review of Sociology*, *33*(1), 473-501. http://doi.org/10.1146/annurev.soc.33.040406.131805

Dobbin, F., & Kalev, A. (2017). Training programs and reporting systems won't end sexual harassment—promoting more women will. *Harvard Business Review*. *95*(6). Retreived from https://hbr.org/2017/11/training-programs-and-reporting-systems-wont-end-sexual-harassment-promoting-more-women-will

Eagly, A. H. (2005). Achieving relational authenticity in leadership: Does gender matter? *The Leadership Quarterly*, *16*(3), 459-474. http://doi.org/10.1016/j.leaqua.2005.03.007

Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become leaders*. Cambridge, MA: Harvard Business Press.

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*(3), 573-598. http://doi.org/10.1037/0033-295X.109.3.573

Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, 111(1), 3-22.

Eddleston, K. A., Veiga, J. F., & Powell, G. N. (2006). Explaining sex differences in managerial career satisfier preferences: The role of gender self-schema. *Journal of Applied Psychology*, *91*(2), 437-445. http://doi.org/10.1037/0021-9010.91.2.437

Elliott, J. R., & Smith, R. A. (2001). Ethnic matching of supervisors to subordinate work groups: Findings on "bottom-up" ascription and social closure. *Social Problems*, *48*(2), 258-276. http://doi.org/10.1525/sp.2001.48.2.258

Elsaid, E., & Ursel, N. D. (2011). CEO succession, gender and risk taking. *Gender in Management: An International Journal*, *26*(7), 499-512. http://doi.org/10.1108/17542411111175478

Ely, R. J. (1995). The power in demography: Women's social constructions of gender identity at work. *Academy of Management Journal*, *38*(3), 589-634. http://doi.org/10.2307/256740

England, P. (2010). The gender revolution uneven and stalled. *Gender & Society*, *24*(2), 149-166. http://doi.org/10.1177/0891243210361475

Faccio, M., Marchica, M.-T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, *39*, 193-209. http://doi.org/10.1016/j.jcorpfin.2016.02.008

Faniko, K., Ellemers, N., Derks, B., & Lorenzi-Cioldi, F. (2017). Nothing changes, really: Why women who break through the glass ceiling end up reinforcing it. *Personality and Social Psychology Bulletin*, *43*(5), 638-651.

Federal Glass Cieling Commission. (1995). *Glass Ceiling Commission—A solid investment: Making full use of the nation's human capital. Washington*, DC: U.S. Government Printing Office.*Federal Publications*, 120.

Fernandez, R. M., & Campero, S. (2017). Gender sorting and the glass ceiling in high-tech firms. *ILR Review*, *70*(1), 73-104.

Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook for social psychology* (pp. 357-411). New York, NY: McGraw-Hill.

Fiske, S. T. (2002). What we know now about bias and intergroup conflict, the problem of the century. *Current Directions in Psychological Science*, *11*(4), 123-128. http://doi.org/10.1111/1467-8721.00183

Fuller, S., & Hirsh, C. E. (2013). "Family-friendly" jobs and motherhood pay penalties: The impact of flexible work arrangements across the educational spectrum. *Work and Occupations*, *46*(1), 3-44. http://doi.org/10.1177/0730888418771116

Gabaldon, P., De Anca, C., Mateos De Cabo, R., & Gimeno, R. (2016). Searching for women on boards: An analysis from the supply and demand perspective. *Corporate Governance: An International Review*, *24*(3), 371-385.

Galaskiewicz, J. (1985). Interorganizational relations. *Annual Review of Sociology*, *11*(1), 281-304. http://doi.org/10.1146/annurev.so.11.080185.001433

Glass, C., & Cook, A. (2016). Leading at the top: Understanding women's challenges above the glass ceiling. *The Leadership Quarterly*, *27*(1), 51-63. http://doi.org/10.1016/j.leaqua.2015.09.003

Glass, C., Cook, A., & Ingersoll, A. R. (2016). Do women leaders promote sustainability? Analyzing the effect of corporate governance composition on environmental performance. *Business Strategy and the Environment*, *25*(7), 495-511. http://doi.org/10.1002/bse.1879

Goldin, C. (1990). *Understanding the gender gap: An economic history of American women*. New York, NY: Oxford University Press.

Goldin, C., & Mitchell, J. (2017). The new life cycle of women's employment: Disappearing humps, sagging middles, expanding tops. *The Journal of Economic Perspectives*, *31*(1), 161-182.

Gorman, E. H. (2005). Gender stereotypes, same-gender preferences, and organizational variation in the hiring of women: Evidence from law firms. *American Sociological Review*, *70*(4), 702-728.

Gorman, E. H. (2006). Work uncertainty and the promotion of professional women: The case of law firm partnership. *Social Forces*, *85*(2), 865-890.

Hillman, A. J., Cannella, A. A., & Harris, I. C. (2002). Women and racial minorities in the boardroom: How do directors differ? *Journal of Management, 28*(6), 747-763. http://doi.org/10.1177/014920630202800603

Hochschild, A. R. (1997). *The time bind: When work becomes home and home becomes work*. New York, NY: Holt.

Hochschild, A. R., & Machung, A. (1989). *The second shift: Working parents and the revolution at home.* New York, NY: Penguin.

Hodigere, R., & Bilimoria, D. (2015). Human capital and professional network effects on women's odds of corporate board directorships. *Gender in Management: An International Journal*, *30*(7), 523-550. http://doi.org/10.1108/GM-07-2015-0063

Holden, M. E. (2017). *Female leadership is a business imperative*. Retrieved from https://theharrispoll.com/female-leadership-business-imperative/

Huffman, M. L., Cohen, P. N., & Pearlman, J. (2010). Engendering change: Organizational dynamics and workplace gender desegregation, 1975-2005. *Administrative Science Quarterly*, *55*(2), 255-277. http://doi.org/10.2189/asqu.2010.55.2.255

Hultin, M., & Szulkin, R. (1999). Wages and unequal access to organizational power: An empirical test of gender discrimination. *Administrative Science Quarterly, 44*(3), 453-472. http://doi.org/10.2307/2666958

Hultin, M., & Szulkin, R. (2003). Mechanisms of inequality: Unequal access to organizational power and the gender wage gap. *European Sociological Review*, *19*(2), 143-159. http://doi.org/10.1093/esr/19.2.143

Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*(3), 422-447. http://doi.org/10.2307/2393451

Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, *18*(1), 56-87. http://doi.org/10.5465/AMR.1993.3997507

Ibarra, H. (1997). Paving an alternative route: Gender differences in managerial networks. *Social Psychology Quarterly*, *60*(1), 91-102. http://doi.org/10.2307/2787014

Ingersoll, A. R., Glass, C., Cook, A., & Olsen, K. J. (2017). Power, status and expectations: How narcissism manifests among women CEOs. *Journal of Business Ethics* [early online version]. http://doi.org/10.1007/s10551-017-3730-0

Jackson, M. (2009). Disadvantaged through discrimination ? The role of employers in social stratification. *British Journal of Sociology*, *60*(4), 669-692. http://doi.org/10.1111/j.1468-4446.2009.01270.x

Jacobs, J. A. (1992). Women's entry into management: Trends in earnings, authority, and values among salaried managers. *Administrative Science Quarterly*, *37*(2), 282-301. http://doi.org/10.2307/2393225

Kalev, A. (2009). Cracking the glass cages? Restructuring and ascriptive inequality at work. *American Journal of Sociology*, *114*, 1591-1643. http://doi.org/10.1086/597175

Kanter, R. M. (1977a). *Men and Women of the Corporation*. New York, NY: Basic.

Kanter, R. M. (1977b). Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology*, *82*(5), 965-990.

Kelly, E. L., Ammons, S. K., Chermack, K., & Moen, P. (2010). Gendered challenge, gendered response: Confronting the ideal worker norm in a white-collar organization. *Gender & Society*, *24*(3), 281-303. http://doi.org/10.1177/0891243210372073

Khan, W. A., & Vieito, J. P. (2013). CEO gender and firm performance. *Journal of Economics and Business*, *67*, 55-66. http://doi.org/10.1016/j.jeconbus.2013.01.003

Kim, D., & Starks, L. T. (2016). Gender diversity on corporate boards: Do women contribute unique skills? *American Economic Review*, *106*(5), 267-271. http://doi.org/10.1257/aer.p20161032

Koenig, A. M., Eagly, A. H., Mitchell, A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological Bulletin*, *137*(4), 616-642. http://doi.org/10.1037/a0023557

Konrad, A. M., Kramer, V., & Erkut, S. (2008). Critical mass: The impact of three or more women on corporate boards. *Organizational Dynamics*, *37*(2), 145-164. http://doi.org/10.1016/j.orgdyn.2008.02.005

Martin, P. Y. (2006). Practising gender at work: Further thoughts on reflexivity. *Gender, Work & Organization*, *13*(3), 254-276.

Maume, D. J. (1999). Glass ceilings and glass escalators. *Work and Occupations, 26*(4), 483-509.

McGregor, J. (2017, December 26). Will the #MeToo movement speed up the number of women in leadership or slow it down? *The Washington Post*.

Mcpherson, M., Smith-lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415-444. http://doi.org/10.1146/annurev.soc.27.1.415

Morgan, L. A. (1998). Glass-ceiling effect or cohort effect ? A longitudinal study of the gender earnings gap for engineers , 1982 to 1989. *American Sociological Review, 63*(4), 479-493.

Mun, E., & Jung, J. (2017). Change above the glass ceiling: Corporate social responsibility and gender diversity in Japanese firms. *Administrative Science Quarterly*, *63*(2), 409-440.

Ng, E. S., & Sears, G. J. (2017). The glass ceiling in context: The influence of CEO gender, recruitment practices and firm internationalisation on the representation of women in management. *Human Resource Management Journal*, *27*(1), 133-151.

Parsons, T. (1942). Age and sex in the social structure of the United States. *American Sociological Review, 7*(5), 604-616.

Peterson, C. A., & Philpot, J. (2007). Women's roles on U.S. Fortune 500 boards: Director expertise and committee memberships. *Journal of Business Ethics*, *72*(2), 177-196. http://doi.org/10.1007/s10551-006-9164-8

Powell, G. N., & Greenhaus, J. H. (2010). Sex, gender, and the work-to-family interface: Exploring negative and positive interdependencies. *Academy of Management Journal*, *53*(3), 513-534. http://doi.org/10.5465/amj.2010.51468647

Reskin, B. (1993). Sex segregation in the workplace. *Annual Review of Sociology*, *19*(1), 241-270. http://doi.org/10.1146/annurev.so.19.080193.001325

Reskin, B. (2000). Getting it right: Sex and race inequality in work organizations. *Annual Review of Sociology*, *26*(1), 707-709. http://doi.org/10.1146/annurev. soc.26.1.707

Ridgeway, C. L. (1997). Interaction and the conservation of gender inequality: Considering employment. *American Sociological Review*, *62*(2), 218-235. http://doi.org/10.2307/2657301

Ridgeway, C. L., & Correll, S. J. (2004). Unpacking the gender system: A theoretical perspective on gender beliefs and social relations. *Gender & Society*, *18*(4), 510-531. http://doi.org/10.1177/0891243204265269

Rivera, L. A., & Tilcsik, A. (2016). Class advantage, commitment penalty : The gendered effect of social class signals in an elite labor market. *American Sociological Review*, *81*(6), 1097-1131. http://doi.org/10.1177/0003122416668154

Ryan, M. K., Haslam, S. A., Hersby, M. D., & Bongiorno, R. (2011). Think crisis-think female: The glass cliff and contextual variation in the think manager-think male stereotype. *Journal of Applied Psychology*, *96*(3), 470-484. http://doi.org/ 10.1037/ a0022133

Schein, V. E. (1973). The relationship between sex role stereotypes and requisite management characteristics. *Journal of Applied Psychology*, *57*(2), 95-100. http://doi.org/10.1037/h0037128

Schein, V. E. (2001). A Global look at psychological barriers to women's progress in management. *Journal of Social Issues*, *57*(4), 675-688. http://doi.org/10.1111/ 0022-4537.00235

Schubert, R., Brown, M., Gysler, M., & Brachinger, H. W. (1999). Financial decision-making: Are women really more risk averse? *American Economic Review*, *89*(2), 381-385. http://doi.org/10.1257/aer.89.2.381

Singh, V., Terjesen, S., & Vinnicombe, S. (2008). Newly appointed directors in the boardroom:. How do women and men differ? *European Management Journal*, *26*(1), 48-58. http://doi.org/10.1016/j.emj.2007.10.002

Skaggs, S., Stainback, K., & Duncan, P. (2012). Shaking things up or business as usual? The influence of female corporate executives and board of directors on women's managerial representation. *Social Science Research*, *41*(4), 936-948. http://doi.org/10.1016/j.ssresearch.2012.01.006

Smith, R. A. (2002). Race, gender, and authority in the workplace: Theory and research. *Annual Review of Sociology*, *28*(1), 509-542. http://doi.org/10.1146/annurev.soc.28.110601.141048

Stainback, K. (2008). Social contacts and race/ethnic job matching. *Social Forces*, *87*(2), 857-886.

Stainback, K., Kleiner, S., & Skaggs, S. (2016). Women in power: Undoing or Redoing the Gendered Organization? *Gender & Society*, *30*(1), 109-135.

Stainback, K., & Kwon, S. (2012). female leaders, organizational power, and sex segregation. *Annals of the American Academy of Political and Social Science*, *639*, 217-235. http://doi.org/10.1177/0002716211421868

Stainback, K., Tomaskovic-Devey, D., & Skaggs, S. (2010). Organizational approaches to inequality: Inertia, relative power, and environments. *Annual Review of Sociology*, *36*(1), 225-247. http://doi.org/10.1146/annurev-soc-070308-120014

Stone, P. (2008). *Opting out?: Why women really quit careers and head home*. Los Angeles, CA: University of California Press.

Straub, C. (2007). A comparative analysis of the use of work-life balance practices in Europe. *Women in Management Review*, *22*(4), 289-304. http://doi.org/10.1108/09649420710754246

Terjesen, S., Aguilera, R. V., & Lorenz, R. (2015). Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors. *Journal of Business Ethics*, *128*(2), 233-251. http://doi.org/10.1007/s10551-014-2083-1

Terjesen, S., Sealy, R., & Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance*, *17*(3), 320-337. http://doi.org/10.1111/j.1467-8683.2009.00742.x

Thomas, R., & Brown-Philpot, S. (2018, February 4). Don't avoid women, mentor them. *The Wall Street Journal*.

Tomaskovic-Devey, D., & Stainback, K. (2007). Discrimination and desegregation: Equal opportunity progress in U.S. private sector workplaces since the Civil Rights Act. *The ANNALS of the American Academy of Political and Social Science*, *609*(January 2007), 49-84. http://doi.org/10.1177/0002716206294809

Torchia, M., Calabro, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of Business Ethics*, *102*(2), 299-317. http://doi.org/10.1007/s10551-011-0815-z

Tsui, A. S., & O'Reilly, C. A. (1989). Beyond simple demographic effects: The importance of relational demography in superior-subordinate dyads. *Academy of Management Journal*, *32*(2), 402-423. http://doi.org/10.2307/256368

Turco, C. J. (2010). Cultural foundations of tokenism: Evidence from the leveraged buyout industry. *American Sociological Review*, *75*(6), 894-913.

Ward, P. A., Orazem, P. F., & Schmidt, S. W. (1992). Women in elite pools and elite positions. *Social Science Quarterly*, *73*(1), 31-45. http://doi.org/10.2307/42862987

Weber, M. (1978). *Economy and society: An Outline of Interpretive Sociology* (Vol. 1). Los Angeles, CA: University of California Press.

Westphal, J. D., & Zajac, E. J. (1995). Who shall govern? CEO/board power, demographic similarity, and new director selection. *Administrative Science Quarterly*, *40*(1), 60-83. http://doi.org/10.2307/2393700

Zarya, V. (2018, February). Since #MeToo, the number of men who are uncomfortable mentoring women has tripled. *Fortune*. Retreived from http://fortune.com/2018/02/06/lean-in-sheryl-sandberg/

Zelechowski, D. D., & Bilimoria, D. (2004). Characteristics of women and men corporate inside directors in the US. *Corporate Governance*, *12*(3), 337-342. http://doi.org/10.1111/j.1467-8683.2004.00374.x

# CHAPTER 2

# CREDENTIALED FOR SUCCESS

Education and training are the most important investment an individual can make in their human capital (Becker, 1994). Indeed, social mobility within industrialized societies is often predicated upon educational attainment (Blau & Duncan, 1967). Extant research concludes that the academic and occupational attainment necessary for social mobility are largely determined through family origin and educational experiences (Bielby, 1981; Sewell & Hauser, 1972). Previous sociological work has focused on the role of socioeconomic status and family dynamics in educational achievement and human capital attainment (Tramonte & Willms, 2010; Weininger & Lareau, 2003). The explanations of educational outcomes within the sociological literature often discuss forms of capital—economic, social, and cultural—as resources to draw upon that are at least partly achieved through the educational system (Bourdieu & Passeron, 1990; De Graaf, De Graaf, & Kraaykamp, 2000; Farkas, 2003). Early work by classic theorists within the discipline, such as Comte, Durkheim and Cooley, examined education as a means of inheritance of social and cultural value (Sewell & Hauser, 1972). The school as a mechanism of social stratification was first presented by Sorokin in 1927 and has been the focus of much of the sociological research concerning education since publication. Parsons (1959) expanded on Sorokin's view to include the school as a source of socialization, specifically in terms of valuing achievement. Yet, even within this wide body of literature, few studies examine gender differences related to educational outcomes and occupational attainment.

The predominant studies within the literature which specifically examine gender in terms of education and occupational achievement are either based upon a dated picture of the labor market (Sewell, Hauser, & Wolf, 1980; Useem & Karabel, 1986) or focus specifically on social networks (Benschop, 2009; Ibarra, 1993, 1997; Kane, 2004; Mcpherson, Smith-lovin, &, 2001). The current study contributes to the body of literature by examining gender, educational achievement and occupational attainment among the corporate elite. I specifically examine not only the gender differences in educational achievement among corporate executives, but also the social and cultural influences of higher education upon their occupational attainment. Women are graduating at much higher rates from both undergraduate and graduate programs than men. The U.S. Department of Education estimates for 2013 (the last year of my study period) show that women were awarded 56.7% of all bachelor's degrees and 59.9% of all Master's degrees for the year (Kirst, 2013). Previous studies also suggest that there are differences in how women utilize social and cultural capital as compared to men (Kane, 2004; Robinson & Garnier, 1985). However, research to date has not tied this difference to education and career. This study seeks to uncover the differences in the pathways to executive leadership positions for women versus men as they relate to higher education. Do women executives receive similar advantages as men executives based upon attainment of baccalaureate and advanced degrees? Additionally, does the reputation of the institution attended by corporate executives provide occupational benefits that differ according to gender?

In order to answer these pressing questions, I will begin with a brief overview of

Bourdieu's theories of capital and habitus and how they are reified through higher education. Next, I will contrast Bourdieu's theories of social and culture capital with Weber's credentialing theory. Here I will elaborate on the notion that academic achievement is not a merit- based certification of skill and ability, but is instead a signal of social and cultural capital serving as an occupational entry barrier (Brown, 2001). I will then extend these theories to gender to develop hypotheses that will be statistically analyzed using a sample of all corporate executives from S&P 500 indexed firms over the 5-year period 2009-2013.

## Literature Review

### Forms of Capital

Bourdieu theorizes the concept of capital as extending beyond the economic realm to encompass what he terms cultural and social capital. Cultural capital refers to the collection of skills, behaviors and knowledge that a person can access in order to demonstrate cultural competence and social class (Bourdieu, 1984). Lamont and Lareau (1988) distill Bourdieu's writings to a definition of cultural capital as "institutionalized, i.e., widely shared, high status cultural signals (attitudes, preferences, formal knowledge, behaviors, goals, and credentials) used for social and cultural exclusion" (p. 156). Whether cultural capital is a general resource or of benefit to only the elite is a source of conflict within the literature (Kingston, 2001). However, scholars tend to agree that cultural capital provides benefits for those who have it and can be used as a basis for exclusion for those who do not (Bourdieu, 1984; Bourdieu & Passeron, 1990; DiMaggio,

1982; Lamont & Lareau, 1988; Tramonte & Willms, 2010).

Cultural capital manifests in three states; the embodied state, the objectified state and the institutionalized states. Bourdieu describes the embodied state of cultural capital as acquired over time through education and socialization. Examples of embodied cultural capital include language, manners and even gendered behavior such as dress. We display and perform our embodied cultural capital as we interact within society. Bourdieu's second sate, the objectified state of cultural capital, refers to the material objects we own and use, such as vehicles and homes. These objects serve as a signal to others of the level of cultural capital one possesses. However, the embedded and objectified states are not mutually exclusive, as objectified state of cultural capital is reliant on the embodied state of cultural capital as "the means of consuming" the object (Bourdieu, 1986, p. 50). Finally, the institutionalized state of cultural capital is concerned with the institutional recognition of the cultural capital possessed (Bourdieu, 1986). It refers to how cultural capital is measured, ranked or certified through institutional processes. Examples of cultural capital within the institutionalized state include academic degrees, job titles and credentials.

The importance of the theory of cultural capital lies in its ability to explain how social stratification is maintained (Lamont & Lareau, 1988). It demonstrates how the social and cultural resources of the private sphere can shape success within the public realm. Bourdieu's theoretical framework positions cultural capital as an implicit source of power, a mechanism for social class selection and as an academic standard (Lamont & Lareau, 1988).

The concept of social capital is widely used and increasing popular within social science. Broadly, social capital has been described as goodwill formed through social relations that can be mobilized for a purpose (Adler & Kwon, 2002). Social capital for Bourdieu is situated within relationships and is comprised of the network connections or group memberships that one has at their disposal (Bourdieu, 1986). Social capital is measured by the size, or number, of network connections that can be effectively mobilized and the volume of total capital (economic, cultural and social) that is held by each of the connections. Here individual capital becomes aggregated, mobilized and exchanged.

While Bourdieu conceptualized social capital as external resources, other theorists view social capital as an in group collective process that forms group cohesion (Brehm & Rahn, 1997; Coleman, 1988; Thomas, 1996). However, Bourdieu is not alone in his conceptualization of social capital as being fueled by external forces (see Baker, 1990; Boxman, De Graaf, & Flap, 1991; Burt, 2009). Indeed, the entire field of social network analysis is predicated on the notion of the strength of external ties (Borgatti & Foster, 2003; Burt, 2000; Granovetter, 1973; Knoke, 1999). This "bridging" view of social capital focuses on social capital as a resource that externally ties an individual to others. The alternate, "bonding," view of social capital views social capital as internal linkages among individuals within a group (see Gittell & Vidal, 1998; Putnam, 2000). Regardless of the approach to social capital, the research generally agrees on the multitude of benefits from social capital. Access to broader sources of information, increased power and social solidarity are among the benefits gained from high social capital (Adler &

Kwon, 2002; Boxman et al., 1991; Burt, 1998; Coleman, 1988; Granovetter, 1973).

The forms of capital, as discussed, exist within a system of exchange and all three forms of capital; economic, cultural and social, can be exchanged for the another (Bourdieu, 1984, 1986). Economic capital can be invested to access higher education and prestigious schools. The rewards of the economic investment include cultural and social capital in the form of academic credentials and the networks associated with higher education. The cultural and social capital rewards achieved from attending a college or university can then be exchanged back into economic capital through employment. Again, the levels of capital vary among individuals with elite colleges and universities providing the highest amounts of capital (Cookson & Persell, 2008; Persell & Cookson, 1985; Rivera, 2016).

**Habitus and Cultural Capital**

Pierre Bourdieu argues that relationships of social inequality are reproduced through the education system. He believes that the educational system is a product that is produced and reproduced through the dominant culture that one must be familiar with in order to fully realize educational success (Bourdieu, 1984). A key concept within Bourdieu's work is "habitus," which refers to the dispositions, habits and skills that are ingrained within individuals based upon our life experience (Bourdieu & Nice, 1977). Habitus goes beyond an individual process and is a social process whereby cultural capital becomes embodied within the individual (Reay, 2004). Habitus is expressed through ways "of standing, speaking, walking and thereby of feeling and thinking (Bourdieu, 1990, p. 70)." A person's tastes and preferences are also developed through

habitus, which can change over time and context (Bourdieu, 1984). Bourdieu views the concept of habitus as the bridge between structure and agency, being equally shaped by both (Bourdieu, 1984). The familial inheritance of social and cultural capital serves as the starting point for Bourdieu's concept of habitus (Bourdieu, 1986). The educational system receives students with varying levels of inherited cultural capital where the class distinctions associated with levels of cultural capital are reproduced and legitimated (Weininger & Lareau, 2003). In this way, Bourdieu views the educational system as a means of acquiring tastes, preferences and connections beyond one's initial social class background (Bourdieu, 1984). Therefore, the educational system is not only a result of inherited habitus, but also a source of habitus.

**Capital and Credentials**

Similar to Bourdieu's institutionalized form of cultural capital, credentialing theory views academic degrees as culturally based, stratifying barriers to entry into organizations and occupations. Max Weber (1978) is credited with the earliest work related to credentialing in his observations of education within China. Weber later expanded upon this theory in his 1922 work, *Economy and Society*. Weber argues that academic credentials are unrelated to the demands of the workplace, but instead are a cultural-political construct related to competence and loyalty (Weber, 1946). Weber's ideas on social exchange and credentials influenced Bourdieu's work, which is evident in some of the similarities between their theories. Academic credentials, to Weber, act as a form of symbolic social credit (Weber, 1978). The exchange of this social credit is particularly salient within the uncertain conditions related to the hiring and promotion

processes of organizations. In these situations, an academic degree signals trustworthiness and competence (Brown, 2001; Salancik & Pfeffer, 1978; Shapiro, 1987).

Neo-Weberian theorist Randall Collins (1979) contributed a seminal work to the field of credentialing theory by arguing that group competition is the main cause of labor market stratification based upon credentials. This status competition model views academic credentials as a means of capital accumulation and boundary keeping among status groups, as opposed to a meritocratic valuation of technical skills. This assessment aligns with findings that both college recruiters at elite schools and occupational recruiters at elite firms are more preoccupied with the cultural "fit" of candidates than with skill or potential productivity (Brinton & Kariya, 1998; Kingston & Clawson, 1990; Rivera, 2016).

**Gender and Credentials**

Research suggests that women must prove themselves in the work place beyond that required of their male peers (Davies-Netzley, 1998; Gorman, 2006; Gorman & Kmec, 2007). Findings indicate that due to cognitive biases based upon gender roles and social characteristics, women are treated as less knowledgeable and less competent than men (Gorman, 2005; Kanter, 1977). Women in positions of leadership are particularly susceptible to biased competence perceptions (Carli & Eagly, 1999; Eagly, Makhijani, & Klonsky, 1992; Ridgeway, 2001). We see women on par with, and in some cases surpassing, men for college graduation rates (Goldin, Katz, & Kuziemko, 2006). However, women still struggle with entry into corporate professions due to being held to higher standards during the hiring, evaluation and promotion processes (Biernat &

Fuegen, 2001).

Examinations of gender, education and occupational achievement suggest that sex differences exist not only in the returns that men and women obtain for their educational attainment, but in the timing of those returns. Women's reliance on credentials and formal qualifications extend later into their careers than men (Sewell et al., 1980). While an argument can be made that this is due to family demands as women exit and re-enter the workforce, an argument just as powerful can be made that in-group bias and boundary keeping is at the heart of the issue. Men can rely on their automatic membership in the "old-boys club" to pull them along their trajectory to the top (Charles & Davies, 2000; Gorman & Kmec, 2009). Since women are not privy to the informal social connections of many of their male peers (Davies-Netzley, 1998; Kalev, Dobbin, & Kelly, 2006), they must find an alternative source of legitimacy in order to break into top management positions. A potential source of solidarity between men and women lies within cultural capital, both within the embedded and institutionalized forms. The possession of a valued academic credential can signal similarity and in-group status. Peer similarity has been found to break down barriers and advantage women's advancement (Davies-Netzley, 1998; Ibarra, 1992).

Women's social capital in terms of network connections seems to be their weakest link when trying to ascend the corporate ladder (Lutter, 2015; Tsui & O'Reilly, 1989). Research demonstrates that the social networks of men and women tend to be homophilous with men benefitting from stronger professional networks comprised of other men (Burt, 1998; Ibarra, 1997; Mcpherson et al., 2001). In order to break into

men's professional circles, women must exchange their cultural capital for insider status. The exchangeability of economic, social and cultural capital means that having high capital in one form can buy entry into other forms. The academic credentials that women bring to the organization provide a potential source of the institutional form of cultural capital necessary for women to gain access. Further, elite academic credentials from top-rated schools and programs signal a higher level of cultural capital. Drawing from Weber's credentialing theory, I would expect an academic credential, in the form of a baccalaureate, to buy the initial access across the organizational social boundary. However, a higher level of cultural capital in the form of advanced degrees and elite academic credentials would be necessary to achieve insider status. Women must compensate for their lower status through stronger educational credentials. As previously discussed, cultural capital comprises a similarity of tastes, ideas and desires within the embedded form (Bourdieu, 1984, 1986). These similarities develop into habitus through shared experience and education, both of which come to bear within the collegiate and organizational settings. A shared habitus could lead to an opening of boundaries and enhanced legitimacy for women within the firm. Previous research suggests that corporate executives must have either strong social capital or strong credentials for entry and advancement within the firm (Useem & Karabel, 1986). I posit that women executives must have both strong credentials and strong social capital for entry and advancement within organizations, leading me to hypothesize the following.

> *H1: Women executives will have higher levels of educational attainment than executive men.*
>
> *H2: Women executives will graduate from higher ranked colleges and universities*

*than executive men.*

**Gender and Social/Cultural Attainment**

Erickson (1996) argues that Bourdieu's assessment of social structure, as it relates to social and cultural capital, neglects two important elements; personal networks and work relationships. Building on Bourdieu's theories, she suggests that the most widely useful cultural resource is cultural variety and that network variety is the key to building cultural variety. Work by Bourdieu (1984) in France and R. A. Peterson (1992) in the U.S. shows that there is no one form of cultural capital or means of cultural "distinction" based on social class. Instead those with a higher social class standing have access to a range of cultural experiences from which they can draw. Cultural variety refers to this range of cultural experiences and connections, which can be used in varying contexts for advantage. For example, members of a high social class understand both sets of class rules for either eating at a fine dining establishment or attending a rock concert because they have been exposed to both of those situations. Members from a lower social class may not have been afforded the opportunity to attend an opera or eat at an upscale restaurant and may not be comfortable in the setting or understand the unspoken rules and etiquette. In this case, social capital is tightly linked with cultural capital and variety in networks and experience. Social networks can provide a means of greater cultural variety with Erickson (p. 118) arguing that networks have a greater impact on culture than class does. In this sense, habitus can develop from cultural variety within social networks.

Extant literature analyzing the connection between networks and work relationships find that men and women have very different network forms (Burt, 1998;

Ibarra, 1992, 1997; Lutter, 2015). Women's social networks have been found to be more constrained with fewer ties to outside networks, or opportunities for brokerage between networks than men (Burt, 1998; Lutter, 2015). Network homophily, or associations with the members of the same gender, is also high among both men and women within an organizational setting (Ibarra, 1992; Lutter, 2015). Granovetter (1973) argues that having a higher number of weak ties builds a more influential network than having higher numbers of strong ties. Weak ties are defined as acquaintance type connections, whereas the strong ties denote close friendships. Acquaintance style connections can provide access to the groups of close friends for each acquaintance contact, therefore greatly expanding the level of social capital within the network (Granovetter, 1973, 1983, 1995). Granovetter's (1973) theory aligns with Erickson's (1996) assessment in that variety is the key to the highly valuable social capital. Unfortunately, corporate women lack the quantity of weak ties that corporate men do (Burt, 1998; Hodigere & Bilimoria, 2015; Lutter, 2015). Thus, Burt suggests that women must borrow social capital from men through their network connections in order to get ahead within the organization. Meaning, women in general do not have the cultural variety that men do within their networks from which to draw upon. Women who have ascended to the top of their field would have had to draw upon multiple sources of social and cultural capital in order to overcome gender role biases, network homophily and exclusion from men's networks. The social and cultural capital gained through educational networks could serve as a source of network strength for executive women. These women can draw upon the large college or university class and alumni connections as weak ties in order to create

occupational opportunities. A potential pathway for women to enhance their social capital is through the cultural capital they gain through education, specifically elite education. Thus, I offer the following hypothesis;

> *H3: The prevalence of within firm college or university network ties will be stronger for women executives than men executives.*

## Methods and Data

### Data

My dataset was compiled from multiple complimentary sources. The Compustat database, accessed through Wharton Research Data Services (WDRS), was queried to provide company information for the 500 companies that comprise the Standard & Poor's 500 Index (S&P 500) for the 5- year study period of 2009-2013. The S&P 500 is comprised of some of the largest U.S. companies and represents approximately 80% of the total market capitalization of the U.S. stock market (S&P Dow Jones Indices, 2018). The S&P 500 was introduced in 1957 as a tool to track the largest companies listed on the New York Stock Exchange (NYSE) and the NASDAQ. Firms such as GE and IBM have been consistently listed within the S&P 500 since its inception. However, firms are added and deleted from the index annually for a variety of reasons. For example, H.J. Heinz and Dean Foods were removed from the index in 2013. H.J. Heinz was removed due to the company going private and no longer being publicly listed. Dean Foods divided the company with a spin-off that decreased the overall market value of the company to where it no longer met the requirements for listing. General Motors and Kansas City Southern were added to replace these two losses (Krantz, 2013). Due to the changing nature of this

index and the longitudinal nature of these data, all companies listed within the 5-year period remained static within the study. Meaning, data were gathered for all 5-years regardless of the year of listing. For example, Alliance Data Services (ADS) was added to the S&P 500 in the last year of my study period, 2013. However, data were collected and included for ADS for the entire period of 2009-2013. Deletions made from the index during the study period also remained in the sample for the full period. This led an initial sample of 2,882 firm/year observations for 496 companies.

The Execucomp database, also accessed through WRDS, provided detailed information for each corporate executive of the S&P 500 listed companies. The Execucomp database collects data on up to nine named executives for each firm, although the majority of firms usually only report data on five executives (Wharton Research Data Services, 2018). Information collected from Execucomp included executive age, position and board affiliation. This initial executive sample included 13,638 executive/firm/year observations.

Biographical data for each executive was collected from multiple sources including; company websites, news sources (from Lexis Nexus) and SEC filings (from EDGAR). These data include information on executive gender, company tenure, company position, education levels and college or university attended, if applicable. College and university rankings were gathered from U.S. News and World Report, including overall school ranking, specific program rankings and if the institution was considered a liberal arts school. Both U.S. and international institutions are ranked by U.S. News and World Report. Additional industry information was collected from the

U.S. Bureau of Labor Statistics.

Listwise deletion was used for observations where data was missing. The variables of interest for this study, primarily gender and education, are not time variant. Many of the reported executives had tenures with their organizations for each year of the study period. Therefore, I compiled a cross-sectional database consisting of all executives within the data based on the first year they were reported as an S&P 500 executive, as determined by the unique executive/company identifier provided by the Execucomp database. The final cross-sectional sample consists of 3,936 observations.

## Variables and Measures

**Dependent variables.** A dummy variable indicating whether the executive has been awarded an undergraduate degree was recorded with (1) indicating a degree was received and (0) that no undergraduate graduate degree has been awarded. The same process was followed for graduate degree awards. Additional categorical and ordinal variables indicating the type of degree and the level of the advanced degree; Master of Science/Arts or equivalent., Master of Business Administration, Juris Doctorate or Doctorate, were also collected and analyzed to check the robustness of the analysis and proved consistent with the reported findings. Use of the single dummy variable for the graduate degree award proved to be the most parsimonious model.

**Educational reputation.** The dependent variable of interest for hypothesis two is the reputation of the institution from which the degree was awarded. This variable is recorded as an ordinal variable based upon the *U.S. News and World Report* annual college rankings. Prior research indicates that the *U.S. News and World Report* ranking

serves as a signal of institutional quality and prestige (Sauder & Lancaster, 2006). Additionally, students and administrators use the *U.S. News and World Report* ranking in order to make admissions decisions with prior studies demonstrating sensitivity to ranking tiers (Bowman & Bastedo, 2009). Organizations also refer to these rankings when deciding on which colleges or universities to focus recruiting efforts (Rivera, 2016). The rank of the degree awarding institution is included for each year of the study. Institutions are grouped according to their ranking, with the group rankings consisting of the Top 10, 11-25, 26-50, 51-100 and greater than 100. The results are reverse coded with the Top 10 institution categorized as 5, 11-25 as 4, and so on. Data were collected for both undergraduate and graduate programs.

**Educational interlinks.** Social capital has been described as "a capital of social connections, honorability and respectability that is often necessary in winning and keeping the confidence of high society, and with it a clientele" (Bourdieu, 1984, p. 122). In order to delve further into the debate over the power of women's networks, I will examine the educational connections, or interlinks, between executives within firms. The educational interlinks speak to the social capital the executive may have at their disposal. "Interlinks" are used extensively within board of director research where they are counted as the number of ties a board member has to members of other boards (Cook & Glass, 2015). Extending this operationalization from board of director research, I will measure educational interlinks as a dichotomous variable of the ties an executive has to other executives, based upon educational institution. If the executive has one or more academic ties to other executives within the firm the variable will be coded as 1, if no ties exist then

it is coded as 0. This measure will focus on classmates and alumni networks as a means of network power. Both undergraduate and graduate within firm academic network ties will be collected and recorded, as well as a combined total within firm academic network ties to account for both graduate and undergraduate interlinks.

**Independent variables.** Executive gender is the main predictor variable, which is operationalized through a binary dummy code for women (1) and men (0). The executive gender is reported through the Execucomp database.

***Firm performance.*** Previous research indicates the need to control for market-based measures of the firm (Waddock & Graves, 1997). Further, research into the "glass cliff" phenomenon demonstrates that firm performance can drive leadership decisions specific to gender (Ryan & Haslam, 2005). The methods of measuring firm performance fall into either accounting-based performance measures or market-based measures. I will use the accounting-based performance measure of return on equity (ROE) to operationalize firm performance. ROE is calculated as net income divided by equity and is reported in percentages from the Compustat database. Accounting performance measures are preferred when studying organizational change (Keats & Hitt, 1988) and have been used extensively in research examining gender and change within organizations (Adams & Ferreira, 2007; Carter, D'Souza, Simkins, & Simpson, 2010; Peterson & Philpot, 2007; Triana, Miller, & Trzebiatowski, 2014; Zajac, 1990).

***Firm size.*** Firm size is an important consideration when examining board and executive diversity. Larger firms have more resources at their disposal for recruitment and retainment purposes. In addition, the larger firms are more visible and more often in

the public spotlight, leading to increased public pressure and scrutiny. Firm size will be operationalized as the natural log of the number of employees, initially reported in thousands by the Compustat database. The natural log function will be used in order to normalize the distribution and to account for any larger organizations and employee heavy industries.

***Industry.*** The Standard Industrial Classification (SIC) code at the 4-digit level will be used to indicate the industry in which firms operate Due to the sheer number of industries represented within the SIC classification, industry will be dummy coded and categorized into 13 different industries as suggested by Waddock and Graves (1997).

***Industry percent women.*** Scholars suggest that women have to employ unique tactics in order to overcome the higher obstacles when working within a predominantly male industry (Agarwal, Qian, Reeb, & Sing, 2016). Industries, such as service industries, also employ women at much higher rates than men, which leads to more women in the pipeline for leadership opportunities. Therefore, the percent women within the industry is an important consideration in the analyses.

***Industry percent women in senior management.*** The proportion of senior roles held by women varies considerably by industry. Women leaders tend to be over-represented inservice industries, while men dominate the executive ranks of traditional industries (King, 2015). Therefore, I control for the percent women within senior management per industry.

***Age.*** The age of each executive is collected and recorded for each year of the study. Age data are queried from the ExecuComp database and from biographical

websites.

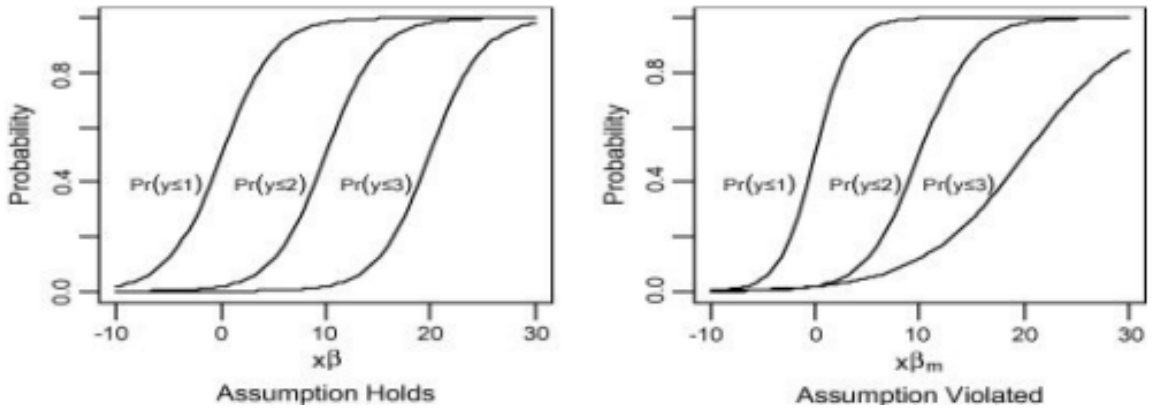
***Race.*** The race of each executive is also collected and recorded for each year of the study. Race data is queried from the ExecuComp database and from biographical websites. Race is dummy coded with white/Caucasian (1) as the reference category and all other responses (0).

**Analyses**

I use a maximum likelihood logistic regression model to estimate the odds of a women executive being awarded an undergraduate or graduate degree in order to test my first hypothesis. The logistic regression, or logit, model is used extensively in research that analyses dichotomous dependent variables (Allison, 1999; Long, 1997). Two models are estimated, the first examines the odds that women executives will be more likely to have an undergraduate degree than men executives. The second model exchanges the undergraduate degree variable with graduate degree within the model in order to examine the odds that women executives are more likely to have a graduate degree.

To estimate the odds that women executives will graduate from higher ranked colleges and universities for hypothesis two, I use an ordered logistic regression model. Two models are tested for this hypothesis, the first based upon undergraduate institution and the second based upon graduate institution. I regress the categorical school rank variable with gender as the main predictor variable using a generalized ordered logit model for undergraduate rankings and an ordered logistic model for graduate rankings. Controls are included for industry, firm size, firm performance, industry percent women, industry percent women in senior management, executive age and executive race. I

initially conducted both analyses using ordered logistics regression. Upon testing, the Brant test indicated that the undergraduate model violated the parallel regression assumption. An assumption underlying the ordered logistic regression is that parameters do not change for different categories and that the dependent variable's categories are parallel (or proportionate) to each other (Ari & Yildiz, 2014; Kleinbaum & Klein, 2010). Figure 2.1 demonstrates the conditions concerning the assumption.




Reprinted from Ari, E, & Yildiz, Z. (2014). Parallel lines assumption in ordinal logistic regression and analysis approaches. *International Interdisciplinary Journal of Scientific Research* 1(3): 8-23.

*Figure 2.1*. Conditions for ordered logistic regression.

The generalized ordered logistic model is a good model choice when the proportional odds assumption does not hold for ordered logistic regression. The generalized ordered logit model allows for some of the β coefficients to vary and others to remain static within a partial proportional odds model (Fullerton & Xu, 2012). Williams (2016b) suggests using his gologit2 program within Stata in order to generate a generalized ordinal logit model. This program, when run with the autofit option, leads to an iterative process where Stata fits a fully unconstrained model and then runs a series of

Wald tests to determine if the coefficients differ across equations. The model is then refit with constraints until the final model does not violate the parallel lines assumption, thus providing a more accurate partial proportional odds model (Williams, 2016a).

A maximum likelihood logistic regression is used again to estimate the odds that women executives are more likely to have within firm network ties for hypothesis three. Three analyses were conducted to test for within firm academic interlinks at the undergraduate, graduate and combined levels. I transformed the unstandardized beta coefficients to odds ratios in order to simplify interpretation of the results.

## Results

Three hypotheses were tested: first, whether women executives are more likely than men to have been awarded a college degree; second, whether women executives are more likely to graduate from higher ranked colleges and universities than men; and third, whether women executives are more likely to have in firm academic network ties than men. Correlations and descriptive statistics are presented in Table 2.1.

The first hypothesis predicts that women executives will be more likely to have undergraduate and graduate degrees than men executives. In the correlations table (refer to Table 2.1), women executives are significantly and positively associated with both undergraduate and graduate degree attainment. For this hypothesis, I conducted a logistic regression analysis. In the first model, I regressed the award of an undergraduate degree on the explanatory variable of gender. I controlled for industry, firm size, firm performance, the percent women within the industry, the percent women in senior

Table 2.1

*Descriptive Statistics and Correlations*

| Variables | Mean | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Undergraduate degree | 0.95 | 0.23 | 1 | | | | | | | | | | | | | |
| 2. Graduate degree | 0.64 | 0.48 | 0.30* | 1 | | | | | | | | | | | | |
| 3. Total academic interlinks | 0.18 | 0.38 | 0.11* | 0.15* | 1 | | | | | | | | | | | |
| 4. Undergrad interlinks | 0.08 | 0.28 | 0.07* | -0.04 | 0.65* | 1 | | | | | | | | | | |
| 5. Graduate interlinks | 0.11 | 0.31 | 0.08* | 0.25* | 0.76* | 0.08* | 1 | | | | | | | | | |
| 6. Graduate ranking | 2.07 | 2.05 | 0.24* | 0.76* | 0.24* | 0.00 | 0.33* | 1 | | | | | | | | |
| 7. Undergrad ranking | 2.17 | 1.43 | 0.05* | 0.19* | 0.13* | 0.08* | 0.10* | 0.30* | 1 | | | | | | | |
| 8. Firm size | 3.02 | 1.39 | -0.03 | 0.00 | -0.04* | -0.03 | -0.03 | 0.03 | -0.01 | 1 | | | | | | |
| 9. Firm performance | 27.96 | 231.01 | 0.01 | -0.02 | 0.01 | 0.02 | 0.00 | -0.03 | -0.01 | -0.01 | 1 | | | | | |
| 10. Industry % women | 0.34 | 0.17 | -0.02 | -0.01 | 0.00 | 0.00 | -0.01 | 0.04 | 0.05* | 0.12* | -0.01 | 1 | | | | |
| 11. Industry % women in senior mgmt. | 0.20 | 0.09 | -0.02 | 0.00 | 0.02 | 0.02 | 0.01 | 0.04* | 0.05* | 0.08* | -0.02 | 0.95* | 1 | | | |
| 12. Age | 51.93 | 6.42 | -0.02 | 0.05* | -0.02 | -0.02 | -0.01 | -0.01 | -0.03 | 0.07* | 0.01 | -0.06* | -0.07* | 1 | | |
| 13. Race | 0.93 | 0.26 | -0.02 | -0.05* | 0.01 | 0.01 | 0.00 | -0.05* | 0.02 | -0.03 | -0.03 | 0.02 | 0.01 | 0.04 | 1 | |
| 14. Gender | 0.10 | 0.29 | 0.03 | 0.03 | -0.02 | -0.02 | 0.00 | 0.04* | 0.00 | 0.04* | 0.07* | 0.04 | 0.03* | -0.07 | -0.03 | 1 |

* Significant at the $p < .05$ level or above.

management within the industry, executive age and executive race. In the second model, I regressed the award of a graduate degree on the main predictor variable of gender, again using the same control variables as the undergraduate model. I find support for the hypothesis within both models (refer to Tables 2.2 and 2.3). In the undergraduate analysis, findings suggest a significant relationship ($p < 0.05$) for women executives being more likely to have a baccalaureate than men. The results suggest that the odds of women executives having an undergraduate degree are nearly twice that of men executives, holding all other variables constant. The Hosmer and Lemeshow test was conducted to determine the goodness of fit, but not reported on the table. A good fit for this test returns a high *p*-value. The model returned an insignificant *p*-value of 0.69, which signifies that the model fits the data well (Lemeshow & Hosmer, 1982).

Table 2.2

*Logistic Regression of Undergraduate Degree Attainment by Executives*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Undergraduate degree | Logit Coeff | *se* | Odds ratio | P > \|z\| |
| Firm size | -0.01 | 0.06 | 0.97 | 0.81 |
| Firm performance | 0.00 | 0.00 | 1.00 | 0.87 |
| Industry % women | -1.75 | 2.35 | 0.17 | 0.46 |
| Industry % women in senior management | 4.13 | 4.06 | 62.28 | 0.31 |
| Age | -0.02 | 0.01 | 0.98 | 0.10 |
| Race | -0.33 | 0.33 | 0.71 | 0.31 |
| Gender | 0.62** | 0.31 | 1.85** | 0.04 |
| Constant | 3.61*** | 1.34 | 37.00*** | 0.01 |
| Observations | 3,835 | | 3,835 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

** $p < 0.05$.

*** $p < 0.01$.

Table 2.3

*Logistic Regression of Graduate Degree Attainment by Executives*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Graduate degree | Logit Coeff. | *se* | Odds ratio | P > \|z\| |
| Firm size | 0.04 | 0.03 | 1.04 | 0.20 |
| Firm performance | -0.00 | 0.00 | 1.00 | 0.13 |
| Industry % women | -2.47** | 1.16 | 0.08** | 0.03 |
| Industry % women in senior management | 4.86** | 1.98 | 129.20** | 0.01 |
| Age | 0.02*** | 0.01 | 1.02*** | 0.00 |
| Race | -0.39*** | 0.14 | 0.67*** | 0.01 |
| Gender | 0.28** | 0.12 | 1.33** | 0.02 |
| Constant | -0.28 | 0.73 | 0.75 | 0.70 |
| Observations | 3,835 | | 3,835 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

** $p < 0.05$.

*** $p < 0.01$.

I find further support that women executives outperform men executives in terms of educational attainment with graduate degree completion (refer to Table 2.3). The results again show a significant relationship ($p < 0.05$), suggesting that the odds of women executives having a graduate degree are 1.3 times higher than the odds of men, holding all other variables constant. The Hosmer and Lemeshow test for this model again demonstrated a good fit with a $p$ value of 0.42.

Hypothesis two predicts that women executives will graduate from higher ranked colleges and universities than men executives. Two models examining undergraduate and graduate rankings were constructed. The first model presents a generalized ordered logistics regression of the university or college that the executive attended for their undergraduate degree. Due to the violation of the proportional odds (parallel lines)

assumption necessary for an ordered logistic regression, a partial proportional odds model was constructed. The generalized ordered logit model relaxes the proportional odds assumption and permits the covariates to have differential effects across the *J* - 1ordered categories. This type of model has been used and discussed extensively within research (see Fullerton, 2009; Williams, 2016b).

Table 2.4 presents the odds ratios from the generalized ordered logit model. The table provides the *J*-1sets of odds ratios for each of the independent variables, where *J*

Table 2.4

*Generalized Ordered Logistic Regression of Executive Undergraduate University/ College Ranking Odds Ratios*

| | Undergraduate ranking | | | |
|---|---|---|---|---|
| Variables | $C_1$ | $C_2$ | $C_3$ | $C_4$ |
| Firm size | 0.99 | 0.99 | 0.99 | 0.99 |
| | (0.02)[a] | (0.02) | (0.02) | (0.02) |
| Firm performance | 1.00 | 1.00 | 1.00 | 1.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Industry % women | 0.92 | 3.34 | 1.60 | 3.75 |
| | (0.57) | (2.15) | (1.14) | (3.37) |
| Industry % women in senior management | 2.33 | 0.39 | 1.63 | 0.27 |
| | (2.61) | (0.46) | (2.08) | (0.42) |
| Age | 0.99*** | 0.99 | 0.99 | 1.00 |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Race | 1.74*** | 1.15 | 0.99 | 0.67** |
| | (0.23) | (0.16) | (0.15) | (0.12) |
| Gender | 1.15 | 0.97 | 0.88 | 0.61*** |
| | (0.13) | (0.11) | (0.12) | (0.12) |

[a] Robust standard errors in parentheses.
** $p < 0.05$.
*** $p < 0.01$.

denotes the undergraduate school ranking categories. The ordered category variables are coded so that a higher score denotes a higher undergraduate school ranking. The ranking categories are comprised of 1 = Raked 100+, 2 = Ranked 51-100, 3 = Ranked 26-50, 4 = Ranked 11-25 and 5 = Top 10. The first column labeled as "$C_1$" indicating cutpoint 1, provides the odds ratio of an executive attending a school ranked above the first cutpoint (i.e., within the top 100 ranked schools) versus attending a school ranked below the first cutpoint, or outside of the top 100. The second column labeled "$C_2$" provides the odds ratio of an executive's undergraduate institution being ranked above the second cutpoint, or within the top 50 schools versus being ranked below the second cutpoint, or outside of the top 50. The third column "$C_3$," gives the odds ratio of the executive's college or university being ranked above the third cutpoint, or within the top 25, versus outside of the top 25. The fourth column "$C_4$," refers to the fourth cutpoint and provides the odds ratio of an executive's college or university being ranked above this cutpoint, or within the top 10, versus outside of the top 10. The model maintains the ordinality of the data, but relaxes the assumption of proportionality. Each odds ratio is stand-alone and the outcome corresponds to a given ranking at either above or below the cutpoint. In examining the results in Table 2.4, we see the odds of being above each cutpoint decreases, as would be expected when examining more prestigious and exclusive schools. Unfortunately, the results indicate that men have higher odds of attending a ranked college or university. The only significant result related to the gender variable is within the fourth cutpoint column, which refers to the odds of attending a top 10 school. The odds of women executives attending a top 10 school are 1.4 times lower than men

executives. Therefore, the analysis of undergraduate program reputation does not support the hypothesis.

The second model examined the odds that a women executive will graduate from a higher ranked graduate program than men. The graduate program ranking was regressed with gender as the main predictor variable. The findings support my hypothesis by suggesting that women executives are significantly more likely ($p < 0.05$), to graduate from a higher ranked program than men. The odds that women executives are likely to graduate from a higher ranked program are 1.3 times that of men (refer to Table 2.5). This model finds support for hypothesis two, but when taken with the previous model

Table 2.5

*Ordered Logistic Regression of Executive Graduate School Ranking*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Graduate degree | Logit Coeff. | *se* | Odds ratio | P > \|z\| |
| Firm size | 0.05** | 0.02 | 1.05** | 0.05 |
| Firm performance | -0.00* | 0.00 | 1.00* | 0.06 |
| Industry % women | -1.66* | 0.99 | 0.19* | 0.09 |
| Industry % women in senior management | 3.48** | 1.67 | 32.42** | 0.04 |
| Age | 0.00 | 0.01 | 1.00 | 0.38 |
| Race | -0.28** | 0.11 | 0.76** | 0.01 |
| Gender | 0.23** | 0.10 | 1.26** | 0.02 |
| Constant cut1 | -0.78 | 0.67 | 0.46 | 0.25 |
| Constant cut2 | -0.061 | 0.67 | 0.94 | 0.93 |
| Constant cut3 | 0.24 | 0.67 | 1.27 | 0.72 |
| Constant cut4 | 0.52 | 0.67 | 1.68 | 0.44 |
| Constant cut5 | 0.98 | 0.67 | 2.65 | 0.15 |
| Observations | 3,835 | | 3,835 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

** $p < 0.05$.

*** $p < 0.01$.

examining the undergraduate situation, findings are somewhat mixed. Men executives are significantly more likely to attend higher ranked schools for their undergraduate education, but that changes with graduate school where women are significantly more likely to graduate from top programs.

Hypothesis 3 suggests that women executives will have more within firm academic network ties than their male peers. Three models using logistic regression analysis were examined to assess the hypothesis. The first model, as reported in Table 2.6, regressed the total presence of within firm academic interlinks for both

Table 2.6

*Logistic Regression of Total Academic Interlinks by Executives*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Graduate degree | Logit Coeff. | *se* | Odds ratio | P > \|z\| |
| Firm size | -0.07* | 0.04 | 0.93** | 0.03 |
| Firm performance | 0.00** | 0.00 | 1.00* | 0.07 |
| Industry % women | 0.38 | 1.50 | 1.39 | 0.83 |
| Industry % women in senior management | -0.98 | 2.53 | 0.50 | 0.78 |
| 1.School Rank 100+ | 0.34** | 0.16 | 1.24 | 0.15 |
| 2.School Rank 50-100 | 0.25 | 0.21 | 1.30 | 0.21 |
| 3. School Rank 26-50 | 0.82*** | 0.19 | 2.32*** | 0.00 |
| 4.School Rank 11-25 | 0.41** | 0.18 | 1.59*** | 0.01 |
| 5.Top 10 School | 1 .64*** | 0.12 | 5.36*** | 0.00 |
| International | -0.89*** | 0.20 | | |
| Age | -0.01 | 0.01 | 1.00 | 0.62 |
| Race | 0.05 | 0.18 | 1.27 | 0.18 |
| Gender | -0.28* | 0.16 | 0.80 | 0.16 |
| Constant | -1.76* | 0.96 | 0.13** | 0.03 |
| Observations | 3,721 | | 3,835 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

undergraduate and graduate networks using the explanatory variable of gender. Industry, firm size, firm performance, the percent women within industry and the percent women within senior management within the industry were controlled in all of the model. An additional variable of whether or not the institution attended was outside of the U.S. was included in all of the models for analysis. The variable was added as a precaution for international students not having the opportunity to make as robust connections to American students and companies as U.S. students. The results are inconclusive, the trend suggest ($p < 0.10$) that the odds of men executives having within firm academic network connections may be higher than women (refer to Table 6). Therefore, the results do not support the hypothesis. An interesting result from the model does suggest that academic interlinks are more prevalent within the networks of higher ranked schools.

The second model examined for hypothesis three uses a logit model to regress the within firm academic interlinks based upon institution attended for undergraduate education with gender as the predictor variable (refer to Table 2.7). The rank of the undergraduate school is used as a control variable in the analysis. The results do not support the hypothesis and dispute the hypothesis by suggesting that men executives have significantly higher odds ($p < 0.05$) of within firm interlinks based upon undergraduate networks. Women executives are 1.4 times less likely to have undergraduate connections within their firms. Again, we see significantly higher odds of network connections among the highest ranked schools, along with significantly negative odds for international students to have undergraduate network connections within their firms.

Table 2.7

*Logistic Regression of Undergraduate Institution Interlinks by Executives*

| Graduate degree | (1) Logit Coeff. | (2) *se* | (3) Odds ratio | (4) P > \|z\| |
|---|---|---|---|---|
| Firm size | -0.04 | 0.05 | 0.96 | 0.45 |
| Firm performance | 0.00* | 0.00 | 1.00* | 0.08 |
| Industry % women | -0.11 | 2.00 | 0.90 | 0.96 |
| Industry % women in senior management | 0.63 | 3.36 | 1.88 | 0.85 |
| 2.School Rank 50-100 | 0.86*** | 0.16 | 2.37*** | 0.00 |
| 3. School Rank 26-50 | 0.30 | 0.23 | 1.34 | 0.19 |
| 4.School Rank 11-25 | 0.96*** | 0.19 | 2.60*** | 0.00 |
| 5.Top 10 School | 0.86*** | 0.19 | 2.35*** | 0.00 |
| International | -1.41*** | 0.40 | 0.24*** | 0.00 |
| Age | -0.01 | 0.01 | 0.99 | 0.40 |
| Race | -0.21 | 0.25 | 0.81 | 0.40 |
| Gender | -0.46** | 0.23 | 0.63** | 0.04 |
| Constant | -2.37*** | 0.85 | 0.09*** | 0.01 |
| Observations | 3,631 | | 3,631 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

The final model presented in Table 2.8 examines the executive's networks based upon their graduate institution attended. The rank of the graduate program is used as a control variable in the analysis. The results of the logistic regression are inconclusive and, therefore, do not support the hypothesis. All three examinations of within firm academic network connections analyzing three levels interlinks; the total academic interlinks, undergraduate and graduate found no support for hypothesis three. Indeed, results suggest the opposite of the prediction with men executives demonstrating higher academic network connections within their firms. The Hosmer-Lemeshow goodness of fit test was conducted for all three models with each model returning a nonsignificant *p*-value.

Table 2.8

*Logistic Regression of Graduate Institution Interlinks by Executives*

| Graduate degree | (1) Logit Coeff. | (2) *se* | (3) Odds ratio | (4) P > \|z\| |
|---|---|---|---|---|
| Firm size | -0.07 | 0.05 | 0.94 | 0.17 |
| Firm performance | 0.00 | 0.00 | 1.00 | 0.33 |
| Industry % women | -0.52 | 1.93 | 0.60 | 0.79 |
| Industry % women in senior management | -1.00 | 3.25 | 0.37 | 0.76 |
| 2.School Rank 50-100 | -0.05 | 0.27 | 0.95 | 0.85 |
| 3. School Rank 26-50 | 0.35 | 0.25 | 1.41 | 0.17 |
| 4.School Rank 11-25 | 0.273 | 0.23 | 1.31 | 0.23 |
| 5.Top 10 School | 1.50*** | 0.17 | 4.47*** | 0.00 |
| International | -0.44* | 0.24 | 0.65* | 0.07 |
| Age | -0.01 | 0.01 | 1.00 | 0.57 |
| Race | 0.19 | 0.23 | 1.21 | 0.41 |
| Gender | -0.14 | 0.19 | 0.87 | 0.47 |
| Constant | -1.16 | 1.10 | 0.31 | 0.29 |
| Observations | 2,348 | | 2,348 | |

*Note*. Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

## Discussion and Conclusion

The results reveal first, that among senior corporate executives, women are more likely to possess stronger and higher status academic credentials. Reaffirming the existing data on women's increasing graduation rates, I find that the executive suite is not much different than the general population when it comes to who has academic credentials. It is surprising that the rate at which women executives outpace men in having a Bachelor's degree, with the odds being nearly two to one. It would also be easy to dismiss the higher likelihood of women executives earning a graduate degree than men, given the

aforementioned statistics. However, upon further examination of the sample data, I find that over 51% of the executives with a graduate degree have a Master of Business Administration (MBA). Out of the executive women, 39% of them have an MBA, versus 37% for executive men. This is quite interesting considering that women comprise only 36% of MBA graduates nationally, a figure that has remained relatively flat for the past five years (Graduate Management Admissions Council, 2016). Taken together the results reaffirm the notion that women executives have to work harder and bring more to the table in order to prove themselves beyond what is required of their male colleagues (Bielby, 2000; Charles & Davies, 2000; Fiske, 1998). The academic credentials possessed by the women executives within the study act as a source of both cultural and social capital that provides legitimacy and validates the women's claims on their positions.

Examination of the level, or rank, of post-secondary schools attended by the executives in the study provides mixed, yet interesting results. Men executives are more likely to attend higher ranked schools for their undergraduate degrees, while the odds are women executives are more likely to attend higher ranked graduate schools. The central tenant upon which the hypothesis is predicated is that a higher ranked school signals a higher level of cultural capital and acts as an enhanced credential. The quiet shift from more men to more women earning undergraduate degrees began in 1978 (Kirst, 2013). Given that the median age of the study sample is 51, many of the executives were either attending or graduating from college in the early '80s as this shift began taking shape. While women may have gained ground in graduation rates, it may have taken longer for

this shift to occur within the top institutions. For example, Yale University had a total student enrollment of 10,103 students in 1981, of those 4,273, or 42%, were women (Waters, 2001). Explanations for this gap could include a dearth of cultural and social capital on the part of aspiring women. Women had yet to prove that they could develop a taste for the highly competitive world of elite colleges and universities, and thus go against the heavily prescribed social norms of gender. Gorman (2005) discusses how gender-based stereotypes lead to role incumbent schemas where the gender of the position holder dictates gender as an asset for the role. Lacking a frame for legitimacy these schemas could take hold and further entrench gender homophily with the "old boys club" of top institutions being reluctant to open their doors to women students. As women begin to gain capital and credentials, they have tools to assist them in overcoming stereotypes and bias and to be welcomed into the elite schools. This can be evidenced by the higher odds of the same women receiving a graduate degree from a top ranked school.

The results from hypothesis three reaffirm that men executives continue to have stronger network ties than women, specifically when it comes to their undergraduate networks. Prior research suggests that women need men within their networks to strengthen them, while the network resources reached through ties to women are relatively poor (Burt, 1998; Lutter, 2015; Tsui & O'Reilly, 1989). This helps explain the finding that men executive's undergraduate network ties are stronger and goes hand in hand with the findings for hypothesis two that men executives are more likely to graduate from higher ranked schools with their Bachelor's degree. The results indicate that higher ranked schools tend to have higher levels of within firm corporate interlinks. Since men

have historically had higher access to top schools, it goes without saying that their networks would benefit from that access. While women have made great strides over the past few decades in terms of graduation rates from elite schools and programs, it may take more time before the network benefits catch up.

Overall, the results of the study suggest that executive women within the largest U.S. companies rely on cultural capital and credentials as part of the package to overcome preconceived notions of stereotypical male leadership and to grant them legitimacy within their positions. While the social capital of executive women has not caught up to that of men, the potential for forms of capital exchange offers a promising outlook for women executives in the future.

Moving forward this study has several limitations that offer potential paths for future research. Executive race was not examined as a predictor variable in this study, but the results from statistical testing suggest that there may be important racial effects related to forms of capital, education and occupational achievement that should be explored in further detail. Additionally, a more expansive dataset to include both earlier and more recent observations could help illuminate potential pathways for women executives and assist in clarifying mixed findings related to the value of prestige for academic credentials. Inclusion and analysis of cohort effects could be particularly illuminating. Finally, the same type of analysis of educational attainment versus outcomes could be extended to the board of directors in order to understand if more or less cultural capital and credential legitimacy is required for board positions and the related social network effects.

## References

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance*, *62*(1), 217-250. http://doi.org/10.1111/j.1540-6261.2007.01206.x

Adler, P. S., & Kwon, S.-W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, *27*(1), 17-40. http://doi.org/10.5465/amr.2002.5922314

Agarwal, S., Qian, W., Reeb, D. M., & Sing, T. F. (2016). Playing the boys game: Golf buddies and board diversity. *American Economic Review*, *106*(5), 272-276. http://doi.org/10.1257/aer.p20161033

Allison, P. D. (1999). Comparing logit and probit coefficients across groups. *Sociological Methods & Research*, *28*(2), 186-208. http://doi.org/10.1177/0049124199028002003

Ari, E., & Yildiz, Z. (2014). Parallel lines assumption in ordinal logistic regression and analysis approaches. *International Interdisciplinary Journal of Scientific Research*, *1*(3), 8-23.

Baker, W. E. (1990). Market networks and corporate behavior. *American Journal of Sociology*, *96*(3), 589-625. http://doi.org/10.1086/229573

Becker, G. S. (1994). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). Chicago, IL:University of Chicago Press.

Benschop, Y. (2009). The micro-politics of gendering in networking. *Gender, Work and Organization*, *16*(2), 217-237. http://doi.org/10.1111/j.1468-0432.2009.00438.x

Bielby, W. T. (1981). Models of status attainment. *Research in Social Stratification and Mobility*, *1*, 3-26.

Bielby, W. T. (2000). Minimizing workplace gender and racial bias. *Contemporary Sociology*, *29*(1), 120-129.

Biernat, M., & Fuegen, K. (2001). Shifting standards and the evaluation of competence: Complexity in gender-based judgment and decision making. *Journal of Social Issues*, *57*(4), 707-724. http://doi.org/10.1111/0022-4537.00237

Blau, P. M., & Duncan, O. D. (1967). *The American occupational structure*. New York, NY: Free Press.

Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, *29*(6), 991-1013. http://doi.org/10.1016/S0149-2063_03_00087-4

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard University press.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (p. 41-58). Westport,CT: Greenwood.

Bourdieu, P. (1990). *The logic of practice*. City, ST: Stanford, CA: Stanford University press.

Bourdieu, P., & Nice, R. (1977). *Outline of a theory of practice* (Vol. 16). Cambridge, UK: Cambridge University press.

Bourdieu, P., & Passeron, J.C. (1990). *Reproduction in education, society and culture* (Vol. 4). Thousand Oaks,CA: Sage.

Bowman, N. A., & Bastedo, M. N. (2009). Getting on the front page: Organizational reputation, status signals, and the impact of U.S. News and World Report on student decisions. *Research in Higher Education*, *50*(5), 415-436. http://doi.org/10.1007/s11162-009-9129-8

Boxman, E. A. W., De Graaf, P. M., & Flap, H. D. (1991). The impact of social and human capital on the income attainment of dutch managers. *Social Networks*, *13*(1), 51-73.

Brehm, J., & Rahn, W. (1997). Individual-level evidence for the causes and consequences of social capital. *American Journal of Political Science*, *41*(3), 999. http://doi.org/10.2307/2111684

Brinton, M. C., & Kariya, T. (1998). Japanese labor markets. In M. C. Brinton & V. Nee (Eds.), *The new institutionalism in sociology* (p. 181-207). New York,NY: Sage.

Brown, D. K. (2001). The social sources of educational credentialism: Status cultures, labor markets, and organizations. *Sociology of Education*, *74*(2001), 19-34. http://doi.org/10.2307/2673251

Burt, R. S. (1998). The gender of social capital. *Rationality and Society*, *10*(1), 5-46. http://doi.org/10.1177/104346398010001001

Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, *22*, 345-423. http://doi.org/10.1016/S0191-3085(00)22009-1

Burt, R. S. (2009). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University press.

Carli, L. L., & Eagly, A. H. (1999). Gender effects on social influence and emergent leadership. In *Handbook of Gender & Work* (pp. 203-222). Thousand Oaks, CA: Sage.

Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The gender and ethnic diversity of U.S. boards and board committees and firm financial performance. *Corporate Governance*, *18*(5), 396-414.

Charles, N., & Davies, C. A. (2000). Cultural stereotypes and the gendering of senior management. *Sociological Review*, *48*(4), 544-567.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*, S95-S120. http://doi.org/10.1086/228943

Collins, R. (1979). *The credential society: An historical sociology of education and stratification*. Cambridge, MA: Academic.

Cook, A., & Glass, C. (2015). Diversity begets diversity ? The effects of board composition on the appointment and success of women CEOs. *Social Science Research*, *53*, 137-147. http://doi.org/10.1016/j.ssresearch.2015.05.009

Cookson, P. W., Jr., & Persell, C. H. (2008). *Preparing for power: America's elite boarding schools*. New York, NYCity, ST: Basic.

Davies-Netzley, S. A. (1998). Women above the glass ceiling: Perceptions on corporate mobility and strategies for success. *Gender & Society*, *12*(3), 339-355.

De Graaf, N. D., De Graaf, P. M., & Kraaykamp, G. (2000). Parental cultural capital and educational attainment in the netherlands: A refinement of the cultural capital perspective. *Sociology of Education*, *73*(2), 92-111. http://doi.org/10.2307/2673239

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of U.S. high school students. *American Sociological Review*, *47*(2), 189-201. http://doi.org/10.2307/2094962

Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, *111*(1), 3-22.

Erickson B. H. (1996). Class, culture and connections. *American Journal of Sociology, 102*(1), 217-251.

Farkas, G. (2003). Cognitive skills and noncognitive traits and behaviors in stratification processes. *Annual Review of Sociology*, *29*(1), 541-562. http://doi.org/10.1146/annurev.soc.29.010202.100023

Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook for social psychology* (pp. 357-411). New York, NY: McGraw-Hill.

Fullerton, A. S. (2009). A conceptual framework for ordered logistic regression models. *Sociological Methods & Research*, *38*(2), 306-347.

Fullerton, A. S., & Xu, J. (2012). The proportional odds with partial proportionality constraints model for ordinal response variables. *Social Science Research*, *41*(1), 182-198. http://doi.org/10.1016/j.ssresearch.2011.09.003

Gittell, R., & Vidal, A. (1998). *Community organizing: Building social capital as a development strategy*. Thousand Oaks, CA: Sage.

Goldin, C., Katz, L. F., & Kuziemko, I. (2006). The homecoming of American college women: The reversal of the college gender gap. *The Journal of Economic Perspectives*, *20*(4), 133-156.

Gorman, E. H. (2005). Gender stereotypes, same-gender preferences, and organizational variation in the hiring of women: Evidence from law firms. *American Sociological Review*, *70*(4), 702-728.

Gorman, E. H. (2006). Work uncertainty and the promotion of professional women: The case of law firm partnership. *Social Forces*, *85*(2), 865-890.

Gorman, E. H., & Kmec, J. A. (2007). We (have to) try harder. *Gender & Society*, *21*(6), 828-856. http://doi.org/10.1177/0891243207309900

Gorman, E. H., & Kmec, J. A. (2009). Hierarchical rank and women's organizational mobility: Glass ceilings in corporate law firms. *American Journal of Sociology*, *114*(5), 1428-1474. http://doi.org/10.1086/595950

Graduate Management Admissions Council. (2016). *Global GME Candidate Segementation Study*. Retreived from https://www.gmac.com/market-intelligence-and-research/market-research/global-gme-candidate-segmentation.

Granovetter, M. (1973). The strength of weak ties. *The American Journal of Sociology, 78,*(6), 1360-1380. http://doi.org/10.1086/225469

Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory*, *1*(1983), 201.-233 http://doi.org/10.2307/202051

Granovetter, M. (1995). *Getting a job: A study of contacts and careers* (2nd ed.). Chicago, IL: University of Chicago Press.

Hodigere, R., & Bilimoria, D. (2015). Human capital and professional network effects on women's odds of corporate board directorships. *Gender in Management: An International Journal*, *30*(7), 523-550. http://doi.org/10.1108/GM-07-2015-0063

Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*(3), 422-447. http://doi.org/10.2307/2393451

Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, *18*(1), 56-87.

Ibarra, H. (1997). Paving an alternative route: Gender differences in managerial networks. *Social Psychology Quarterly*, *60*(1), 91-102. http://doi.org/10.2307/2787014

Kalev, A., Dobbin, F., & Kelly, E. (2006). Best practices or best guesses? Assessing the efficacy of corporate affirmative action and diversity policies. *American Sociological Review*, *71*(4), 589-617. http://doi.org/10.1177/000312240607100404

Kane, D. (2004). A network approach to the puzzle of women's cultural participation. *Poetics*, *32*(2), 105-127. http://doi.org/10.1016/j.poetic.2004.02.003

Kanter, R. M. (1977). *Men and women of the corporation*. New York, NY: Basic.

Keats, B. W., & Hitt, M. A. (1988). A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance. *Academy of Management Journal*, *31*(3), 570-598. http://doi.org/10.2307/256460

King, D. (2015). *Women in business: The path to leadership*. Retreived from https://www.grantthornton.global/globalassets/1.-member-firms/global/insights/ibr-charts/ibr2015_wib_report_final.pdf

Kingston, P. W. (2001). The unfulfilled promise of cultural capital theory. *Sociology of Education*, *74*, 88-99. http://doi.org/10.2307/2673255

Kingston, P. W., & Clawson, J. G. (1990). Getting on the fast track: Recruitment at an elite business school. In P. W. Kingston & L. S. Lewis (Eds.), *The high status track: studies of elite schools and stratification* (pp. 231-246). Albany, NY: SUNY Press.

Kirst, M. (2013). *Women earn more degrees than men; gap keeps increasing*. Retrieved from https://collegepuzzle.stanford.edu/tag/women-exceed-men-in-college-graduation/

Kleinbaum, D. G., & Klein, M. (2010). *Logistic regression: A self-learning text*. New York, NY: Springer Science & Business Media.

Knoke, D. (1999). Organizational networks and corporate social capital. In T. T. A. J. Leenders & S. M. Gabbay (Eds.), *Corporate Social Capital and Liability* (pp. 17-42). Boston, MA: Springer.

Krantz, M. (2013). *How often is S&P 500 lineup changed?* Retrieved from https://www.usatoday.com/story/money/columnist/krantz/2013/06/13/sp-500-changes-index/2378221/

Lamont, M., & Lareau, A. (1988). Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, *6*(2), 153-168. http://doi.org/10.2307/202113

Lemeshow, S., & Hosmer, D. W. (1982). A review of goodness of fit statistics for use in the development of logistic regression models. *American Journal of Epidemiology*, *115*(1), 92-106. http://doi.org/10.1093/oxfordjournals.aje.a113284

Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage.

Lutter, M. (2015). Do women suffer from network closure? The moderating effect of social capital on gender inequality in a project-based labor market, 1929 to 2010. *American Sociological Review*, *80*(2), 329-358. http://doi.org/10.1177/0003122414568788

Mcpherson, M., Smith-lovin, L., & Cook, J. M. (2001). Birds of a feather : Homophily in social networks. *Annual Review of Sociology*, *27*, 415-444. http://doi.org/10.1146/annurev.soc.27.1.415

Parsons, T. (1959). The school class as a social system. *Harvard Educational Review, 29*, 297-318.

Persell, C. H., & Cookson, P. W. (1985). Chartering and bartering: Elite education and social reproduction. *Social Problems*, *33*(2), 114-129. http://doi.org/10.2307/800556

Peterson, C. A., & Philpot, J. (2007). Women's roles on U.S. Fortune 500 boards: Director expertise and committee memberships. *Journal of Business Ethics*, *72*(2), 177-196. http://doi.org/10.1007/s10551-006-9164-8

Peterson, R. A. (1992). Understanding audience segmentation: From elite and mass to omnivore and univore. *Poetics, 21*(4), 243-258. http://doi.org/10.1016/0304-422X(92)90008-Q

Putnam, R. D. (2000). Bowling alone: America's declining social capital. In *Culture and Politics* (pp. 223-234). New York, NY: Macmillan. http://doi.org/10.1007/978-1-349-62397-6_12

Reay, D. (2004). "It's all becoming a habitus": Beyond the habitual use of habitus in educational research. *British Journal of Sociology of Education*, *25*(4), 431-444. http://doi.org/10.1080/0142569042000236934

Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social Issues*, *57*(4), 637-655. http://doi.org/10.1111/0022-4537.00233

Rivera, L. A. (2016). *Pedigree: How elite students get elite jobs*. Princeton, NJ: Princeton University Press.

Robinson, R. V., & Garnier, M. A. (1985). Class reproduction among men and women in France: Reproduction theory on its home ground. *American Journal of Sociology*, *91*(2), 250-280. http://doi.org/10.1086/228277

Ryan, M. K., & Haslam, S. A. (2005). The glass cliff: Evidence that women are over-represented in precarious leadership positions. *British Journal of Management*, *16*(2), 81-90. http://doi.org/10.1111/j.1467-8551.2005.00433.x

S&P Dow Jones Indices. (2018). *S&P U.S. indices methodology*. Retrieved from https://us.spindices.com/indices/equity/sp-500

Salancik, G. R., & Pfeffer, J. (1978). Uncertainty, secrecy, and the choice of similar others. *Social Psychology*, *41*(3), 246. http://doi.org/10.2307/3033561

Sauder, M., & Lancaster, R. (2006). Do rankings matter? The effects of U.S. News & World Report rankings on the admissions process of law schools. *Law & Society Review*, *40*(1), 105-134. http://doi.org/10.1111/j.1540-5893.2006.00261.x

Sewell, W. H., & Hauser, R. M. (1972). Causes and consequences of higher education: Models of the status attainment process. *American Journal of Agricultural Economics*, *54*(5), 851-861. http://doi.org/10.2307/1239228

Sewell, W. H., Hauser, R. M., & Wolf, W. C. (1980). Sex, schooling, and occupational status. *American Journal of Sociology*, *86*(3), 551-583. http://doi.org/10.1086/227281

Shapiro, S. P. (1987). The social control of impersonal trust. *American Journal of Sociology*, *93*(3), 623-658. http://doi.org/10.1086/228791

Thomas, C. Y. (1996). Capital markets, financial markets and social capital (an essay on economic theory and economic ideas). *Social and Economic Studies*, *45*(2/3),1-23.

Tramonte, L., & Willms, J. D. (2010). Cultural capital and its effects on education outcomes. *Economics of Education Review*, *29*(2), 200-213. http://doi.org/10.1016/j.econedurev.2009.06.003

Triana, M. D. C., Miller, T. L., & Trzebiatowski, T. M. (2014). The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science*, *25*(2), 609-632. http://doi.org/10.1287/orsc.2013.0842

Tsui, A. S., & O'Reilly, C. A. (1989). Beyond simple demographic effects: The importance of relational demography in superior-subordinate dyads. *Academy of Management Journal*, *32*(2), 402-423. http://doi.org/10.2307/256368

Useem, M., & Karabel, J. (1986). Pathways to top corporate management. *American Sociological Review*, *51*(2), 184-200. http://doi.org/10.2307/2095515

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal*, *18*(4), 303-319.

Waters, B. (2001). *A Yale Book of Numbers, 1976-2000*. Retreived from https://oir.yale.edu/sites/default/files/pierson_update_1976-2000.pdf

Weber, M. (1946). *From Max Weber: Essays in sociology*. (H. H. Gerth & C. Wright Mills, Eds.). New York, NY: Oxford University Press.

Weber, M. (1978). *Economy and society: An outline of interpretive sociology* (Vol. 1). Berkeley, CA: University of California Press.

Weininger, E. B., & Lareau, A. (2003). Translating Bourdieu into the American context: The question of social class and family-school relations. *Poetics*, *31*(5-6), 375-402. http://doi.org/10.1016/S0304-422X(03)00034-2

Wharton Research Data Services. (2018). *Overview of executive compensation data.* Retrieved from https://wrds-www.wharton.upenn.edu/pages/support/data-overview/overview-executive-compensation/

Williams, R. (2016a). Generalized Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *The Stata Journal: Promoting communications on statistics and Stata, 6*(1), 58-82. http://doi.org/10.1177/1536867X0600600104

Williams, R. (2016b). Understanding and Interpreting generalized ordered logit models. *The Journal of Mathematical Sociology*, *40*(1), 7-20.

Zajac, E. J. (1990). CEO selection, succession, compensation and firm performance: A theoretical integration and empirical analysis. *Strategic Management Journal, 11*(3), 217-230. http://doi.org/10.1002/smj.4250110304

# CHAPTER 3

# A FREE SOLO IN HIGH HEELS: CORPORATE RISK TAKING AMONG WOMEN EXECUTIVES AND DIRECTORS

At the 2011 Forbes Most Powerful Women Conference, Ginni Rometty, CEO of IBM, offered advice and anecdotes for women seeking professional mobility. Rometty related the story of when early in her career she was offered a "big job." Her initial reaction was "I'm not ready. I need more time, I need more experience…" and "I need to go home and think about it."

After returning home and discussing the situation with her husband, his response to her was, "Do you think a man would have ever answered that question that way?" Rometty credits this key moment as the time she learned to value risk as part of her career (Barnett, 2011).

Women's perceived risk-aversion, and the perceived biological basis for it, has been a salient factor in the reproduction of organizational inequality (Johnson & Powell, 2005; Schubert, Brown, Gysler, & Brachinger, 1999). Perceived gendered difference in risk-taking is often used as a justification of women's underrepresentation in corporate leadership roles and the subsequent gender pay gap (Croson & Gneezy, 2009; Hoffman & Yoeli, 2013). Traditional studies of the gendered dimension of risk taking have found men to be more risk taking than women (Charness & Gneezy, 2012; Levin, Snyder, & Chapman, 1988; Sapienza, Zingales, & Maestripieri, 2009). However, recent studies examining risk taking specifically within a corporate context have disputed the claim that

women are more risk-averse (Goldin & Katz, 2016; Iqbal, Sewon, & Baek, 2006; Morgenroth, Fine, Ryan, & Genat, 2018; Roszkowski & Gramble, 2005). Indeed, echoing the sentiments of Ginni Rometty, scholars have argued that corporate women are in fact required to take risks all along their career paths (Glass & Cook, 2016).

In the sport of rock climbing, the free solo ascent is the riskiest of all types of climbing. Free of the supporting ropes, harnesses and other safety equipment, the climber works their way to the top of the rock with only the aid of their climbing shoes and a chalk bag. The corporate ascent of women executives is very similar to the free solo rock climb. Women scale the corporate ladder free of many of the traditional supports of gender role alignment (Bielby, 2000), and powerful networks (Burt, 2000), that advantage their male colleagues. Gender stereotypes and bias present challenges for corporate women and maintain social notions that women are inferior leaders within the corporate world (Koenig, Eagly, Mitchell, & Ristikari, 2011; Schein, 1973). Much like the free solo climber, senior executive women may overcome these challenges through perseverance and measured risk taking. This study seeks to examine if women corporate leaders are positioned to pursue greater risk than their male peers. Specifically, do firms led by women Chief Executive Officers (CEO), women Chief Financial Officers (CFO), women executives or women board directors undertake greater organizational risks than those led by men?

Research regarding gender and risk taking has a long and prolific history across multiple disciplines. The majority of studies start from the assumptions that gender differences in risk taking exist and that women are more risk adverse than men. A meta-

analysis on gender and risk reviewed over 150 academic papers to conclude that men are more likely to take risks than women (Byrnes, Miller, & Schafer, 1999). These overall findings were confirmed in a later study suggesting that women are more risk adverse in both individual and group contexts, and specifically in a group leadership context (Ertac & Gurdal, 2012). A rare change to this pattern occurred recently with researchers suggesting that confirmation bias exists in the measurement of risk taking, which biases results in favor of men (Morgenroth et al., 2018). However, nowhere within the literature does the notion of women being more risk taking than men drive the research. Leading to the stereotype of women's risk aversion continuing to dominate the discussion. A shift in the perspective related to gender differences in corporate risk taking is important for two reasons. First, there is evidence that women are only offered top positions that are risky to take (Cook & Glass, 2014a, 2014b; Glass & Cook, 2016; Ryan & Haslam, 2005; Ryan, Haslam, Hersby, & Bongiorno, 2011). Second, context matters. Women in top leadership roles face the unique challenge where they must walk a line between conforming to societal gender roles and societal expectations of leadership (Eagly & Karau, 2002; Koenig et al., 2011). Women who take risks within the corporate setting may end up crossing this line. The sanctions and penalties faced through gender role/job role incongruity sets up an impossible position where women are expected to take risks as leaders, yet are penalized for doing do as women due to gender stereotypes (Eagly & Karau, 2002). When women leaders are a statistical minority within the firm, they also face issues of legitimacy and may lack the corporate resources that men have to undertake corporate risk (Fiske, 2016; Glass & Cook, 2016; Kanter, 1977b, 1977a). The

corporate social setting magnifies gender differences in risk-taking behavior by reinforcing accountability to gender norms (Fiske, 2016; Wagner & Berger, 1997). Unfortunately, this tension between social roles and status essentializes social norms of gender within the organization and removes the importance of context (Ely, 1995), which could be a critical element in risk taking behavior. For example, Carr and Steele (2010) enacted a stereotype threat element in their experimental study where subjects were asked to record their gender either prior to or after the experiment. There was no difference in results when gender was recorded after the experiment, but they found very large differences when gender was recorded before the risk-taking experiment. In this case, the timing of gender being activated as a differentiator was the key to the stereotypical behavior. Ronay and Kim (2006) found evidence of group preference and social identity activation related to risk in their experiment when men were placed in groups of the same sex. Gender, complete with the requisite social norms and stereotypes, was activated as a group identity leading to higher risk-taking behavior. Taken together the research suggests that context matters with risk-taking behavior. Under controlled economic circumstances, research suggests that the gender stereotypic assumption of women's risk-aversion is simply not the case (Schubert et al., 1999). Unfortunately, the ramifications of the stereotype continue to persist for women within corporate leadership. Women leaders' risk aversion has been linked as a contributor to the glass ceiling effect (Johnson & Powell, 2005). This stereotype contributes to women leaders being less trusted than men to make risky decisions for the firm (Schubert et al., 1999).

The contribution of this study is in the analysis of gender and firm financial risk

across all levels of top organizational leadership. Previous studies have examined gender and risk taking among CEOs (Elsaid & Ursel, 2011; Faccio, Marchica, & Mura, 2016; Khan & Vieito, 2013) or boards of directors (Adams & Funk, 2012), but none have combined the board and the entire senior executive team. Using data from all S&P 500 listed firms over the period 2009-2013, I examine risk taking in terms of both accounting-based measures of corporate expenditures and market-based measures of stock price volatility in order to present a unique picture of gender and corporate risk. Answers to questions of gendered differences in corporate risk taking prove vital in our understanding of how women at the top of the corporate structure navigate risk as a source of social rewards and career mobility (Fiske, 2016; Kanter, 1977a; Ng, Eby, Sorensen, & Feldman, 2005). Gender role stereotypes assume women are more risk averse than men (Fiske, 2016); and research has historically reinforced this notion thereby supporting assumptions that women may be inferior leaders due to their inability to take risks (Fiske, 2016; Johnson & Powell, 2005; Schubert et al., 1999). However, more recent research challenges these views by suggesting that (1) risk taking is contextual (Morgenroth et al., 2018; Ronay & Kim, 2006; Schubert et al., 1999), and (2) women leaders may not be typical (Glass & Cook, 2016). Instead, women may benefit from taking risk or be required to take risks in order to overcome bias and achieve upward mobility in leadership.

I will begin by examining the current literature and what it tells us about women and risk taking. I will then briefly discuss the influence of social roles and status expectations before turning my attention to the glass cliff phenomenon and my research

hypotheses. The data and analyses will then be presented followed by a discussion of the results and implications for the research.

## Literature Review

### Gendered Risk Taking

Research within the fields of behavioral economics and social psychology suggest that gender affects both the predilections for risk and the overall risk tolerance of individuals. A main category of risk-taking theories, multifactor models, include models that seek to explain risk taking within specific contexts (Byrnes et al., 1999). These models examine the risks undertaken by specific people within specific situations. Multifactor models can consider a wide range of factors involved in risk taking, such as expectations and values (expectancy-value model), which posit that people take risks because they believe they will be successful, or value success within a certain context (Wigfield & Eccles, 1992). Early experiments examining gender differences in risk taking were situated within the expectancy-value models. These were based on gambling scenarios controlling probability versus return. Findings from these studies suggested that women preferred a guaranteed return on their investment, where they opted for higher probability wins while the men tended to prefer the high stakes gamble with options for higher returns (Coombs & Pruitt, 1960; Kass, 1964). Other studies conducted during this same period found no association between gender and risk taking (Arenson, 1978; Tajfel, Richardson, & Everstine, 1964).

More recent experimental research has continued to stress gender differences in

relation to risk taking. Multiple studies conducted by researchers using the same type of gambling or lottery scenarios as earlier studies find that women are more risk averse in the experimental setting, thus affirming the gender difference arguments (Borghans, Golsteyn, Heckman, & Meijers, 2009; Charness & Gneezy, 2012; Croson & Gneezy, 2009; Eckel & Grossman, 2008; Johnson & Powell, 2005). Further economic research into the financial decisions of women in the real world confirm that women are more risk averse and more conservative with their financial investments (Halko, Kaustia, & Alanko, 2012; Jianakoplos & Bernasek, 1998; Sunden & Surette, 1998).

A key criticism of much of the psychological and economic research is that it does not take social context into consideration. Specifically, early studies conducted on children did not account for the growing salience of gender roles as we age (Coet & McDermott, 1979). Rawn and Vohs (2011) suggest that risk-taking behavior can be influenced by social pressures such as gendered expectations and peer groups. Researchers have also found that risk taking behaviors do not extend to all context (Hanoch, Johnson, & Wilke, 2006; Weber, Blais, & Betz, 2002). For example, someone may be prone to high stakes gambling, but unlikely to bungee jump. Further, feelings of societal privilege and safety work to influence risk assessments with white men feeling the most secure to take risks (Flynn, Slovic, & Mertz, 1994). Indeed, risk taking behaviors have been linked as a prescriptive aspect central to masculinity (Connell & Messerschmidt, 2005).

The socialization model of risk taking suggests that cultural restrictions may decrease the propensity for risk taking (Arnett, 1992). Here culture would be considered

the laws and norms of society, which also extend into organizational culture. Cultural norms dictate that women are risk averse (Maxfield, Shapiro, Gupta, & Hass, 2010), while men are viewed as naturally more agentic and risk taking (Eagly, Makhijani, & Klonsky, 1992). These preconceived notions of gender roles often dictate not only how women are treated, but also how women behave. Prior research suggests that women managers are perceived as more risk-averse than male managers, which limits their promotion potential (Johnson & Powell, 2005). Further, women who do act in more assertive or competitive ways within the organization often suffer for their actions through an "agency penalty," often conferring lower salary, lack of promotion and lower status (Brescoll & Uhlmann, 2008; Eagly & Karau, 2002; Rudman & Glick, 2001). However, recent research suggests that women directors are more prone to take risks than their male peers and that having more women on the board of directors actually increases the portfolio risk of the firm (Adams & Funk, 2012; Berger, Kick, & Schaeck, 2014). Adams and Funk suggest that this may be due to the fact that women in high-ranking corporate positions need to behave according to more masculine gender norms in order to be successful. Both studies put forth the idea that once women are above the glass ceiling, risk-aversion disappears.

**The Glass Cliff**

Contrary to gender role proscriptions, some scholars support the idea that women are just as risk taking as men in financial contexts (Gupta, Maxfield, Shapiro, & Hass, 2009; Maxfield et al., 2010; Schubert et al., 1999). In order to reach the upper echelons of the corporate elite, women have to navigate the double bind of being a strong business

leader while confronting societal gender role expectations (Correll & Ridgeway, 2003; Elsesser & Lever, 2011; Ely & Padavic, 2007). Indeed, research indicates that women can be denied promotions for adhering to feminine stereotypes (Branson, 2006). This makes the women who occupy top corporate positions a distinct group. For example, they embrace the competitive environment often avoided by other women (Adams & Funk, 2012). Unfortunately, as women ascend the corporate ranks, they are faced with greater work uncertainty (Gorman & Kmec, 2009). Women corporate leaders have been found to occupy less promising positions within the organization than their male counterparts (Ryan & Haslam, 2005). In what has been deemed "the glass cliff," research has demonstrated that women are more likely to be promoted to leadership roles within the organization during times of crisis or poor performance (Bruckmüller & Branscombe, 2010; Ryan & Haslam, 2005, 2007; Ryan et al., 2016). Specifically, women tend to be promoted when organizations are struggling and the position is tenuous and a risk for the occupant (Cook & Glass, 2014a; Haslam, Ryan, Kulich, Trojanowski, & Atkins, 2009; Ryan & Haslam, 2005). Glass and Cook (2016) suggest that women have to take risky assignments all along their career trajectory in order gain opportunities for advancement. Indeed, women often do not have the option to pass on risky assignments and therefore, view them as career opportunities (Haslam & Ryan, 2008; Ryan & Haslam, 2007). If women fail in their risky assignments, the organization is unforgiving and seeks to replace these women with men, in what has been termed the "savior effect" (Cook & Glass, 2014a, 2014b). Further, it is likely that women leaders who fail will be blamed for all negative outcomes, even those out of their control (Meindl, 1993). Even though men

overall are viewed as more risk taking culturally, it is corporate women who must take the risky assignments in order to gain opportunities for advancement.

Women's lack of self- promotion has been well documented within the literature (Gardner, 1992; Kumra & Vinnicombe, 2008, 2010; L. C. Miller, Cooke, Tsang, & Morgan, 1992; Singh & Vinnicombe, 2001, 2004). The lack of self-promotion among women may serve to sweep their personal successes into the success of the larger organization and to keep their risk-taking behaviors hidden (Maxfield et al., 2010). Women executives prefer to let their work "speak for itself (Gardner, 1992)," which leads their actions to materialize in the actions of the firm. Therefore, I would expect the risk-taking behavior of women executives and directors would likely manifest in greater risk-taking for the overall firm. Further women within specific positions of power, such as the CEO or CFO may have greater leeway in regards to firm risk decisions (Hambrick & Finkelstein, 1987). As statistical gender minorities within their positions, Women CEOs and CFOs may face greater pressure to undertake risk in order to legitimize themselves as leaders and to push firm success (Fiske, 2016; Kanter, 1977b). Given the unique position and pressures faced by women corporate leaders, I hypothesize the following:

> *H1: Firms led by women CEOs will undertake greater financial risk than those led by men CEOs.*
>
> *H2: Firms with women CFOs will undertake greater financial risk than those with men CFOs.*
>
> *H3: Firms with a more gender diverse top management team will undertake greater financial risk than firms with less gender diversity among top management.*
>
> *H4: Firms with a more gender diverse board of directors will undertake greater financial risk than firms with a less gender diverse board.*

# Methods and Data

## Data

In order to answer the research question, I analyze a unique dataset consisting of all S&P 500 executives and directors covering the period 2009-2013. The dataset consists of a consolidation of multiple sources of archival data. The Compustat database, available through Wharton Research Data Services (WRDS), was used to provide a list of all companies on the S&P 500 index for each year of the study. In addition, Compustat also provides data on organizational size, performance, as well as industry information for each firm. Corporate executives for each firm are recorded from the Execucomp database, also available through WRDS. The executive data includes the variables of name, gender, age and tenure. Additional data on executive race was collected from both company and biographical websites.

Corporate directors for each firm are reported through the Execucomp database and the Institutional Shareholder Services database (ISS), both available through WRDS. The director data include similar information as the executive data such as name, gender, age, tenure, race and committee appointments. Daily stock return information was queried from the Center for Research in Security Prices (CRSP). The complete dataset presents a panel of the entire executive and director populations of all S&P 500 indexed companies for the study period, which includes 37,847 total observations. Listwise deletion was used for missing data, leading to 23,421 director/year observations and 13,006 executive/year observations. A per company director or per company executive identification number was assigned for each executive/company or director/company

combination. This resulted in 6,073 director/company observations and 4,102 executive/company observations.

## Variables

**Independent variables.** Risk taking as expenditures is calculated as the natural logarithm of the sum of expenditures in research and development (R&D), capital expenditures, and acquisitions. Prior research has validated this measure as capturing the three main components of risk-taking spending within organizations (Beckman & Haunschild, 2002; Chatterjee & Hambrick, 2011; Zhu & Chen, 2015). R&D, capital expenditures and acquisitions data were acquired from CompStat and coded accordingly.

***Risk-taking as volatility*.** Prior research argues that risk taking within firms can be captured by the stock price volatility when analyzing historical data (Alford & Boatsman, 1995; Baixauli-Soler, Belda-Ruiz, & Sanchez-Marin, 2015). Volatility involves the up or down change in the price of the security. High fluctuations leading to an increase in the stock price indicate a volatile and risky investment, which while having the potential for increased returns, may drive investors from the organization (French, Schwert, & Stambaugh, 1987). Research suggest that corporate executives with company stock-options may also undertake actions to increase firm risks in order to increase the volatility of the stock and drive the price of the stock higher for personal benefit (Rajgopal & Shevlin, 2002). Having been validated as a measure of firm risk taking with prior studies (Baixauli-Soler et al., 2015; Vieito & Khan, 2012), Risk-taking as volatility is calculated as the standard deviation of daily stock returns over each annual period. The annual stock return information was queried from the Center for Research in Security Prices (CRSP).

The two different measures of firm risk-taking provide different pictures of corporate risk and serve to measure the same construct in a different manner.

**Dependent variables.** The gender of each executive and director are collected from Compustat and ISS databases. Missing cases were researched on company and biographical websites and recorded. Gender is coded as a dummy variable of (1) for women and (0) for men.

***Woman as CEO.*** Numerous studies have demonstrated the connection between CEO characteristics and organizational outcomes (Chatterjee & Hambrick, 2007; Ingersoll, Glass, Cook, & Olsen, 2017; Olsen, Dworkis, & Young, 2014). Much of the connection is due to the CEO position having discretion concerning corporate investments and corporate strategy (Chatterjee & Hambrick, 2011; Hambrick & Finkelstein, 1987). I do not suggest that the CEO has sole discretion over corporate investment and strategy. Prior research suggests that CEOs are constrained by the firm environment and depend upon others within the firm to assist in decision making (DiMaggio & Powell, 1983; Porter & van der Linde, 1995). Further, the CEO must win board approval for all major expenditures or strategic decisions (Westphal & Fredrickson, 2001; Westphal & Zajac, 1995). However, the risk-taking characteristics of the CEO as the organizational leader is an important consideration in examining risk taking.

***Woman as CFO.*** Similar to the CEO, the CFO has significant influence over financial decisions of the firm (Geiger & North, 2006). The accounting-based measure of risk-taking could be influenced by the risk-taking behavior of the position incumbent and the inclusion of this variable allows me to explore the association.

***Number of women executives.*** The number of women executives within the top management team of the firm is counted and recorded as a continuous variable. Women executives are identified through the Compustat database and the total number of women executives for the firm/year observation is recorded for each executive. The top executive team of the firm leads the strategic direction of the organization. This group of executives shapes the organization through both individual and shared decisions (Finkelstein, Hambrick, & Cannella, 2009). Therefore, analyzing the number of women in this position to shape organizational decisions related to risk will provide insight into the women's risk-taking propensity.

***Number of women directors.*** The number of women directors serving on the board of the firm is counted and recorded as a continuous variable in the same manner as executives. Women directors are identified through the ISS database and the total number of women directors for the firm/year observation is recorded for each director. The board of directors of a firm is responsible for the oversight of the executive team. The characteristics of individual board members have been demonstrated to impact organizational decisions related to financial decisions, such as R&D spending and acquisitions (Golden & Zajac, 2001; Shen & Cannella, 2002).

***Critical mass of women directors.*** Prior research suggests that having three or more women on a board of directors creates a climate of comfort for women directors (Konrad, Kramer, & Erkut, 2008). This critical mass normalizes women as part of the director's group and leads to less constraint in their decision making and influence (Konrad et al., 2008; Torchia, Calabro, & Huse, 2011). Critical mass is coded as a

dummy variable where (1) represents a board containing three or more women directors and (0) represents a board containing two or less women directors. The variable is recorded for each firm/year observation for every executive and director within the dataset.

***Age.*** The age of each executive and director is collected and recorded for each executive or director year from the CompStat and ISS databases. Missing data is obtained through company and biographical websites.

***Race.*** The race of each executive and director is collected and recorded for each executive or director year also from the CompStat and ISS databases. Missing data is again obtained through company and biographical websites. Race is coded as a dummy variable with the reference category of (1) being white/Caucasian and all other responses as (0).

***Tenure.*** The tenure length at the firm for each executive or director is calculated by subtracting the year of appointment, collected from CompStat, by the observation year. Tenure is an important consideration when analyzing the top management team and board of directors. Firm tenure has been tied to managerial decision making and firm outcomes by numerous studies (Beasley, 1996; Huang & Hilary, 2018; Sorensen, 2000).

***Firm performance.*** The accounting-based measure of return on equity (ROE) will be used to measure firm performance. ROE is calculated as the net income of the firm divided by equity. The variable is collected from the CompStat database and recorded as a percentage. Accounting based performance measures are used extensively within research related to gender and organizations (Adams & Ferreira, 2007; Cook & Glass,

2014b; Zajac, 1990). Much like firm size, firm performance can influence the overall behavior of the firm and the resources available to the firm for investment in R&D, acquisitions and capital expenditures.

***Firm size.*** Firm size is measured by the total number of employees as reported by the CompStat database. The variable is recorded in thousands. Firm size is important to control, as larger companies may have greater resources to risk as compared to their smaller counterparts. Further, the higher visibility of larger firms could influence the market volatility of their stock returns when compared to smaller firms.

***Industry.*** The Global Industry Classification Standard (GICS) is used at the sector level for industry classification. The GICS was developed in 1999 by Standard and Poor's and consists of 11 sector, 24 industry groups, 69 industries and 158 sub-industries (S&P, n.d.). The two-digit sector code is reported by the ISS database and recoded as coded.

**Analyses.** I use a panel data linear regression model with time and firm random effects to test the research questions. This method has been demonstrated to appropriately address the repeated firm observations in the panel data (Allison, 1994). Separate datasets for executives and directors were constructed in order to accurately conduct the panel data analysis. Panel data must have a single grouping observation per time period. The observations are grouped according to being a director or executive within a single firm as an executive/company or director/company identifier. The identification number for executive/firm is recorded as missing data for director observations, and vice versa. Therefore, the complete dataset would not work for panel data analysis and must be split

into executives and directors.

A concern when analyzing panel data is the possibility of unobserved time-invariant effects, or unobserved heterogeneity. This is of concern to this study with respect to the claim that an executive or director's gender affects the risk-taking accounting measures and /or stock volatility of a firm. The problem of unobserved heterogeneity relates to the model specification (Peterson & Koput, 1991). Unfortunately, most statistical models suffer from omitted-variable bias to some extent and are not completely specified. The two approaches most often used to statistically address unobserved heterogeneity are fixed-effects and random-effects models. The fixed-effects model entails treating the unobserved effect as a constant over time and estimating a constant term for each unit (Allison, 2009). In essence, you are controlling each firm within, or against itself. The random-effects model treats the heterogeneity as occurring between, or across firms, as randomly drawn from an underlying probability distribution (Allison, 2009). I employed a random-effects linear regression model in order to address concerns of heterogeneity.

The decision to use a random-effects model was based on two considerations. First, prior research indicates that a fixed-effects model can be biased when used for panels of a short duration (Heckman, 1981; Hsiao, 2014). Due to all firm-year observations being collected over a 5-year period, the random-effects model is a better fit. Second, the fixed effects model does not properly specify a model where time-invariant variables are included or where the variables do not really change over time (Allison, 2009). Time-invariant variables, such as gender or race, are best estimated with

the random-effects model that will ensure that the model is not limited. As a check on the model specification a Hausman test was generated for each model. The results indicate that a random effects model is the most efficient. Standard error estimates are clustered on the executive/company or director/company identifier in order to provide robustness against disturbances related to heteroscedasticity and autocorrelation (Cameron & Miller, 2015).

## Results

My research examined four hypotheses concerning women leaders. The first two hypotheses examined whether a woman CEO or CFO impacts risk taking by the firm. The third hypothesis looked at the gender composition of the executive team to determine if more women executives influence firm risk taking. The fourth hypothesis examined the gender composition of the board of directors as a predictor of firm risk taking. Correlations and descriptive statistics for the variables of interest are presented in Table 3.1.

The first hypothesis predicts that a woman CEO will be positively associated with firm risk taking, measured by both stock volatility and the natural log of the sum of investments in R&D, acquisitions and capital expenditures. The data used for the analysis consisted of all executives within the dataset. I conducted a random effects panel data analysis in order to test this hypothesis. The amount of risk taking within a firm was regressed on the explanatory variables of executive gender and then the firm having a

Table 3.1

*Correlations and Descriptive Statistics*

| Variables | Mean | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Accounting risk | 6.34 | 2.06 | 1 | | | | | | | | | | | |
| 2. Volatility risk | 0.02 | 0.01 | 0.11* | 1 | | | | | | | | | | |
| 3. Gender | 0.14 | 0.35 | 0.01 | 0.02* | 1 | | | | | | | | | |
| 4. Age | 59.90 | 8.73 | 0.03* | 0.03* | 0.08* | 1 | | | | | | | | |
| 5. Race | 0.89 | 0.31 | 0.04* | 0.02* | 0.06* | 0.02* | 1 | | | | | | | |
| 6. Company tenure | 10.30 | 8.93 | 0.00 | 0.02* | 0.10* | 0.14* | 0.10* | 1 | | | | | | |
| 7. Return on equity | 24.79 | 196.10 | 0.01 | 0.03* | 0.02 | 0.00 | 0.02* | 0.00 | 1 | | | | | |
| 8. Size | 52.70 | 128.52 | 0.24* | 0.07* | 0.03* | 0.00 | 0.05* | 0.02* | 0.01* | 1 | | | | |
| 9. Woman as CEO | 0.01 | 0.08 | 0.02* | 0.02* | 0.29* | 0.01 | 0.03* | 0.01 | 0.03* | 0.03* | 1 | | | |
| 10. Woman as CFO | 0.01 | 0.08 | 0.00 | 0.01 | 0.19* | 0.09* | 0.02* | 0.01 | 0.00 | 0.00 | 0.0* | 1 | | |
| 11. Women executives | 0.46 | 0.68 | 0.02* | 0.02* | 0.12* | 0.03* | 0.03* | 0.05* | 0.07* | 0.01 | 0.1* | 0.09* | 1 | |
| 12. Women directors | 1.82 | 1.07 | 0.04* | 0.10* | 0.04* | 0.02* | 0.03* | 0.01 | 0.01 | 0.07* | 0.0 | 0.01* | 0.03 | 1 |

* Significant at the $p < .05$ level or above.

woman CEO or not. I controlled for executive age, race and company tenure. Additional firm level controls were included for firm size as measured by employees and firm performance captured by return on equity. Two models were constructed to test the hypothesis, the first analyzing the accounting-based risk taking measure and the second, analyzing the market volatility risk taking measure. The results are reported as model (1) for executive gender and model (2) for a woman CEO in Tables 3.2 and 3.3. Findings suggest that there is no statistically significant difference between men and women executives as it relates to firm risk taking. However, when a woman is CEO of the firm, there is a positive and significant ($p < .05$) increase in the amount of accounting-based risk the firm undertakes. Firms with a woman CEO realize an average increase in accounting-based risk taking of .42 over those led by men CEOs. Examining risk taking as volatility, I find no significant difference between firms led by men CEOs and women CEOs (see model [2] of Table 3.3). While on first glance this may seem like mixed results for the hypothesis, the construct of risk is presented very differently in both models. The accounting-based model examines firm spending and executive behavior leading to riskier expenditures. The market volatility model on the other hand, examines the stock price fluctuation that results in the firm's stock being a risk for investors and employee stockowners. Further, stock volatility is highly contingent on macroeconomic influences (Beltratti & Morana, 2006; Schwert, 1989). Given the period of the data (2009-2015), the macroeconomic events related to the global economic crisis 2008, the subsequent economic downturn and recovery likely confounded results. Therefore, the findings from analyses examining risky expenditures cannot be discounted due to

Table 3.2

*Random Effects Test of Accounting Based Risk Taking by Executive Gender*

| Variables | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Gender | -0.028 | | | -0.086 |
| | (0.080)[a] | | | (0.082) |
| Woman CEO | | 0.422** | | |
| | | (0.181) | | |
| Woman CFO | | | -0.066 | |
| | | | (0.148) | |
| Number of women execs | | | | 0.067*** |
| | | | | (0.020) |
| Age | 0.020*** | 0.020*** | 0.020*** | 0.020*** |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| Race | -0.101 | -0.0990 | -0.100 | -0.098 |
| | (0.089) | (0.089) | (0.089) | (0.089) |
| Company tenure | 0.018*** | 0.018*** | 0.018*** | 0.018*** |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| Firm performance | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Firm size | 0.004*** | 0.004*** | 0.004*** | 0.004*** |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| | (0.218) | (0.218) | (0.218) | (0.219) |
| Constant | 6.556*** | 6.552*** | 6.554*** | 6.542*** |
| | (0.204) | (0.204) | (0.204) | (0.204) |
| Observations | 13,006 | 13,006 | 13,006 | 13,006 |
| Number of executive/company identifier groups | 4,102 | 4,102 | 4,102 | 4,102 |

*Note.* Operating Industry is categorized into 11 different industries based upon GICS code. The values are not reported for space purposes.

[a] Robust standard errors in parentheses.

** $p < 0.05$.

*** $p < 0.01$.

Table 3.3

*Random Effects Test of Volatility Based Risk by Executive Gender*

| Variables | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Gender | -0.00023 | | | 0.00017 |
| | (0.00065)[a] | | | (0.00070) |
| Woman as CEO | | -0.00064 | | |
| | | (0.00084) | | |
| Woman as CFO | | | 0.00042 | |
| | | | (0.00081) | |
| Number of women executives | | | | -0.00046** |
| | | | | (0.00019) |
| Age | -0.00021*** | -0.00021*** | -0.00021*** | -0.00021*** |
| | (0.00000) | (0.00000) | (0.00000) | (0.00000) |
| Race | 0.00010** | 0.00010** | 0.00010** | 0.00010** |
| | (0.00046) | (0.00046) | (0.00046) | (0.00046) |
| Company tenure | 0.00000*** | 0.00000*** | 0.00000*** | 0.00000*** |
| | (0.00000) | (0.00000) | (0.00000) | (0.00000) |
| Firm performance | 0.00000*** | 0.00000*** | 0.00000*** | 0.00000*** |
| | (0.00000) | (0.00000) | (0.00000) | (0.00000) |
| Firm size | 0.00000*** | 0.00000*** | 0.00000*** | 0.00000*** |
| | (0.00000) | (0.00000) | (0.00000) | (0.00000) |
| Constant | 0.032700*** | 0.032700*** | 0.032600*** | 0.032800*** |
| | (0.00109) | (0.00109) | (0.00110) | (0.00108) |
| Observations | 12,652 | 12,652 | 12,652 | 12,652 |
| Number of executive/company identifier groups | 4,042 | 4,042 | 4,042 | 4,042 |

*Note.* Operating industry is dummy coded and categorized into 13 different industries. The values are not reported for space purposes.

[a] Robust standard errors in parentheses.

** $p < 0.05$.

*** $p < 0.01$.

findings from the analyses examining stock volatility.

Hypothesis 2 predicts that a woman as CFO will lead to higher levels of firm risk. Data relating only to the corporate executives was used in the analysis. A random effects panel data regression model was also used to test this hypothesis. Here, firm risk was regressed on the predictor of the firm CFO being a woman or not. Executive age, race and tenure were controlled, along with firm size and firm performance. Two models were once again constructed to analyze both accounting based risk and stock volatility risk. The results are reported as model (3) in Tables 3.2 and 3.3. Findings were not significant for the predictor variable and therefore do not support the hypothesis that a woman CFO leads to increased firm risk taking.

The third hypothesis suggests that having a higher number of women within the top executive team of a firm will lead to higher levels of risk taking. A random effects panel data analysis is once again used to test the executive data for this hypothesis. Firm risk for two models in the form of both accounting measures and stock volatility were regressed using the number of women on the firm's executive team as the predictor variable. Executive gender, age, race and tenure were controlled along with the firm level controls for size and performance. Findings are reported as model (4) in tables 2 and 3. The accounting-based risk model supports the hypothesis and is significant at the $p < .01$ level. The findings suggest that as the number of women executives within the firm increase so does the amount of risk taking by the firm. The results indicate a .07 average increase in firm risk taking when the number of women executives in the firm change by one unit across time.

In examining the market volatility measure of firm risk, the results do not support hypothesis 3 as reported in model (4) of Table 3.3. The results for this model indicate a slight (-.0005) average decrease in volatility risk when the number of women executives in the firm change by one unit across time. This suggests that the stock price of the firm is less volatile, or risky, as the number of women executives within the firm increases. The results instead indicate that higher numbers of women executives lead to differing types of risk undertaken by the firm.

Hypothesis 4 predicts that firm risk-taking increases as the number of women directors serving on the corporate board increases. Models were constructed analyzing firm risk taking predicted by director gender, as the number of directors increases and based upon critical mass and are reported in Table 3.4. The hypothesis was analyzed using the same random effects models as the previous analyses, but with the predictor variables of the number of women directors serving on the corporate board, critical mass of women directors. The data used for this analysis included only corporate directors, as opposed to the executive data used for the previous analyses. The results find support for the hypothesis in three of the models. The first model suggests that women directors do indeed take on more corporate risk than men directors with a .14 increase in accounting-based risk for women directors over time. This result is significant at the $p < .01$ level.

Model (2) for hypothesis 4 examines the level of firm risk taking predicted by the overall number of women directors. The findings for the total number of women directors are not significant. However, the gender variable is significant at the $p < .01$ level, suggesting that women directors continue to be more risk taking than men directors even

Table 3.4

*Random Effects Test of Accounting Risk Taking by Director Gender*

| Variables | (1) Model 1 | (2) Model 2 | (3) Model 3 |
|---|---|---|---|
| Gender | 0.135*** | 0.136*** | 0.132*** |
| | (0.051) [a] | (0.051) | (0.051) |
| Number of women directors | | -0.005 | |
| | | (0.008) | |
| Critical mass of women directors | | | 0.043** |
| | | | (0.019) |
| Age | 0.012*** | 0.020*** | 0.019*** |
| | (0.003) | (0.003) | (0.003) |
| Race | -0.173*** | -0.173*** | -0.171*** |
| | (0.057) | (0.057) | (0.0567) |
| Company tenure | 0.001 | 0.001 | 0.001 |
| | (0.003) | (0.003) | (0.003) |
| Firm performance | 0.000*** | 0.000** | 0.000*** |
| | (0.000) | (0.000) | (0.000) |
| Firm size | 0.004*** | 0.004*** | 0.004*** |
| | (0.000) | (0.000) | (0.000) |
| Constant | 6.700*** | 6.705*** | 6.709*** |
| | (0.182) | (0.182) | (0.181) |
| Observations | 23,421 | 23,421 | 23,421 |
| Number of director/company identifier groups | 6,073 | 6,073 | 6,073 |

*Note.* Operating Industry is categorized into 11 different industries based upon GICS code. The values are not reported for space purposes.

[a] Robust standard errors in parentheses.

** $p < 0.05$.

*** $p < 0.01$.

when accounting for the total number of women on the board. In order to further examine the impact of board gender composition on firm risk taking, an additional model was constructed to analyze the effect of a critical mass of three or more, versus two or less women directors serving on the corporate board. Findings from model (3) predicting higher levels of corporate risk taking when three or more women are on the board are statistically significant ($p < .01$) and find support for the hypothesis. Board with three or more women directors are predicted to realize a .04 increase in accounting-based risk as compared to boards with less than three women directors. When taken together with model (2) results, findings suggest that it is not the total number, but a critical mass of women directors that influences firm risk taking.

Table 3.5 presents the results for the random effects test of stock volatility risk as predicted by director gender. Similar to the results from Table 3.3, the findings show an opposite effect for director gender on the risk of stock volatility. Model (1) predicts that women directors are slightly less associated with stock volatility than men directors with significance at the $p < .01$ level. Models (2) and (3) both suggest that firms with higher levels of women directors decrease the likelihood of volatility risk within a firm, thus not supporting the hypothesis. All results are statistically significant at the $p < .01$ level for the predictor variables. The results also suggest that critical mass is not a factor for women directors as it relates to stock volatility. Again, I would hesitate to report mixed findings for the hypothesis based upon the two different operationalizations of risk taking. Instead, the findings confirm what I saw with the executive sample and may suggest that women take different types of risk than men.

Table 3.5

*Random Effects Test of Volatility Based Risk by Director Gender*

| Variables | (1) Model 1 | (2) Model 2 | (3) Model 3 |
|---|---|---|---|
| Gender | -0.0010*** | -0.0009*** | -0.0010*** |
| | (0.0003)[a] | (0.0003) | (0.0003) |
| Number of women directors | | -0.0007*** | |
| | | (0.0000) | |
| Critical mass of women directors | | | -0.0015*** |
| | | | (0.0002) |
| Age | -0.0001*** | 0.0000*** | 0.0000*** |
| | (0.0000) | (0.0000) | (0.0000) |
| Race | 0.0010*** | 0.0009*** | 0.0010*** |
| | (0.0003) | (0.0003) | (0.0003) |
| Company tenure | 0.0000*** | 0.0000*** | 0.0000*** |
| | (0.0000) | (0.0000) | (0.0000) |
| Firm performance | 0.0000*** | 0.0000*** | 0.0000*** |
| | (0.0000) | (0.0000) | (0.0000) |
| Firm size | 0.0000*** | 0.0000*** | 0.0000*** |
| | (0.0000) | (0.0000) | (0.0000) |
| Constant | 0.0270*** | 0.0278*** | 0.0269*** |
| | (0.0016) | (0.0016) | (0.0016) |
| Observations | 22,833 | 22,833 | 22,833 |
| Number of director/company identifier groups | 5,989 | 5,989 | 5,989 |

*Note.* Operating Industry is categorized into 11 different industries based upon GICS code. The values are not reported for space purposes.

[a] Robust standard errors in parentheses.

** $p < 0.05$.

*** $p < 0.01$.

## Discussion and Conclusion

This study examined the role of risk taking as a mechanism for mobility into executive and director roles at the largest U.S. firms. Contrary to conventional thoughts on women and risk-taking, the analysis was rooted in the notion that in order to reach top positions, women executives and directors have to be more risk taking than their male counterparts. I specifically analyzed the role of gender composition within top leadership on the likelihood of firms undertaking accounting based or market-based risk.

The result analyzing gender alone as a predictor of risk among corporate executives of the S&P 500 were inconclusive. Based on these findings I cannot suggest that women executives are more risk taking than men executives. Conversely, I cannot suggest that women executives are less risk taking than men executives. Out of the organizations within the sample, 63% of them have no women executives and only 1% report more than two women executives. The majority of firms within the sample report just a single woman executive. Research has demonstrated that the ability of numerical minorities within firms can be severely impacted due to their token or solo status (Kanter, 1977a, 1977b). Token or solo leaders experience high visibility and enhanced performance pressures (Kanter, 1977a). Further, token leaders may lack the network ties necessary for enacting change within their organizations (Gorman, 2005; Gorman & Kmec, 2007). Kanter (1977) emphasizes that token and solo leaders face pressures to assimilate to the values and attitudes of the dominant group within the organization. Given that virtually all of the women executives within the sample are numerical minorities, token pressures may be inhibiting their ability to impact organizational risk

taking. Results from hypothesis 3 where I analyze corporate risk taking as predicted by the number of women executives offers confirmatory evidence that token pressures may be at play. The findings suggest that as the number of women executives within the firm increase, the accounting-based risk taking of the firm also increases. As more women reach the executive ranks and alleviate token pressures, I would expect to see higher levels of corporate risk.

While women in the position of CEO would face the same token pressures as other women within the executive ranks, the legitimacy and power granted by the position itself may allow them to overcome these pressures. The results from hypothesis 2 indicate that firms led by women CEOs do in fact take on more accounting-based risk than those led by men. This aligns with the thesis that women who have reached the CEO position have become conditioned to embrace and seek out risk as means of career mobility and leadership legitimacy. However, the evidence does not support women CFOs being more risk taking than men CFOs. Again, token pressures are likely at work to hamper the ability of the CFO to impact firm risk. The CFO position is accountable to the CEO position (Mian, 2001). Indeed, research suggest that the CEO can exert great amounts of pressure and influence over the CFO (Friedman, 2014). Therefore, the CFO may not have the discretion to influence corporate risk taking at the same level as the CEO. Even though women in this position may have the same disposition to risk as those in the CEO position, they are constrained in their ability to embrace risk by both their numerical minority status within the organization and their lower level of organizational power.

Two very different constructs of organizational risk-taking were presented in the research. The first, examines expenditures-based risk undertaken by the firm. The second, examines the stock price volatility of the firm and the perceived riskiness of the firm to investors. The first, expenditure-based measure lies completely within the control of the firm's leadership (Chatterjee & Hambrick, 2011). The second, market return measure is an investor reaction to the actions undertaken by firm leadership. As previously mentioned, macroeconomic conditions greatly influence the overall stock market fluctuation (Beltratti & Morana, 2006; Schwert, 1989). Results from the models of market volatility-based risk taking suggest that risk volatility decreases as more women enter the executive or director ranks of a firm. The findings suggest that either women executives and directors have less influence over factors that lead to a fluctuation in security prices, or that investors react less drastically to firms with more women in leadership. Taken together with the results from the accounting-based risk models, there is evidence that women executives and directors may exhibit different types of risk taking than men. Previous research has highlighted the fact that gender norms and risk taking vary both across and within various domains (Morgenroth et al., 2018). The implications of the findings present a scenario where gender diversity among the executive and/or director teams can lead to strategic risk taking in R&D, acquisitions and capital expenditures, but at the same time minimize the investment risk to potential investors.

I examined the influence of gender within the board of directors on firm risk in hypothesis 4. Findings indicate that women directors lead to higher levels of accounting-based risk for the firm. This suggests that women directors have a higher predilection

toward this type of risk than men directors. Unlike the executive sample, women directors are not limited by their token status within the boardroom. Only 9.5% of boards within the sample had no women directors compared to 63% having no women executives with the majority of boards having at least two women. The findings likely demonstrate the results of a concerted effort to get more women on to corporate boards. Groups such as WomenCorporateDirectors (https://www.womencorporatedirectors.org/) and 2020 Women on Boards (https://www.2020wob.com/) have spent years advocating for greater boardroom gender diversity. Additionally, both academic and popular press has placed intense scrutiny on corporations with regards to board diversity (Seierstad, 2015). Activist investors have also brought pressure on firms to increase the prevalence of women on their boards (Perrault, 2014). The resulting increase in board diversity provides relief to women directors from the old boys' club faced by executives. The results from the critical mass model confirm that as women's representation increases past the token stage, they are more willing to drive the firm to take higher accounting-based risks. Unfortunately, findings for the model examining the overall number of women directors were inconclusive, confirming that three or more directors is the magic number for releasing some of the token pressures within the boardroom. These findings support previous research that links gender diversity in the boardroom to critical strategic outcomes (Bear, Rahman, & Post, 2010; Carter, Simkins, & Simpson, 2003; T. Miller & Triana, 2009).

The original research on the glass cliff phenomenon examined corporate board replacement and demonstrated that women were appointed to the boards of companies in

more precarious situations (Ryan & Haslam, 2005). Recent research has extended the phenomenon to executives demonstrating not only the precarious placement, but that should you fail a man would swoop in to save the day (Cook & Glass, 2014a, 2014b). Taking into account the results from all four hypotheses, findings suggest that the necessity for risk taking among women leaders, as evidenced within the glass cliff literature, may lead to higher levels of accounting-based risk taking for the firm.

The findings of my study have far reaching social implications. A propensity for risk taking by men has been used to explain gender gaps in power, wealth and success (Charness & Gneezy, 2012; Croson & Gneezy, 2009; Hoffman & Yoeli, 2013). Leading successful women to advocate for risk taking as a source of career advancement and power (Sandberg, 2013). However, as evidenced by Ginni Rometty's earlier anecdote, women are often put in the precarious position of navigating the fine line between adhering to gender norms and career ambition, much like rock climbing free solo and in high heels. Women seeking career mobility need to understand the requirement for taking risks, including the timing and types of risk that lead to career success.

As with most research my study has limitations. First, the study is specific to large U.S. companies. Future research may explore if the same types of risk are present with women executives and directors of smaller U.S. firms or within a wider international context. For example, an analysis of companies listed on the OSEAX index of the Oslo Stock exchange or the FTSE 500 index of the London Stock Exchange may shed light on different cultural norms and pressures related to risk faced by women executives and directors.

A second limitation of my study is the sole focus on gender. While race acted only as a control variable in the study, results indicate that race may act as a moderator between gender and risk taking. Gender norms and stereotypes vary across cultures and ethnicities. Examining the relationship between risk and race could help to uncover potential paths and pitfalls to career mobility for ethnic and racial minorities within organizations.

Finally, while I obtained research validated measures of risk taking, I was unable to asses executive and director risk taking directly. Survey instruments, structured interviews and direct observation could all be useful in discovering a direct measurement of risk taking for women executives and directors.

## References

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance*, *62*(1), 217-250. http://doi.org/10.1111/j.1540-6261.2007.01206.x

Adams, R. B., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management Science*, *58*(2), 219-235. http://doi.org/10.1287/mnsc.1110.1452

Alford, A. W., & Boatsman, J. R. (1995). Predicting long-term stock return volatility: Implications for accounting and valuation of equity derivatives. *The Accounting Review*, *70*(4), 599-618.

Allison, P. D. (1994). Using panel data to estimate the effects of events. *Sociological Methods & Research*, *23*(2), 174-199. http://doi.org/10.1177/004912419402 3002002

Allison, P. D. (2009). *Fixed effects regression models* (Vol. 160). Thousand Oaks, CA: Sage.

Arenson, S. J. (1978). Age and sex differences in the probability preferences of children. *Psychological Reports*, *43*(3), 697-698. http://doi.org/10.2466/pr0.1978.43.3.697

Arnett, J. (1992). Reckless behavior in adolescence: A developmental perspective. *Developmental Review*, *12*(4), 339-373. http://doi.org/10.1016/0273-2297(92)90013-R

Baixauli-Soler, J. S., Belda-Ruiz, M., & Sanchez-Marin, G. (2015). Executive stock options, gender diversity in the top management team, and firm risk taking. *Journal of Business Research*, *68*(2), 451-463.

Barnett, M. (2011, October). IBM's Ginni Rometty: Growth and comfort do not coexist. *Fortune*. Retreived from http://fortune.com/2011/10/05/ibms-ginni-rometty-growth-and-comfort-do-not-coexist/.

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics*, *97*(2), 207-221. http://doi.org/10.1007/s10551-010-0505-2

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting Review*, *71*(4),Vol. #, 443-465.

Beckman, C. M., & Haunschild, P. R. (2002). Network learning: The effects of partners' heterogeneity of experience on corporate acquisitions. *Administrative Science Quarterly*, *47*(1), 92-124. http://doi.org/10.2307/3094892

Beltratti, A., & Morana, C. (2006). Breaks and persistency: Macroeconomic causes of stock market volatility. *Journal of Econometrics*, *131*(1-2), 151-177. http://doi.org/10.1016/j.jeconom.2005.01.007

Berger, A. N., Kick, T., & Schaeck, K. (2014). Executive board composition and bank risk taking. *Journal of Corporate Finance*, *28*, 48-65. http://doi.org/10.1016/j.jcorpfin.2013.11.006

Bielby, W. T. (2000). Minimizing workplace gender and racial bias. *Contemporary Sociology*, *29*(1), 120-129.

Borghans, L., Golsteyn, B. H. H., Heckman, J. J., & Meijers, H. (2009). Gender differences in risk aversion and ambiguity aversion. *Journal of the European Economic Association*, *7*(2-3), 649-658. http://doi.org/10.1162/JEEA.2009.7.2-3.649

Branson, D. M. (2006). *No seat at the table: How corporate governance and law keep women out of the boardroom*. New York, NY: New York University Press.

Brescoll, V. L., & Uhlmann, E. L. (2008). Can an angry woman get ahead ? *Psychological Science*, *19*(3), 268-275.

Bruckmüller, S., & Branscombe, N. R. (2010). The glass cliff: When and why women are selected as leaders in crisis contexts. *British Journal of Social Psychology*, *49*(3), 433-451. http://doi.org/10.1348/014466609X466594

Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, *22*, 345-423. http://doi.org/10.1016/S0191-3085(00)22009-1

Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, *125*(3), 367-383. http://doi.org/10.1037/0033-2909.125.3.367

Cameron, C. A., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, *50*(2), 317-372. http://doi.org/10.3368/jhr.50.2.317

Carr, P. B., & Steele, C. M. (2010). Stereotype threat affects financial decision making. *Psychological Science, 21*, 1411-1416. http://doi.org/10.1177/0956797610384146

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *The Financial Review*, *38*(1), 33-53. http://doi.org/10.1111/1540-6288.00034

Charness, G., & Gneezy, U. (2012). Strong evidence for gender differences in risk taking. *Journal of Economic Behavior and Organization*, *83*(1), 50-58. http://doi.org/10.1016/j.jebo.2011.06.007

Chatterjee, A., & Hambrick, D. C. (2007). It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. *Administrative Science Quarterly*, *52*, 351-386. http://doi.org/10.2189/asqu.52.3.351

Chatterjee, A., & Hambrick, D. C. (2011). Executive personality, capability cues, and risk taking: How narcissistic CEOs react to their successes and stumbles. *Administrative Science Quarterly*, *56*(2), 202-237. http://doi.org/10.1177/0001839211427534

Coet, L. J., & McDermott, P. J. (1979). Sex, instructional set, and group make-up: Organismic and situational factors influencing risk-taking. *Psychological Reports*, *44*(suppl), 1283-1294. http://doi.org/10.2466/pr0.1979.44.3c.1283

Connell, R. W., & Messerschmidt, J. W. (2005). Hegemonic masculinity. *Gender & Society*, *19*(6), 829-859. http://doi.org/10.1177/0891243205278639

Cook, A., & Glass, C. (2014a). Above the glass ceiling: When are women and racial/ethnic minorities promoted to CEO? *Strategic Management Journal*, *35*(7), 1080-1089. http://doi.org/10.1002/smj.2161

Cook, A., & Glass, C. (2014b). Women and top leadership positions: Towards an institutional analysis. *Gender, Work & Organization*, *21*(1), 91-103. http://doi.org/10.1111/gwao.12018

Coombs, C. H., & Pruitt, D. G. (1960). Components of risk in decision making: Probability and variance preferences. *Journal of Experimental Psychology*, *60*(5), 265-277. http://doi.org/10.1037/h0041444

Correll, S. J., & Ridgeway, C. L. (2003). Expectation states theory. In J. Delamater (Ed.), *Handbook of social psychology* (pp. 29-51). Boston, MA: Springer.

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, *47*(2), 448-474. http://doi.org/10.1257/jel.47.2.448

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147-160.

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*(3), 573-598. http://doi.org/10.1037/0033-295X.109.3.573

Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, 111(1), 3-22.

Eckel, C. C., & Grossman, P. J. (2008). Differences in the economic decisions of men and women: Experimental evidence. In C. R. Plott & V. L. Smith (Eds.), *Handbook of experimental economics results* (1st ed., pp. 509-519). http://doi.org/10.1016/S1574-0722(07)00057-1

Elsaid, E., & Ursel, N. D. (2011). CEO succession, gender and risk taking. *Gender in Management: An International Journal*, *26*(7), 499-512. http://doi.org/10.1108/17542411111175478

Elsesser, K. M., & Lever, J. (2011). Does gender bias against female leaders Persist? Quantitative and qualitative data from a large-scale survey. *Human Relations*, *64*(12), 1555-1578. http://doi.org/10.1177/0018726711424323

Ely, R. J. (1995). The power in demography: Women's social constructions of gender identity at work. *Academy of Management Journal*, *38*(3), 589-634. http://doi.org/10.2307/256740

Ely, R. J., & Padavic, I. (2007). A feminist analysis of organizational research on sex differences. *Academy of Management Review*, *32*(4), 1121-1143.

Ertac, S., & Gurdal, M. Y. (2012). Deciding to decide: Gender, leadership and risk-taking in groups. *Journal of Economic Behavior and Organization*, *83*(1), 24-30. http://doi.org/10.1016/j.jebo.2011.06.009

Faccio, M., Marchica, M.-T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*, *39*, 193-209. http://doi.org/10.1016/j.jcorpfin.2016.02.008

Finkelstein, S., Hambrick, D. C., & Cannella, A. A. (2009). *Strategic leadership: Theory and research on executives, top management teams, and boards*. New York, NY: Oxford University Press.

Fiske, S. R. (2016). Gender stereotypes, risk-taking, and gendered mobility. In S. R. Thye & E. J. Lawler (Eds.), *Advances in group processes* (pp. 179-210). Bingley, UK: Emerald Group Publishing.

Flynn, J., Slovic, P., & Mertz, C. K. (1994). Gender, race, and perception of environmental health risks. *Risk Analysis*, *14*(6), 1101-1108. http://doi.org/10.1111/j.1539-6924.1994.tb00082.x

French, K. R., Schwert, G. W., & Stambaugh, R. F. (1987). Expected stock returns and volatility. *Journal of Financial Economics*, *19*(1), 3-29. http://doi.org/10.1016/0304-405X(87)90026-2

Friedman, H. L. (2014). Implications of power: When the CEO can pressure the CFO to bias reports. *Journal of Accounting and Economics*, *58*(1), 117-141. http://doi.org/10.1016/j.jacceco.2014.06.004

Gardner, W. L. (1992). Lessons in organizatoinal dramaturgy: The art of impression management. *Organizational Dynamics*, *21*(1), 33-46.

Geiger, M. A., & North, D. S. (2006). Does hiring a new CFO change things? An investigation of changes in discretionary accruals. *The Accounting Review*, *81*(4), 781-809. http://doi.org/10.2308/accr.2006.81.4.781

Glass, C., & Cook, A. (2016). Leading at the top: Understanding women's challenges above the glass ceiling. *The Leadership Quarterly*, *27*(1), 51-63. http://doi.org/10.1016/j.leaqua.2015.09.003

Golden, B. R., & Zajac, E. J. (2001). When will boards influence strategy? Inclination × power = strategic change. *Strategic Management Journal*, *22*(12), 1087-1111. http://doi.org/10.1002/smj.202

Goldin, C., & Katz, L. F. (2016). A most egalitarian profession: Pharmacy and the evolution of a family-friendly occupation. *Journal of Labor Economics*, *34*(3), 705-746. http://doi.org/10.1086/685505

Gorman, E. H. (2005). Gender stereotypes, same-gender preferences, and organizational variation in the hiring of women: Evidence from law firms. *American Sociological Review*, *70*(4), 702-728.

Gorman, E. H., & Kmec, J. A. (2007). We (have to) try harder. *Gender & Society*, *21*(6), 828-856. http://doi.org/10.1177/0891243207309900

Gorman, E. H., & Kmec, J. A. (2009). Hierarchical rank and women's organizational mobility: Glass ceilings in corporate law firms. *American Journal of Sociology*, *114*(5), 1428-1474. http://doi.org/10.1086/595950

Gupta, V., Maxfield, S., Shapiro, M., & Hass, S. (2009). Risky business : Busting the myth of women as risk averse. *CGO Insights*, *28*(April), 1-6.

Halko, M.-L., Kaustia, M., & Alanko, E. (2012). The gender effect in risky asset holdings. *Journal of Economic Behavior & Organization*, *83*(1), 66-81. http://doi.org/10.1016/j.jebo.2011.06.011

Hambrick, D. C., & Finkelstein, S. (1987). Managerial discretion: A bridge between polar views of organizational outcomes. *Research in Organizational Behavior, 9,* 369-406.

Hanoch, Y., Johnson, J. G., & Wilke, A. (2006). Domain specificity in experimental measures and participant recruitment. *Psychological Science*, *17*(4), 300-304. http://doi.org/10.1111/j.1467-9280.2006.01702.x

Haslam, S. A., & Ryan, M. K. (2008). The road to the glass cliff: Differences in the perceived suitability of men and women for leadership positions in succeeding and failing organizations. *Leadership Quarterly*, *19*(5), 530-546. http://doi.org/ 10.1016/j.leaqua.2008.07.011

Haslam, S. A., Ryan, M. K., Kulich, C., Trojanowski, G., & Atkins, C. (2009). Investing with prejudice: The relationship between women's presence on company boards and objective and subjective measures of company performance. *British Journal of Management,* 21(2), 484-497. http://doi.org/10.1111/j.1467-8551.2009.00670.x

Heckman, J. J. (1981). Statistical models for discrete panel data. In D. McFadden & C. Manski (Eds.), *The econometrics of panel data* (pp. 114-178). Cambridge, MA: MIT Press.

Hoffman, M., & Yoeli, E. (2013). The Risks of avoiding a debate on gender differences. *Rady Business Journal*, *6*, 6-7.

Hsiao, C. (2014). *Analysis of panel data*. Cambridge, UK: Cambridge University Press.

Huang, S., & Hilary, G. (2018). Zombie board: Board tenure and firm performance. *Journal of Accounting Research*, *56*(4), 1285-1329. http://doi.org/10.1111/1475-679X.12209

Ingersoll, A. R., Glass, C., Cook, A., & Olsen, K. J. (2017). Power, status and expectations: How narcissism manifests among women CEOs. *Journal of Business Ethics* [early online version]. http://doi.org/10.1007/s10551-017-3730-0

Iqbal, Z., Sewon, O., & Baek, H. Y. (2006). Are female executives more risk-averse than male executives? *Atlantic Economic Journal*, *34*(1), 63-74.

Jianakoplos, N. A., & Bernasek, A. (1998). Are women more risk adverse? *Economic Inquiry*, *36*(4), 620-630. http://doi.org/10.1111/j.1465-7295.1998.tb01740.x

Johnson, J. E. V., & Powell, P. L. (2005). Decision making, risk and gender: Are managers different? *British Journal of Management*, *5*(2), 123-138. http://doi.org/10.1111/j.1467-8551.1994.tb00073.x

Kanter, R. M. (1977a). *Men and women of the corporation*. New York, NY: Basic.

Kanter, R. M. (1977b). Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology*, *82*(5), 965-990.

Kass, N. (1964). Risk in decision making as a function of age, sex, and probability preference. *Child Development*, *35*(2), 577. http://doi.org/10.2307/1126721

Khan, W. A., & Vieito, J. P. (2013). CEO Gender and firm performance. *Journal of Economics and Business*, *67*, 55-66. http://doi.org/10.1016/j.jeconbus.2013.01.003

Koenig, A. M., Eagly, A. H., Mitchell, A. a, & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological Bulletin*, *137*(4), 616-642. http://doi.org/10.1037/a0023557

Konrad, A. M., Kramer, V., & Erkut, S. (2008). Critical mass. *Organizational Dynamics*, *37*(2), 145-164. http://doi.org/10.1016/j.orgdyn.2008.02.005

Kumra, S., & Vinnicombe, S. (2008). A study of the promotion to partner process in a professional services firm: How women are disadvantaged. *British Journal of Management*, *19*(s1), S65-S74. http://doi.org/10.1111/j.1467-8551.2008.00572.x

Kumra, S., & Vinnicombe, S. (2010). Impressing for success: A gendered analysis of a key social capital accumulation strategy. *Gender, Work and Organization*, *17*(5), 521-546. http://doi.org/10.1111/j.1468-0432.2010.00521.x

Levin, I. P., Snyder, M. A., & Chapman, D. P. (1988). The interaction of experiential and situational factors and gender in a simulated risky decision-making task. *The Journal of Psychology*, *122*(2), 173-181.

Maxfield, S., Shapiro, M., Gupta, V., & Hass, S. (2010). Gender and risk: Women, risk taking and risk aversion. *Gender in Management: An International Journal*, *25*(7), 586-604. http://doi.org/10.1108/17542411011081383

Meindl, J. R. (1993). Reinventing leadership: A radical, social psychological approach. *Social Psychology in Organizations: Advances in Theory and Research*, *12*, 159-203.

Mian, S. (2001). On the choice and replacement of chief financial officers. *Journal of Financial Economics*, *60*(1), 143-175. http://doi.org/10.1016/S0304-405X(01)00042-3

Miller, L. C., Cooke, L., Tsang, J., & Morgan, F. (1992). Should I brag? Nature and impact of positive and boastful disclosures for women and men. *Human Communication Research*, *18*(3), 364-399. http://doi.org/10.1111/j.1468-2958.1992.tb00557.x

Miller, T., & Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity-firm performance relationship. *Journal of Management Studies*, *46*(5), 755-786. http://doi.org/10.1111/j.1467-6486.2009.00839.x

Morgenroth, T., Fine, C., Ryan, M. K., & Genat, A. E. (2018). Sex, drugs, and reckless driving: Are measures biased toward identifying risk-taking in men? *Social Psychological and Personality Science*, *9*(6), 744-753. http://doi.org/10.1177/1948550617722833

Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology*, *58*(2), 367-408. http://doi.org/10.1111/j.1744-6570.2005.00515.x

Olsen, K. J., Dworkis, K. K., & Young, S. M. (2014). CEO narcissism and accounting: A picture of profits. *Journal of Management Accounting Research*, *26*(2), 243-267. http://doi.org/10.2308/jmar-50638

Perrault, E. (2014). Why does board gender diversity matter and how do we get there? The role of shareholder activism in deinstitutionalizing old boys' networks. *Journal of Business Ethics*, *2010*(December 2010), 1-17. http://doi.org/10.1007/s10551-014-2092-0

Peterson, T., & Koput, K. (1991). Legitimacy or unobserved heterogeneity: On the sources of density dependence in organizational death rates. *American Sociological Review*, *56*, 399-409.

Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *The Journal of Economic Perspectives*, *9*(4), 97-118.

Rajgopal, S., & Shevlin, T. (2002). Empirical evidence on the relation between stock option compensation and risk taking. *Journal of Accounting and Economics*, *33*(2), 145-171. http://doi.org/10.1016/S0165-4101(02)00042-3

Rawn, C. D., & Vohs, K. D. (2011). People use self-control to risk personal harm: An intra-interpersonal dilemma. *Personality and Social Psychology Review, 15*(3), 267-289. http://doi.org/10.1177/1088868310381084

Ronay, R., & Kim, D.-Y. (2006). Gender differences in explicit and implicit risk attitudes: A socially facilitated phenomenon. *British Journal of Social Psychology*, *45*(2), 397-419. http://doi.org/10.1348/014466605X66420

Roszkowski, M. J., & Gramble, J. (2005). Gender stereotypes in advisors' clinical judgments of financial risk tolerance: Objects in the mirror are closer than they appear. *The Journal of Behavioral Finance*, *6*(4), 181-191. http://doi.org/10.1207/s15427579jpfm0604

Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, *57*(4), 743-762. http://doi.org/10.1111/0022-4537.00239

Ryan, M. K., & Haslam, S. A. (2005). The glass cliff: Evidence that women are over-represented in precarious leadership positions. *British Journal of Management*, *16*(2), 81-90. http://doi.org/10.1111/j.1467-8551.2005.00433.x

Ryan, M. K., & Haslam, S. A. (2007). The glass cliff: Exploring the dynamics surrounding the appointment of women to precarious leadership positions. *Academy of Management Review*, *32*(2), 549-572.

Ryan, M. K., Haslam, S. A., Hersby, M. D., & Bongiorno, R. (2011). Think crisis-think female: The glass cliff and contextual variation in the think manager-think male stereotype. *Journal of Applied Psychology*, *96*(3), 470-484. http://doi.org/10.1037/a0022133

Ryan, M. K., Haslam, S. A., Morgenroth, T., Rink, F., Stoker, J., & Peters, K. (2016). Getting on top of the glass cliff: Reviewing a decade of evidence, explanations, and impact. *The Leadership Quarterly*. http://doi.org/10.1016/j.leaqua.2015.10.008

S&P. (n.d.). *Global industry classification standard*. Retrieved from https://www.spglobal.com/marketintelligence/en/documents/112727-gics-mapbook_2018_v3_letter_digitalspreads.pdf

Sandberg, S. (2013). *Lean in: Women, work, and the will to lead*. New York, NY: Knopf.

Sapienza, P., Zingales, L., & Maestripieri, D. (2009). Gender differences in financial risk aversion and career choices are affected by testosterone. *Proceedings of the National Academy of Sciences*, *106*(36), 15268-15273.

Schein, V. E. (1973). The relationship between sex role stereotypes and requisite management characteristics. *Journal of Applied Psychology*, *57*(2), 95-100. http://doi.org/10.1037/h0037128

Schubert, R., Brown, M., Gysler, M., & Brachinger, H. W. (1999). Financial decision-making: Are women really more risk averse? *American Economic Review*, *89*(2), 381-385. http://doi.org/10.1257/aer.89.2.381

Schwert, G. W. (1989). Why does stock market volatility change over time? *The Journal of Finance*, *44*(5), 1115-1153. http://doi.org/10.1111/j.1540-6261.1989.tb02647.x

Seierstad, C. (2015). Beyond the business case: The need for both utility and justice rationales for increasing the share of women on boards. *Corporate Governance: An International Review*, *24*(4), 390-405. http://doi.org/10.1111/corg.12117

Shen, W., & Cannella, A. A. (2002). Revisiting the performance consequences of CEO succession: The impacts of successor type, postsuccession senior executive turnover, and departing CEO tenure. *Academy of Management Journal*, *45*(4), 717-733. http://doi.org/10.5465/3069306

Singh, V., & Vinnicombe, S. (2001). Impression management, commitment and gender. *European Management Journal*, *19*(2), 183-194. http://doi.org/10.1016/S0263-2373(00)00093-1

Singh, V., & Vinnicombe, S. (2004). Why so few women directors in top UK boardrooms? Evidence and theoretical explanations. *Corporate Governance*, *12*(4), 479-488. http://doi.org/10.1111/j.1467-8683.2004.00388.x

Sorensen, J. B. (2000). The longitudinal effects of group tenure composition on turnover. *American Sociological Review*, *65*(2), 298-310.

Sunden, A. E., & Surette, B. J. (1998). Gender differences in the allocation of assets in retirement savings plans. *The American Economic Review*, *88*(2), 207-211.

Tajfel, H., Richardson, A., & Everstine, L. (1964). Individual judgment consistencies in conditions of risk taking. *Journal of Personality*, *32*(4), 550-565.

Torchia, M., Calabro, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of Business Ethics*, *102*(2), 299-317. http://doi.org/10.1007/s10551-011-0815-z

Vieito, J. P., & Khan, W. A. (2012). Executive compensation and gender: S&P 1500 listed firms. *Journal of Economics and Finance*, *36*(2), 371-399. http://doi.org/10.1007/s12197-010-9123-1

Wagner, D. G., & Berger, J. (1997). Gender and interpersonal task behaviors: Status expectation accounts. *Sociological Perspectives*, *40*(1), 1-32. http://doi.org/10.2307/1389491

Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, *15*(4), 263-290. http://doi.org/10.1002/bdm.414

Westphal, J. D., & Fredrickson, J. W. (2001). Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy. *Strategic Management Journal*, *22*(12), 1113-1137.

Westphal, J. D., & Zajac, E. J. (1995). Who shall govern? CEO/board power, demographic similarity, and new director selection. *Administrative Science Quarterly*, *40*(1), 60-83. http://doi.org/10.2307/2393700

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review*, *12*(3), 265-310.

Zajac, E. J. (1990). CEO selection, succession, compensation and firm performance: A theoretical integration and empirical analysis. *Strategic Management Journal*, *11*(3), 217-230. http://doi.org/10.1002/smj.4250110304

Zhu, D. H., & Chen, G. (2015). Narcissism, director selection, and risk-taking spending. *Strategic Management Journal*, *36*(13), 2075-2098. http://doi.org/10.1002/smj.2322

# CHAPTER 4

## THE PRESENCE AND INFLUENCE OF WOMEN IN THE BOARDROOM

The recent scandals surrounding false financial accounts and consumer deception at Wells Fargo Bank has once again brought the role of the corporate board of directors into the limelight. The criticism and scrutiny received by the bank through public media outlets, as well as congressional hearings, raises questions of governance within organizations and demonstrates the importance of the board. In response to growing criticism, the Federal Reserve announced financial penalties on Wells Fargo of over $1.5 billion (Flitter & Thrush, 2018). Continued questions over the role of the Wells Fargo board in sustaining a culture that rewards deceptive and even fraudulent behavior led the Federal Reserve to order Wells Fargo to improve the effectiveness of its board (Guida, 2018). As a result, Wells Fargo replaced four long-term male directors with four new women directors, including naming a woman as chairman of the board (Keoun & Keitz, 2018). Increased public scrutiny of corporate boards continues to stress the important role that the board of directors plays in driving organizational strategy. Further, Wells Fargo's addition of only women board replacements signals the unique value and legitimacy that women directors bring to an organization.

The importance and influence of directors, along with the corresponding composition of boards of directors, has grown from a hot topic for scholars to a point of concern for all corporate stakeholders (Barker, 2013). Continuing legislation in European countries mandating female board representation, or quotas, has enlivened the conversation and sparked continuing research into the gender composition of corporate

boards (Bertrand, Black, Jensen, & Lleras-Muney, 2019; Lépinard & Rubio-Marin, 2018). Extant research has analyzed the gendered differences of human and social capital within the boardroom (Hodigere & Bilimoria, 2015; Ibarra, 1993; Singh, Terjesen, & Vinnicombe, 2008), as well as the networks that drive board relations (Borgatti & Foster, 2003; Galaskiewicz, 1985; Westphal & Zajac, 1995). Scholars also examine the impacts of diverse boards on firm performance and strategy (Glass, Cook, & Ingersoll, 2016; Konrad, Kramer, & Erkut, 2008; Post & Byron, 2015; Torchia, Calabro, & Huse, 2011), as well as on firm diversity (Cook & Glass, 2016; Skaggs, Stainback, & Duncan, 2012). However, much less research exists examining the institutional pressures eliciting change within the board boardroom. Terjesen, Aguilera, and Lorenz (2015) study the institutional factors that drive gender quotas within Europe. Luoma and Goodstein (1999) explore the relationship between institutional influences and stakeholder representation on the board. Grosvold (2011) analyzes Scott's institutional forces within a cross-national context to look for institutional pressures leading to board gender composition. However, little exists examining institutional pressures strictly within a U.S. context. This research fills this gap by exploring how institutional isomorphic pressures at the international level via the coercive pressures of legislative quotas, the national industry level through normative pressures of the percent women in senior management position, and the firm level through mimetic pressures of board critical mass, impact board gender composition among the largest U.S. firms. Women continue to be in the minority on corporate boardrooms across the U.S. (Catalyst, 2018b). The banking crisis and economic collapse of 2008 led to a call for higher levels of corporate gender diversity within banking and

finance with the assumption that women would have been more financially responsible (Prügl, 2012). Indeed, firm scandal and collapse has been linked to the lack of board gender diversity (Erhardt, Werbel, & Shrader, 2003). The U.S. plays a significant role within the global economy where a majority of countries are sensitive to developments within the U.S. and vice-versa (Dees & Saint-Guilhem, 2011). Therefore, examination of U.S. context of institutional pressures for board diversity has far-reaching implications for both global organizations and global economies.

Research demonstrates that women continue to be underrepresented on corporate boards, holding only 16% of S&P 1500 board seats in 2014 (Sharma, Yerger, & Manoff, 2015). Globally, women held 14.7% of board seats within the 3,000 largest global companies in 2015, which is a 54% increase over the number of global director seats held by women in 2010 (Catalyst, 2017). Opportunities have obviously opened up for women seeking director positions and we are seeing the benefit of those opportunities in the overall increase in the number of women corporate directors. However, in order to understand the foundation of this change and how to maintain, if not increase, the momentum, we need to examine the impact to women directors over time. How have isomorphic institutional pressures influenced the appointment of women directors over time? Further, what impacts are there from institutional pressures to the overall number of women directors, and in the authority and influence of women directors? In order to answer these questions, this study examines a longitudinal panel dataset of all Standard and Poor's (S&P) 500 organizations across a 7-year period from 2009-2015. Analysis of the longitudinal trajectory of women directors helps us to understand how institutional

factors influence the number of women on boards and in the power granted to women who attain director seats over time. The two-pronged nature of the analysis examines pressures that increase both the presence of women in the boardroom and the influence of women directors.

Scholars have broadly made the business case for board gender diversity in recent years (Bilimoria, 2000; Nielsen & Huse, 2010; Terjesen, Sealy, & Singh, 2009). Board gender diversity has been linked to increased firm financial performance (Erhardt et al., 2003; Singh, Vinnicombe, & Johnson, 2001), better corporate social citizenship (Bear, Rahman, & Post, 2010; Boulouta, 2013; Byron & Post, 2016), higher levels of firm innovation (Torchia et al., 2011), and better board performance in terms of firm monitoring and strategy (Post & Byron, 2015). Beyond the business case, scholars also advocate a moral argument for gender parity on corporate boards of directors (Gary Simpson, Carter, & D'Souza, 2010; Gregory-Smith, Main, & O'Reilly, 2014). Therefore, it is important to understand the drivers for both board gender representation and the influence of women directors.

The study design also contributes to fill the gap in literature through the longitudinal nature of the data on U.S. firms. The majority of existing work examining institutional factors and board gender composition focus on either cross-sectional data or data specific to European countries. This study seeks to elucidate how isomorphic pressures work to shape U.S. board composition in terms of gender. As was illustrated with the Wells Fargo example, there is increasing concern regarding board oversight and board composition. Exposing some of the pressures at work behind the scenes may be the

first step in enhancing board gender diversity and in realizing the benefits of a gender diverse board.

## Literature Review

### Barriers: Social Closure and Exclusion

A key constraint identified by scholars as inhibiting women's workplace mobility is the group bias prevalent within organizations (Gorman, 2006; Ibarra, 1992, 1997). Kanter (1977) and Weber (1968) both discuss the concept of social closure and how it leads to group bias. Weber's theory of social closure concerns itself with the group process, where by in-group members seek to limit access in order to maximize the social benefit and rewards of group membership. The basis of exclusion from group membership is generally based upon social, or physical attributes such as gender, race language or descent (Parkin, 1974). Early work on corporate conduct by Wilber Moore (1963) discussed the homosexual reproduction of male managers seeking to reproduce their colleagues in their own likeness. Kanter extends upon Weber's and Moore's theories concerning social closure in her study of high-level corporate positions to find that men in these high-power positions tend to hire other men with similar attributes as their own into top management positions. Kanter terms this exclusionary process "homosocial reproduction" (p. 63). The application of the theories within a corporation as related to gender is that women are closed out of corporate leadership positions by men who are protecting their own power and privilege (R. A. Smith, 2002; Stainback, Tomaskovic-Devey, & Skaggs, 2010). Indeed, research suggests that women's efforts at

work are often devalued or ignored as compared to their white male counterparts (Maume, 1999). The concept of homosocial reproduction, as previously discussed, has been used extensively within gender and organizations research (Britton & Logan, 2008; Glass & Cook, 2016; Gorman, 2006; Huffman, Cohen, & Pearlman, 2010; Kalev, 2009; Skaggs et al., 2012). In their 2004 workplace survey study, Elliott and Smith found that the majority of work groups attain power through homosocial reproduction. Further, Gorman highlighted the role of uncertainty and trust in homosocial reproduction, indicating that uncertainty strengthens male decision makers same sex preference.

Social network theorists use homophily, an almost identical concept to Kanter's (1977), in order to explain why contact occurs between similar people at a higher rate than among dissimilar people (Mcpherson, Smith-lovin, & Cook, 2001). Studies of gender and social networks have found that men have a greater degree of homophily within their networks, while women have more network ties outside of their gender (Ibarra, 1992). Further research on the effects of homophily among managerial networks suggest that women in positions of power may need access to the resources provided by a broader array of network contacts (Ibarra, 1997). However, Burt (1998) contends that women have a legitimacy problem within organizations and they fare better when they can rely on the networks of senior male sponsors. Recent research suggests that women suffer social closure due to their strong same gender network ties and that they would benefit from forming weak tie networks with broader informational variety (Lutter, 2015). Indeed, prior research suggest that women directors specifically are disadvantaged due to network closure and the subsequent lack of sponsorship and mentorship

(McDonald & Westphal, 2013).

Historically, research has supported the notion of systemic bias as a contributing factor in board appointment for women (Burgess & Tharenau, 2002; Farrell & Hersch, 2005; Singh et al., 2008; N. Smith & Parrotta, 2018). Burgess and Tharenou studied the disparity between the large number of firms that have at least one female director and the small proportion of the overall seats that women hold. They assert that some female directors may hold symbolic positions as figureheads, which are not based on their human capital or firm contribution. Boards with a single woman or minority director would fall into this category of symbolic positions. In a later study, Farrell and Hersch examined the interplay between gender and board appointments through a sample of *Fortune* 500 and *Service* 500 firms. Their results indicate that women are less likely to be appointed to boards with incumbent female directors. However, when a female director leaves the board, it is highly likely that the replacement director will also be female. Both studies were supported by findings from Smith and Parotta (2015), demonstrating both support for the tokenism of women directors and that boards with one woman or a woman chair are far less likely to have other women board members. Taken together, theories of social closure, homosocial reproduction and homophily suggest that women have a difficult time overcoming systemic biases and barriers in order to attain a director's seat in the boardroom.

**Overcoming Barriers: Isomorphic Pressures**

Other literature suggests a shift away from the symbolic legitimacy granted from having a single woman director and that greater representation is required in order to

achieve comparable levels of firm legitimacy (Erkut, Kramer, & Konrad, 2008; Konrad et al., 2008). Indeed, the number 3 has been indicated as critical mass, or the tipping point, at which women gain greater board influence (Erkut, Kramer, & Konrad, 2008; Joecks, Pull, & Vetter, 2013). Institutional pressures are forcing changes in previous patterns of social closure and homosocial reproduction to open the doors to the greater involvement of women in the boardroom (Terjesen et al., 2015).

Prior research suggests that a main impetus for declining gender related social closure and homosocial reproduction may be attributed to institutional isomorphic pressures (Iannotta, Gatti, & Huse, 2015). Organizations are not exempt from influences related to their institutional environment (Scott & Meyer, 1991). Indeed, scholars contend that organizational practices are a reflection of the environment in which they are embedded (J. W. Meyer & Rowan, 1977). Organizational patterns, actions and activities become rule-like, and over time they start to become formal aspects of the organization (Zucker, 1987). As these aspects are normatively and cognitively set, they become taken for granted as legitimate, or institutionalized (J. W. Meyer, Boli, & Thomas, 1987). Once activities become institutionalized, there is great resistance to change (Zucker, 1977).

Institutional isomorphism suggests that the pressures exerted by stakeholders, regulation, and professionals within the institutional environment all contribute to homogenization amongst organizations in the same field (DiMaggio & Powell, 1983; J. W. Meyer & Rowan, 1977; Scott, 1998). These formal and informal pressures exerted upon the organization force homogeneity by creating pressure for conformity through coercive, mimetic and normative means (DiMaggio & Powell, 1983). Coercive pressures

originate from governmental regulations and the social expectations of an organization (DiMaggio & Powell, 1983; Zucker, 1987). A relevant example of coercive pressure related to corporate boards involves the legislation of gender quotas for director positions. Mimetic pressure refers to the pressure to conform to or adopt industry standard, while normative pressures are placed on organizations through professionalization (DiMaggio & Powell, 1983; Mizruchi & Fein, 1999). Research suggests that professional directors serve as a form of board professionalization, or normative pressure, within the U.S. (Lorsch, Berlowitz, & Zelleke, 2005). The key issue at the heart of institutional isomorphism is organizational legitimacy (DiMaggio & Powell, 1983). Institutionalized elements of the organization are maintained over time and easily transmitted to new entrants into the industry (Zucker, 1977, 1987). Hence, the institutional elements become contagious where they can infect both newcomers and other organizational elements to define what is legitimate (Zucker, 1987).

In terms of legitimacy, the board of directors offers corporate support through board resources, but also provides a source of legitimacy to the organization (Hillman & Dalziel, 2003). Not only the actions of the board, but the composition of the board itself can shape the reputation of the firm and grant legitimacy to the organization (Luoma & Goodstein, 1999). The institutional forms shape and reinforce corporate behaviors and perceptions of what is considered legitimate (Powell, 1991). Further, the organization's responsibility to their stakeholders, such as employees, customers, industry and community, shape the institutional pressures faced by the firm (DiMaggio & Powell, 1983; J. W. Meyer & Rowan, 1977).

Two key pressures previously identified as influential to board gender composition are legislative quotas, as a form of coercive pressure, and the representation of women among senior management, which can be construed as a form of normative pressure (Iannotta et al., 2015; Kogut, Colomer, & Belinky, 2014; Matsa & Miller, 2013; Terjesen et al., 2015). Research discussing the influence of a critical mass of women directors also evidences the potential mimetic pressure of having a critical mass of women directors (Torchia et al., 2011). Additionally, board interlinks, or the number of boards on which a director serves concurrently, have been used in previous research as a measure of director influence (Cook & Glass, 2015). Board interlinks speak to the quantity and type of women being tapped for director positions. Prior work has found that board gender representation increases with interlinks to other gender diverse boards (Hillman, Shropshire, & Cannella, 2007).

The influence and authority of women corporate directors is also an important consideration for overcoming barriers to advancement. Weber (1946) argues that a legal-rational type of authority is inherent within the rules of the organization's granting of the leadership title. Further, French, Raven, and Cartwright (1959) discuss the legitimate power granted through an organizational title or structure. Therefore, directors placed into these leadership roles will have higher levels of power and influence within the board of directors. Further, prior research indicates that board committee membership also leads to power and influence (Carter, D'Souza, Simkins, & Simpson, 2010). The audit committee, the nominating committee, the compensation committee and the executive/governance committee have been suggested by scholars as the most influential

and powerful board committees (Carter et al., 2010; Kesner, 1988). Institutional pressures are crucial for both organizational legitimacy and change (J. W. Meyer & Rowan, 1977; Zucker, 1977, 1987). Therefore, institutional isomorphic pressures have the potential to impact both the prevalence in the number of women on boards, and their influence in the positions and committees on which they serve. Both Coercive pressures in the form of legislative quotas and mimetic pressures in the form on board interlinks and critical mass have the potential to increase the prevalence of women on corporate boards in the U.S. Additionally, the normative pressure of the percent of women within senior management has the power to increase both the prevalence and influence of women on corporate boards. Therefore, I posit the following:

*H1: Institutional isomorphic pressures will lead to an increase in the number of women serving as corporate directors.*

*H2: Institutional isomorphic pressures will lead to an increase in the number of women corporate directors serving on multiple corporate boards.*

*H3: Institutional isomorphic pressures will lead to an increase in the appointment of women directors to powerful board positions.*

*H4: Institutional isomorphic pressures will lead to an increase in the appointment of women directors to influential board committees*

## Methods and Data

### Data

An author-constructed dataset consisting of all S&P 500 indexed organizations and corresponding directors covering the period 2009-2015 was used to address the research questions. The S&P 500 is comprised of large U.S. companies, representing

approximately 80% of the total market capitalization of the U.S. stock market (S&P Dow Jones Indices, 2018). Multiple sources of secondary data were used to build the dataset. A list of all companies included on the S&P 500 index was queried from the CompStat database, available through Wharton Research Data Services (WRDS), for each year of the study. CompStat also provided data on organizational size, performance, as well as industry information for each firm.

The Execucomp database and the Institutional Shareholder Services (ISS) database, both available through WRDS, were used for information on all corporate directors for each firm. The director data contain demographic information such as name, gender, age, tenure and race. Additional data on board interlinks and committees not available through the ISS database was collected from biographical and corporate websites and added to the dataset. Women's workforce representation was collected from the U.S. Bureau of Labor Statistics and the Equal Employment Opportunity Commission (EEOC) websites. The complete dataset allows for panel analysis of the director population for all S&P 500 indexed companies during the study period. Listwise deletion was used for completely missing data. A unique identifier was manually assigned to each director for each company board served upon to allow for panel data analysis groupings by director/company identifier. The final sample for analysis consists of 32,473 director/year observations covering 7,298 director/company groupings.

**Dependent variables.** The total number of women serving as directors for each firm/year combo is queried from the ISS database and recorded as a count variable.

***Board interlinks.*** Board interlinks are recorded as the number of board upon

which a director concurrently serves. Directors are not limited in the number of boards on which they can serve. In fact, many directors serve on multiple boards during the same period of time. Within the study sample, directors served on up to 9 additional outside boards concurrently.

***Director power committees.*** Director power committees are operationalized as membership in the audit committee, the nominating committee, the compensation committee and/or the executive/governance committee. Committee membership is queried from the ISS database, as well as collected from annual reports, company and biographical websites. Board members will be coded as 1 or 0 to reflect membership on the committee. Directors can serve on multiple committees, but only individual committees will be examined and not aggregate committee memberships.

***Director power positions.*** Positions of board leadership include the Chairman of the Board, or Board Chair, and the Vice-Chairman of the Board. Leadership positions will be determined through data provided by the ISS database, as well as corporate websites, SEC disclosures and biographical websites. A dummy code (1,0) will be used to indicate if a director fills one or more of these leadership roles.

**Independent variables.** Institutional isomorphic pressures are operationalized in three important ways. First, prior research suggests that female labor force participation is a key element in the growth of both institutional pressures and corporate diversity initiatives (Terjesen et al., 2015). Further, evidence indicates that board directors are largely selected from the ranks of senior managers within large U.S. firms (Mattis, 2000). Therefore, the percent of women within senior management positions per industry is

included as a predictor variable for normative isomorphic pressures. The variable allows me to analyze the available pool from which organizations are able to draw qualified women as directors. Women's managerial labor force participation is measured as the total percent of women in senior management roles within the specified industry of the U.S. labor force for each year of the study. The U.S. Bureau of Labor Statistics (BLS) and the EEOC websites are used to query the data. The North American Industrial Classification System (NAICS), as reported by CompStat, is used at the 2-digit level to identify the appropriate industry to query. The complete NAICS code is a 6-digit code developed by the U.S. Office of Management and Budget and implemented in 1997 (U.S. Census Bureau, n.d.). Industry is indicated by the first two digits of the code followed by sector and subsector. The 2-digit code is used because it captures all industries at the aggregate level and data is available at this level for all companies within the study.

Second, the enactment of national gender quotas for boards of directors has been shown to increase mimetic isomorphism as countries emulate gender equality practices (Terjesen et al., 2015). Even though the U.S. has not enacted any type of national quota legislation, the interconnectedness of international business creates macro-level global pressures for even the largest organizations (K. E. Meyer, 2006). Gender quotas are operationalized as a count of the number of countries enacting board of director gender quotas through legislation for each year. Gender quota legislation varies by country, but all have similar stipulations concerning a quota percentage, enactment timeframe and penalty for violation (Terjesen et al., 2015). Therefore, legislative gender quotas are included as a form of coercive isomorphic pressure. Only countries specifying quotas for

public companies were included in the quota calculation. Data concerning the country level quota information is gathered from Catalyst reports. The median quota level across all legislation is 33%, with a range of 33% to 40% (Catalyst, 2018b). The range of countries enacting quotas for public companies during the study period ranges from one in 2009 to six in 2015.

Finally, I will include the critical mass of women directors as a key indicator of mimetic isomorphic pressure. Extant research defines critical mass as three or more women directors serving on a single board (Konrad et al., 2008). A critical mass of women directors has been linked to increased influence and power for women directors (Erkut et al., 2008; Joecks et al., 2013; Konrad et al., 2008; Torchia et al., 2011). Given the growing institutional pressure for greater gender representation on boards of directors (Terjesen et al., 2015), having higher representation in the form of a critical mass of women serves as a potential mechanism for legitimacy.

***Gender.*** Director gender is queried from the ISS database with missing data verified from company and biographical websites and recorded as a binary dummy code with (0) indicating men and (1) women.

***Race.*** The race or ethnicity of each director is collected via the ISS database with missing information obtained from company and biographical websites. Race is dummy coded with (1) indicating all non-White races and ethnicities and (0) indicating White/ Caucasian.

***Age.*** The age of the director is collected and recorded for each year of the study. Age data is queried from the ExecuComp database and from biographical websites.

***Average age of the board of directors.*** I also consider the average age of the board of directors, which will be calculated by averaging the ages of all board members for a given firm each year. Director age will be collected from both the ExecuComp database and biographical websites. Average director age is an important consideration as prior research has indicated that older directors may not be as open to innovative board practices and higher levels of board participation (Zajac & Westphal, 1996).

***Tenure.*** Director tenure is calculated as the total number of years the director has served on the company board. Data is collected from the ISS and ExecuComp databases. Prior research suggests that women organizational leaders have shorter tenures than men (Cook & Glass, 2014; Kesner, 1988). Further, prior studies examining corporate governance present a positive relationship between tenure in a leadership position and the power associated with the position (Hambrick & Fukutomi, 1991; Miller, 1991). Therefore, tenure is an important control variable within the study.

***Firm performance.*** Previous research indicates the need to control for the performance of the firm (Waddock & Graves, 1997). Studies have indicated that firm performance can drive leadership decisions specific to gender (Ryan & Haslam, 2005). I use the performance metric of return on equity (ROE) as a measure of firm performance. ROE is calculated as the annual net income of the firm divided by equity and is reported by the Compustat database. Accounting performance measures are preferred when studying organizational change (Keats & Hitt, 1988) and have been used extensively in research examining gender in relation to organizational change (Adams & Ferreira, 2007; Carter et al., 2010; Peterson & Philpot, 2007; Triana, Miller, & Trzebiatowski, 2014;

Zajac, 1990).

***Firm size.*** When examining board diversity, firm size is an important consideration. Larger firms have more resources at their disposal for both recruitment and retainment purposes. Larger firms are also more visible and more often in the public spotlight, leading to increased public pressure and scrutiny (Arthur & Cook, 2009; Ingersoll, Glass, Cook, & Olsen, 2017). Firm size will be recorded as the number of employees in thousands as reported by the Compustat database.

***Industry***. Industry is an important consideration as scholars suggest that women have to employ innovative tactics in order to overcome higher obstacles when working within a predominantly male industry (Agarwal, Qian, Reeb, & Sing, 2016). A history of occupational segregation means that certain industries, such as service industries, employ women at much higher rates than men (Jacobs, 1989; Kmec, 2005). Therefore, an industry control is necessary to account for variation by gender within the industry of operation for the firm. The Global Industry Classification Standard (GICS) is used at the sector level for industry classification. The GICS was developed in 1999 by Standard and Poor's and consists of 11 sector, 24 industry groups, 69 industries and 158 subindustries (S&P, n.d.). The 2-digit sector code is reported by the ISS database and recoded as coded.

**Analyses**

I conduct a panel data Poisson regression to test hypotheses 1 and 2. The Poisson regression model is an efficient choice when testing count outcome variables and has been touted as the benchmark model for the analysis of discrete count data (Cameron & Trivedi, 2001). The key constraint of the Poisson model is that it assumes the data is

equally dispersed, or that the variance of the data is equal to the mean, conditional on the explanatory variables (Cameron & Trivedi, 1990). Preliminary examination of the data through summary statistics demonstrates that the unconditional means and variance of the outcome variables for each hypothesis 1 and hypothesis 2 are not extremely different. There is no evidence of overdispersion within the data, leading the Poisson model to be the most efficient and effective test. I use robust standard errors for the parameter estimates in order to control for mild violations of the underlying assumptions of the model, as suggested by Cameron and Trivendi (2009).

Hypotheses 3 and 4 are examined using a panel data random effects logistic regression. The logistic regression, or logit, model is used extensively in research analyzing dichotomous dependent variables (Allison, 1999; Long, 1997). Research suggests that a random effects model is a better fit in cases where the model contains time-invariant variables, such as gender or race (Allison, 2009). A Hausman test was conducted to assess model fit for each hypothesis, with the results confirming the null hypothesis, indicating that the unobserved individual level effects are uncorrelated with the other covariates (Hausman, 1978). The results imply that a random effects estimator is most efficient model. Robust standard errors are again included for these models. Descriptive statistics and correlations are presented in Table 4.1.

## Results

Hypothesis 1 predicts that number of women directors serving on a board will increase based upon isomorphic pressures. A random effects Poisson regression model

Table 4.1

*Correlations and Descriptive Statistics*

| Heading | Mean | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Gender | 0.18 | 0.39 | 1.00 | | | | | | | | | | | | | | | |
| 2. % women in senior mgmt. within industry | 0.22 | 0.07 | 0.03* | 1.00 | | | | | | | | | | | | | | |
| 3. Number of quotas | 3.57 | 1.67 | 0.02* | 0.03* | 1.00 | | | | | | | | | | | | | |
| 4. Critical mass | 0.25 | 0.43 | 0.08* | 0.03* | 0.14* | 1.00 | | | | | | | | | | | | |
| 5. Woman as board chair | 0.00 | 0.04 | 0.09* | 0.00 | -0.01* | 0.02* | 1.00 | | | | | | | | | | | |
| 6. Woman as board vice-chair | 0.00 | 0.02 | 0.03* | 0.00 | -0.01 | 0.01 | 0.00 | 1.00 | | | | | | | | | | |
| 7. Woman on nominating committee | 0.09 | 0.28 | 0.65* | 0.01* | 0.01 | 0.04* | 0.02* | 0.02* | 1.00 | | | | | | | | | |
| 8. Woman on audit committee | 0.08 | 0.27 | 0.62* | 0.02* | 0.01* | 0.04* | 0.03* | 0.02* | 0.29 | 1.00 | | | | | | | | |
| 9. Woman on executive/governance committee | 0.09 | 0.28 | 0.65* | 0.01* | 0.01 | 0.04* | 0.02* | 0.02* | 1.00* | 0.29* | 1.00 | | | | | | | |
| 10. Woman on compensation committee | 0.07 | 0.26 | 0.58* | 0.02* | 0.01* | 0.04* | 0.03* | 0.00 | 0.42* | 0.16* | 0.42* | 1.00 | | | | | | |
| 11. Age | 63.43 | 7.73 | -0.20* | -0.04* | 0.04* | 0.00 | -0.03* | -0.02* | -0.08* | -0.14* | -0.08* | -0.09* | 1.00 | | | | | |
| 12. Race | 0.87 | 0.34 | -0.06* | -0.03* | -0.01 | -0.04* | -0.01 | -0.01 | -0.04* | -0.03* | -0.04* | -0.04* | 0.11* | 1.00 | | | | |
| 13. Avg. board age | 63.43 | 3.16 | -0.03* | -0.11* | 0.09* | 0.01 | 0.00 | 0.01 | 0.00 | -0.03* | 0.00 | -0.01* | 0.41* | 0.04* | 1.00 | | | |
| 14. Company tenure | 8.38 | 7.28 | -0.07* | 0.02* | 0.04* | -0.02* | -0.02* | -0.01 | 0.01 | -0.08* | 0.01 | -0.01 | 0.45* | 0.08* | 0.18* | 1.00 | | |
| 15. Firm performance | 25.23 | 203.55 | 0.01 | -0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | -0.02* | 0.02* | 0.00 | 1.00 | |
| 16. Firm size | 3033.90 | 13961.57 | 0.01 | 0.02 | 0.19* | 0.07* | 0.01* | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01* | -0.01* | 0.03* | 0.00 | 0.01 | 1.00 |

* Significant at the $p < .05$ level or above.

with robust standard errors was used to test the hypothesis with results reported in Table 4.2. I exponentiate the reported Poisson coefficients to determine the incidence rate ratios or percentages for the model. Note that the critical mass variable is removed from this model. The critical mass variable indicates that the board upon which the director serves contains three or more women. The outcome variable measures the total number of women on the board. Inclusion of the critical mass variable would in essence try to

Table 4.2

*Panel Data Poisson Test of Women Directors by Key Institutional Pressures*

| Total women directors | (1) Model 1 | (2) Model 2 | (3) Model 3 |
|---|---|---|---|
| Age | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.000573) | (0.000573) |
| Race | -0.07*** | -0.07*** | -0.07*** |
| | (0.01) | (0.01) | (0.01) |
| Firm performance | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) |
| Firm size | 0.00*** | 0.00*** | 0.00*** |
| | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 0.39*** | | 0.34*** |
| | (0.0637) | | (0.06) |
| Number of quotas | | 0.06*** | 0.06*** |
| | | (0.00) | (0.00) |
| Constant total women directors | 0.58*** | 0.51*** | 0.43*** |
| | (0.04) | (0.04) | (0.04) |
| Constant ln alpha | -3.85*** | -3.86*** | -3.87*** |
| | (0.65) | (0.65) | (0.66) |
| Observations | 32,903 | 32,903 | 32,903 |
| Number of company/director groups | 7,492 | 7,492 | 7,492 |

[a] Robust standard errors in parentheses.

*** $p < 0.01$.

predict the outcome variable through a subset of the outcome variable. Exclusion of the variable leads to a more parsimonious model. Three models are examined within the analysis and presented in Table 4.2. Each predictor variable is analyzed independently in Model (1) and Model (2). The full model with all predictor variables is presented in Model (3). Control variables of director age and race, as well as firm level controls for firm size and firm performance are included for each model.

Model (1) of the analysis examines the impact of normative pressure for the specified industry on the total number of women directors on a board. The results indicate that for each percent increase in the number of women as senior managers, the total number of women directors serving on the board will increase by a rate of 1.47, or 47% holding all else constant. Model (2) analyzes coercive pressure as a predictor of the total number of women on a board. The results for Model (2) suggest that an increase in the number of legislative quotas correspond to a 6% increase in the number of women serving on the board. The full model presented in Model (3) examines both coercive and normative pressures within the same model. The results for Model (3) suggest that both the percent women in senior management and the number of legislative quotas influence the total number of women serving on the board. Legislative quotas remain constant for model 3 with a 6% increase in the number of women directors for each additional quota implemented. The impact of the percent women in senior management decreases slightly in the full model to a 41% increase in the number of women directors for each percent increase in women senior managers within the industry, holding all else constant. The results of the analysis find support for hypothesis one. All reported results are statistically

significant at the $p < .01$ level.

Hypothesis 2 predicts that board interlinks for women corporate directors will increase due to coercive, normative and mimetic isomorphic pressures. A random effects panel data Poisson regression with robust standard errors is used to test the hypothesis and the results are presented in Table 4.3. The results of the analysis find support for hypothesis two. Four models are included for the analysis of hypothesis two, each controlling for director age, race and tenure. Firm controls of firm performance and firm size are also included in the model. Model (1) examines normative pressure on the number of other major boards on which a director concurrently serves. The results for Model (1) are not statistically significant for the main predictor variable. However, the results for the gender variable (significant at $p < .01$) indicate that when controlling for the percent of women in senior management within the industry, women directors will realize a 10% increase in the number of boards on which they concurrently serve.

Model (2) inspects coercive pressure as a predictor of the number of boards on which a director concurrently serves. The results of Model (2) demonstrate a 2% decrease in the number of boards on which a director concurrently serves as predicted by the number of legislative quotas with results significant at the $p < .01$ level. However, once again, the gender variable suggests that women directors realize an 11% increase in the number of boards upon which they serve as the number of legislative quotas increase. Model (3) examines the impact of critical mass mimetic pressure on the number of boards on which women directors serve. Again, women are significantly more likely ($p < .01$) to increase the number of boards upon which they serve as predicted by critical mass.

Table 4.3

*Poisson Test of Number of Other Major Boards by Director Gender and Key Institutional Pressures*

| Number of other major boards | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Gender | 0.10*** | 0.11*** | 0.10*** | 0.11*** |
| | (0.03) | (0.03) | (0.03) | (0.03) |
| Age | 0.02*** | 0.02*** | 0.02*** | 0.02*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Race | -0.15*** | -0.15*** | -0.15*** | -0.15*** |
| | (0.03) | (0.03) | (0.03) | (0.03) |
| Company tenure | -0.02*** | -0.02*** | -0.02*** | -0.02*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | -0.20 | | | -0.177 |
| | (0.14) | | | (0.14) |
| Number of quotas | | -0.01*** | | -0.01*** |
| | | (0.00) | | (0.00) |
| Critical mass | | | 0.01 | 0.02* |
| | | | (0.01) | (0.01) |
| Constant number of other major boards | -0.98*** | -1.10*** | -1.03*** | -1.10*** |
| | (0.11) | (0.11) | (0.11) | (0.12) |
| Constant ln alpha | 0.11 | 0.11 | 0.11 | 0.11 |
| | (0.16) | (0.16) | (0.16) | (0.16) |
| Observations | 32,448 | 32,448 | 32,448 | 32,448 |
| Number of company/director groups | 7,284 | 7,284 | 7,284 | 7,284 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

*** $p < 0.01$.

However, the effect of critical mass on overall director board interlinks is not significant.

The full model presented as Model (4), finds significant results ($p < .01$) for women directors, suggesting that the institutional pressures may increase the number of boards upon which women directors concurrently serve by 11%. Only two of the three institutional pressures variables are statistically significant in the model. The critical mass variable, indicates that having three or more women on a board increases the likelihood of all directors serving on multiple boards by 2%. The number of legislative quotas is also significant at the $p < .01$ level, indicating that as quotas increase the overall number of interlinks for directorships decrease slightly. This is likely a result that men hold more directorships than women do, so as women gain more board seats, men's interlinks decrease due to the finite nature of board positions.

A random effects logistic regression is conducted to test hypothesis three, which posits that institutional pressures will lead to a woman as chair of the board of directors or vice-chair. The results of the model suggest some support for the hypothesis. Control variables for the average age of the board and director race are included in the model. Firm level control variables are also included for firm size and firm performance. Two analyses are conducted to test the hypothesis, the first with the outcome variable of a woman as chair of the board, which is presented in Table 4.4. The second analysis examines the outcome of a woman as vice-chair of the board and is presented in Table 4.5.

The first analysis uses a woman as the board chair as the outcome variable and the normative pressure of the percent women within senior management for the industry, the

Table 4.4

*Logit Regression Woman as Board of Directors Chair by Key Institutional Pressures*

| Board of directors chair | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Avg. board age | 0.06 | 0.18 | 0.05 | 0.17 |
| | (0.05) | (0.16) | (0.05) | (0.12) |
| Race | -0.53* | -0.63 | -0.53 | -0.59 |
| | (0.32) | (0.89) | (0.32) | (0.73) |
| Company tenure | -0.66*** | -0.26*** | -0.67*** | -0.27*** |
| | (0.20) | (0.06) | (0.18) | (0.0586) |
| Firm size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00* | 0.00** | 0.00* | 0.00** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 2.131 | | | 2.064 |
| | (1.96) | | | (2.03) |
| Number of quotas | | -1.21 | | -1.35 |
| | | (1.73) | | (1.29) |
| Critical mass | | | 0.43 | 1.40*** |
| | | | (0.28) | (0.33) |
| Constant | -34.06*** | -49.32*** | -32.26*** | -48.63*** |
| | (3.14) | (8.03) | (3.00) | (5.94) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

Table 4.5

*Logit Test of Woman as Board of Directors Vice-Chair by Key Institutional Pressures*

| Board of directors vice-chair | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Avg. board age | 0.24 | 0.29 | 0.22 | 0.27 |
| | (0.00) | (1.52) | (0.00) | (0.34) |
| Race | -3.13 | -0.73 | -2.95 | -0.58 |
| | (0.00) | (54.41) | (0.00) | (2.34) |
| Company tenure | -0.81*** | -0.45 | -0.72*** | -0.37 |
| | (0.09) | (0.00) | (0.07) | (0.32) |
| Firm size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | -0.01 | -0.01 |
| | (0.01) | (0.02) | (0.01) | (0.01) |
| % Women in senior management within industry | 10.78 | | | 4.731 |
| | (0.00) | | | (8.43) |
| Number of quotas | | -1.17 | | -1.00* |
| | | (6.03) | | (0.56) |
| Critical mass | | | 0.58 | 1.39* |
| | | | (1.38) | (0.83) |
| Constant | -58.08 | -40.81 | -51.56 | -33.33 |
| | (0.00) | (0.00) | (0.00) | (28.46) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

*** $p < 0.01$.

coercive pressure number of legislative quotas and the mimetic pressure of board critical mass. Model (1) of Table 4.4 presents results for normative pressure as a predictor of a woman being board chair. The results for the model were not significant. Coercive pressure as a predictor of a woman as board chair are presented in Model (2), again the

results are not statistically significant. Model (3) examines mimetic pressure on the likelihood of a women board chair. The results for Model (3) are also not statistically significant. Model (4) presents the full model with all three isomorphic pressures. Critical mass is found to be a relevant predictor of having a woman chair within the full model. I exponentiate the coefficient to determine the odds ratio. The findings suggest that the odds of a women being board chair are over 4 times higher when the board contains three or more women, holding all else constant. Model (4) findings are statistically significant at the $p<.01$ level and account for the percent women within senior management and legislative quotas. A model including a control for a woman as CEO was also conducted, but not reported. The results of the CEO controlled model were nearly identical to the model presented.

The second analysis used to test hypothesis two examined the likelihood of a woman being vice-chair of the board as predicted by isomorphic pressures. This analysis finds minimal mixed support for the hypothesis, as indicated in Table 4.5. Model (1) uses the normative pressure of percent women within senior management for the industry as the predictor. Model (2) examines the dependent variable using the coercive pressure number of legislative quotas as the predictor variable. Model (3) uses mimetic pressure of critical mass as the predictor for a woman being the board vice-chair. Model (4) present the full model with all three isomorphic pressures. The results for Models 1 through 3 find no statistically significant change in the outcome based upon the individual isomorphic pressures. Model (4) finds marginal support ($p < .1$) for critical mass, indicating that women are once again 4 times more likely to be a board vice-chair when

three or more women serve on the board. However, the results also find marginal significance ($p < .1$) that the odds of a woman being vice-chair of the board are reduced by 62% for each new legislative quota, or coercive pressure. Again, a CEO controlled model was analyzed with nearly identical findings. While the model results suggest a mixed trend, overall the results for this analysis do not find significant support for the hypothesis.

Hypothesis 4 predicts that isomorphic pressures will lead to more women directors being appointed to powerful board committees. An analysis was conducted to test the likelihood of a woman director serving on each the nominating committee, the executive/governance committee, the audit committee and the compensation committee. Firm level control variables for firm size and performance were included in the analyses. Controls for director race, director tenure and the average age of the board were also included in the models. Table 4.6 presents the results for a woman director serving on the nominating committee as predicted by institutional isomorphic pressures. Model (1) presents the results for only the percent women in senior management within the industry as the predictor variable. There are no statistically significant results for this model. Model (2) presents the findings for the number of institutional quotas as the independent variable predicting a woman director serving on the nominating committee. The results of the model indicate that an increase in legislative quotas is significantly ($p < .01$) associated with an increase in the likelihood of a woman serving on the nominating committee. Upon exponentiating the coefficient, I find that a woman director is 15% more likely to serve on the nominating committee with an increase in legislative quotas.

Table 4.6

*Logit Test of Woman on Nominating Committee by Key Institutional Pressures*

| Woman on nominating committee | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Avg. board age | -0.03 | -0.04 | -0.04 | -0.04 |
| | (0.04) | (0.03) | (0.04) | (0.03) |
| Race | -0.98*** | -0.80*** | -0.98*** | -0.83*** |
| | (0.30) | (0.27) | (0.29) | (0.26) |
| Company tenure | 0.05*** | 0.02** | 0.05*** | 0.03** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Firm size | 0.00** | 0.00 | 0.00** | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 2.45 | | | 1.65 |
| | (1.82) | | | (1.61) |
| Number of quotas | | 0.14*** | | 0.13** |
| | | (0.05) | | (0.05) |
| Critical mass | | | 0.33** | 0.22 |
| | | | (0.15) | (0.15) |
| Constant | -11.11*** | -9.73*** | -10.30*** | -10.26*** |
| | (2.33) | (2.11) | (2.28) | (2.14) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

** $p < 0.05$.

*** $p < 0.01$.

Model (3) also provides statistically significant support for the hypothesis ($p < .05$), demonstrating a 38% increase in the odds of a women serving on the nominating committee as the board achieves a critical mass of women. Model (4) presents the full model with all three isomorphic pressures. A statistically significant ($p<.05$) relationship

between the number of legislative quotas and a 14% increase in likelihood that a woman director will serve on the nominating committee is suggested by Model (4). The results were not significant for the percent women in senior management within the industry and the number of legislative quotas.

Table 4.7 presents an examination of the likelihood that a woman director will serve on the executive or governance committee as predicted by key institutional pressures. Strong support is offered for the hypothesis by the analyses. Four models are once again presented, one for each normative pressure (the percent women in senior management), coercive pressure (the number of quotas) and mimetic pressure (critical mass) with the full model presented as Model (4). The first model suggests significant ($p < .05$) support for the association between the percent women in senior management and having a women director serve on the executive/governance committee. The results indicate that the odds of a woman director serving on the executive/governance committee are roughly 9 times greater as the percent women in senior management increase. The number of quotas also demonstrate a 14% increased likelihood of a women director serving on the executive/governance committee ($p < .01$), as presented in Model (2). There is also marginal significance ($p < .1$) for the association between critical mass and a woman director serving on the executive/governance committee, suggesting a 32% increase in the likelihood of a woman director on the committee. The full model maintains strong support ($p < .01$) for the number of quotas as a predictor of women directors' committee membership, demonstrating a 13% increase in the odds of a woman director being appointed to the executive/governance committee. Marginal support for

Table 4.7

*Logit Regression of Woman on Executive/Governance Committee by Key Institutional Pressures*

| Woman on executive/governance committee | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Avg. board age | -0.02 | -0.04* | -0.03 | -0.03 |
| | (0.02) | (0.02) | (0.03) | (0.02) |
| Race | -0.81*** | -0.78*** | -0.30 | -0.75*** |
| | (0.17) | (0.17) | (0.35) | (0.17) |
| Company tenure | 0.04*** | 0.02*** | 0.05*** | 0.02*** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Firm size | 0.00** | 0.00 | 0.00* | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 2.18** | | | 1.78* |
| | (0.94) | | | (0.94) |
| Number of quotas | | 0.13*** | | 0.12*** |
| | | (0.0426) | | (0.0417) |
| Critical mass | | | 0.28* | 0.20 |
| | | | (0.15) | (0.12) |
| Constant | -8.70*** | -7.61*** | -10.53*** | -8.16*** |
| | (1.49) | (1.42) | (2.08) | (1.44) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

the percent women within senior management is also suggested by the results, indicating a 6% increase in the odds of a woman director serving on the committee.

The next analysis for hypothesis four examines the odds of a woman director

being appointed to the audit committee as predicted by isomorphic pressures and presented in Table 4.8. This analysis finds no support for the hypothesis with no significant results.

Table 4.8

*Logit Regression Woman on Audit Committee by Key Institutional Pressures*

| Woman on audit committee | (1) Model 1 | (3) Model 2 | (5) Model 3 | (7) Model 4 |
|---|---|---|---|---|
| Avg. board age | -0.04 | -0.04 | -0.05 | -0.04 |
| | (0.03) | (0.04) | (0.04) | (0.03) |
| Race | -0.60*** | -0.40 | -0.68* | -0.55** |
| | (0.20) | (0.45) | (0.37) | (0.24) |
| Company tenure | -0.10* | -0.09 | -0.11 | -0.10 |
| | (0.0583) | (0.00) | (0.00) | (0.30) |
| Firm size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 1.36 | | | 2.40 |
| | (1.11) | | | (2.03) |
| Number of quotas | | 0.01 | | 0.01 |
| | | (0.06) | | (0.25) |
| Critical mass | | | 0.16 | 0.15 |
| | | | (0.18) | (0.16) |
| Constant | -7.32*** | -9.84*** | -9.13*** | -8.13*** |
| | (1.81) | (2.86) | (2.86) | (2.00) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

The final analysis examines the odds of a woman director serving on the compensation committee as predicted by the three isomorphic pressures and is presented in Table 4.9. Overall, the analysis suggests support for hypothesis 4. All three of the individual models find statistically significant support for hypothesis four at $p < .05$ or

Table 4.9

*Logit Regression of Women on Compensation Committee by Key Institutional Pressures*

| Woman on compensation committee | (1) Model 1 | (2) Model 2 | (3) Model 3 | (4) Model 4 |
|---|---|---|---|---|
| Avg. board age | -0.05* | -0.06** | -0.08 | -0.07** |
| | (0.03) | (0.03) | (0.00) | (0.03) |
| Race | -0.80*** | -0.58*** | -0.94 | -0.89*** |
| | (0.19) | (0.21) | (0.00) | (0.19) |
| Company tenure | 0.02** | 0.00 | 0.03 | -0.00 |
| | (0.01) | (0.01) | (0.05) | (0.01) |
| Firm size | 0.00*** | 0.00** | 0.00** | 0.00* |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Firm performance | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| % Women in senior management within industry | 2.70*** | | | 2.82** |
| | (1.01) | | | (1.12) |
| Number of quotas | | 0.17*** | | 0.16*** |
| | | (0.05) | | (0.05) |
| Critical mass | | | 0.41** | 0.26* |
| | | | (0.21) | (0.14) |
| Constant | -6.65*** | -5.91*** | -11.20 | -6.36*** |
| | (1.78) | (1.82) | (0.00) | (1.94) |
| Observations | 32,473 | 32,473 | 32,473 | 32,473 |
| Number of company/director groups | 7,298 | 7,298 | 7,298 | 7,298 |

[a] Robust standard errors in parentheses.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

greater. The odds of a woman director being appointed to the compensation committee are suggested to increase by nearly 15 times with an increase in the percent women within senior management. Likewise, the results suggest a 19% increase in the odds based upon the number of quotas and a 51% increase in the odds for critical mass. The full model including all three institutional pressure variable continues to support the hypothesis, suggesting a marginal influence of critical mass and strong association with the percent women in senior management and the number of quotas. The results of Model (4) indicate that the odds of a woman director serving on the compensation committee increase by 18% with an increase in quotas and by roughly 17 times with a percentage increase in the number of women in senior management.

## Discussion and Conclusion

The Poisson and logistic regression analyses confirm that isomorphic institutional pressures do influence the prevalence and influence of women on boards of directors. The normative pressure of the percent women in senior management within the industry, the number of legislative quotas as a coercive pressure and board critical mass as mimetic pressure all contribute to either the prevalence, power or influence of women directors. Evidence suggests that both coercive and normative pressures strongly influence the total number of women serving as corporate directors. However, the power of women directors, as evidenced through board leadership roles, is linked only to the mimetic pressure of critical mass through the research. Indeed, as the results of my statistical testing suggest, coercive pressures may actually hinder the power of women directors.

Results also suggest that normative pressure has the largest impact on the influence of women directors, as indicated by committee membership. However, coercive pressures also are linked to women's membership on the nominating committee and all three pressure are statistically significant in predicting membership on the compensation committee.

Overall, the findings highlight institutional mechanisms for overcoming significant barriers and bias in order to lead to more gender representative boards of directors. Businesses, such as Wells Fargo, are beginning to understand the significance of women directors. However, the results of this research highlight pressures that lead to an increase in the number and power of women directors outside times of organizational scandal or strife. The findings propose several key implications for policy and theory, along with avenues for future research.

First, the research suggests that in order to increase the number of women serving as directors, industry must first increase the overall number of women serving in senior management roles. Prior research asserts that women directors are drawn from the ranks of senior management (Mattis, 2000). Unfortunately, the percentage of women serving in senior roles has declined from 25% in 2017 to 24% globally for 2018 (Catalyst, 2018a). In the U.S., the number of women in senior roles decreased even more drastically than the global average, going from 23% in 2017 to 21% in 2018 (Catalyst, 2018a). The decrease in representation is concerning not only for the executive ranks, but as the results demonstrate, also for the director ranks of women. Not only do the results suggest that the percent women in senior roles relates to the number of women directors, but also

that senior women are associated with the influence of women directors in terms of the committees on which they are selected to serve. The odds of women directors being selected to serve on the highly influential executive/governance committee or the compensation committee increase with a higher percentage of women in senior management roles. The efforts to increase women's representation in the boardroom may fall flat if the executive ranks are overlooked.

Second, the research touches upon nuances in networks and power through board critical mass. The results suggest that board interlinks, as well as board power are both associated with a critical mass of women directors serving on the board. Findings indicate that it takes three or more women directors serving on the board in order to break through the network homophily of men directors. Once women directors gain the numbers necessary for legitimacy, we see an association with the total number of women directors, the number of boards upon which they concurrently serve, the power of women directors being selected to board leadership and the influence of women directors. An interesting element of the results is that I find higher numbers of board interlinks with critical mass. It would be reasonable to expect a decrease in board interlinks overall as more women join the director ranks and become spread across organizations. However, the critical mass finding, as related to board interlinks, suggests that the legitimacy that women directors gain through numbers leads to a potential in-group status where they are asked to serve with other directors they may know, or are they may be referred to other boards.

Finally, evidence is presented that coercive pressure, in the form of legislative quotas, shapes corporate governance and board gender representation. This finding has

practical policy implications, as the U.S. has now begun to legislate board gender quotas at the state level for companies headquartered there (Ortiz, 2018). The results for analyses of gender quotas suggest that quotas have a positive influence on the overall number of women directors and upon the influence of women directors based upon the committees on which they serve. Findings indicate that women directors are more likely to be tapped for influential board positions on the executive/governance committee, the nominating committee and compensation committee with an increase in pressures from quotas. Further, the results also suggest that board gender quotas help bound men's network influence in the boardroom by decreasing the positions for which they are eligible, while increasing women's network influence via the number of boards upon which women directors concurrently serve.

As with most research, this study has limitations. First, while every effort was made to identify and control for all variables that may influence the statistical models, there are likely confounding influences. For example, the board interlink variable could be a type of mimetic pressure itself where boards circulates the same women who have been in-grouped into the board network. Therefore, while the results suggest that isomorphic pressures have a strong influence on women on board, I cannot specify causation. Additionally, since the predictor variables are all related to women directors and women serving on boards, it is impossible to eliminate multicollinearity. While every effort was taken in the statistical modeling to determine the most robust tests and measures, there is still a high likelihood of multicollinearity within the models.

Second, the study examines only three key measures of institutional pressure.

While the results have demonstrated the importance of these particular elements, they are likely not the only institutional factors to consider when examining board gender diversity. Future research could broaden the institutional perspective to examine factors such as women director advocacy groups, institutional investors and state level gender quota legislation as the information becomes available.

Next, this study examines large publicly traded organizations. The pressures that impact firms of this type may be very different than those that influence small and medium size firms, as well as private businesses. While the data to analyze these types of firms is often limited, it is worth exploration as research suggests that gender diversity may be higher among smaller and family run businesses (Terjesen et al., 2015). Focusing specifically on large corporations may be a disservice to the majority of businesses.

Finally, I examine board composition only in terms of gender. Race was included in the models as a control variable only. However, examination of the race coefficients presents a very different picture for racial and ethnic minority directors. The findings suggest that the institutional pressures as examined may have an adverse effect on racial and ethnic minority directors. Further exploration of other board diversity aspects is warranted. Specifically, race/ethnicity, social class and educational background should be examined within future research.

Taken together, the research findings present mechanisms of institutional support that may advance the career mobility of women directors. Boards from industries with a high percentage of women in senior management, with a critical mass representation of women and with pressure from increasing legislative quotas are most likely to have

prevalent, powerful and influential women directors. The findings extend our understanding of institutional isomorphic pressures influence on firm structure and strategy through a gendered lens.

## References


Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance*, *62*(1), 217-250. http://doi.org/10.1111/j.1540-6261.2007.01206.x

Agarwal, S., Qian, W., Reeb, D. M., & Sing, T. F. (2016). Playing the boys game: Golf buddies and board diversity. *American Economic Review*, *106*(5), 272-276. http://doi.org/10.1257/aer.p20161033

Allison, P. D. (1999). Comparing logit and probit coefficients across groups. *Sociological Methods & Research*, *28*(2), 186-208. http://doi.org/10.1177/004912419902800 2003

Allison, P. D. (2009). *Fixed effects regression models* (Vol. 160). Thousand Oaks, CA: Sage.

Arthur, M. M., & Cook, A. (2009). Shareholder returns for a catalyst award. *Group & Organization Management*, *34*(4), 432-448. http://doi.org/10.1177/105960110 8331219

Barker, R. (2013, May 30). *Well-trained directors are key to keeping stakeholders happy*. Retreived from https://www.theguardian.com/sustainable-business/blog/well-trained-directors-stakeholders-happy

Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics*, *97*(2), 207-221. http://doi.org/10.1007/s10551-010-0505-2

Bertrand, M., Black, S. E., Jensen, S., & Lleras-Muney, A. (2019). Breaking the glass ceiling? The effect of board quotas on female labour market outcomes in Norway. *The Review of Economic Studies, 86*(1), 191-239. http://doi.org/10.1093/ restud/rdy032

Bilimoria, D. (2000). Building the business case for women corporate directors. In R. J. Burke & M. C. Mattis (Eds.), *Women on corporate boards of directors: Issues in Business Ethics* (14th ed., pp. 25-40). City, STNew York, NY: Springer. http://doi.org/10.1007/ 978-90-481-3401-4_3

Borgatti, S. P., & Foster, P. C. (2003). The network paradigm in organizational research: A review and typology. *Journal of Management*, *29*(6), 991-1013. http://doi.org/10.1016/S0149-2063(03)00087-4

Boulouta, I. (2013). Hidden connections: the link between board gender diversity and corporate social performance. *Journal of Business Ethics*, *113*(2), 185-197. http://doi.org/10.1007/s10551-012-1293-7

Britton, D. M., & Logan, L. (2008). Gendered organizations: Progress and prospects. *Sociology Compass*, *2*(1), 107-121. http://doi.org/10.1111/j.1751-9020.2007.00071.x

Burgess, Z., & Tharenau, P. (2002). Women board directors: Characteristics of the few. *Journal of Business Ethics*, *37*(1), 39-49.

Burt, R. S. (1998). The gender of social capital. *Rationality and Society*, *10*(1), 5-46. http://doi.org/10.1177/104346398010001001

Byron, K., & Post, C. (2016). Women on boards of directors and corporate social performance: A meta-analysis. *Corporate Governance: An International Review, 24*(4), 428-442. http://doi.org/10.1111/corg.12165

Cameron, A. C., & Trivedi, P. K. (1990). Regression-based tests for overdispersion in the poisson model. *Journal of Econometrics*, *46*(3), 347-364. http://doi.org/10.1016/0304-4076(90)90014-K

Cameron, A. C., & Trivedi, P. K. (2001). Essentials of count data regression. In B. H. Baltagi (Ed.), *A companion to theoretical econometrics* (pp.331-348). Oxford, UK: Blackwell.

Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The gender and ethnic diversity of U.S. Boards and board committees and firm financial performance. *Corporate Governance*, *18*(5), 396-414. http://doi.org/10.1111/j.1467-8683.2010.00809.x

Catalyst. (2017). *Women on corporate boards globally*. Retrieved from http://www.catalyst.org/knowledge/women-corporate-boards-globally

Catalyst. (2018a). *Quick take: Women in management*. Retrieved from https://www.catalyst.org/research/women-in-management/

Catalyst. (2018b). *Quick take: Women on boards*. Retreived from https://www.catalyst.org/research/women-on-corporate-boards/

Cook, A., & Glass, C. (2014). Women and top leadership positions: Towards an institutional analysis. *Gender, Work & Organization*, *21*(1), 91-103. http://doi.org/10.1111/gwao.12018

Cook, A., & Glass, C. (2015). Diversity begets diversity? The effects of board composition on the appointment and success of women CEOs. *Social Science Research*, *53*, 137-147. http://doi.org/10.1016/j.ssresearch.2015.05.009

Cook, A., & Glass, C. (2016). Do women advance equity? The effect of gender leadership composition on LGBT-friendly policies in American firms. *Human Relations*, *69*(7), 1431-1456. http://doi.org/10.1177/0018726715611734

Dees, S., & Saint-Guilhem, A. (2011). The role of the United States in the global economy and its evolution over time. *Empirical Economics*, *41*(3), 573-591. http://doi.org/10.1007/s00181-010-0407-2

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147-160.

Elliott, J. R., & Smith, R. A. (2004). Race, gender, and workplace power. *American Sociological Review, 69*(3), 365-386.

Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance*, *11*(2), 102-111. http://doi.org/10.1111/1467-8683.00011

Erkut, S., Kramer, V., & Konrad, A. M. (2008). Critical mass: Does the number of women on a board make a difference? In S. Vinnicombe, V. Singh, R. J. Burke, D. Bilimoria, & M. Huse (Eds.), *Women on corporate boards of directors: International research and practice* (pp. 222-232). London, UK: Edward Elgar.

Farrell, K. A., & Hersch, P. L. (2005). Additions to corporate boards: The effect of gender. *Journal of Corporate Finance*, *11*(1-2), 85-106. http://doi.org/10.1016/j.jcorpfin.2003.12.001

Flitter, E., & Thrush, G. (2018, April 19). Wells Fargo said to be target of $1 billion U.S. fine. *New York Times*. Retreived from https://www.bizjournals.com/baltimore/news/2018/04/19/wells-fargo-said-to-be-target-of-1-billion-u-s.html

French, J. R., Bertram, R., & Cartwright, D. (1959). The bases of social power. *Classics of Organization Theory, 7,* 311-320.

Galaskiewicz, J. (1985). Interorganizational relations. *Annual Review of Sociology*, *11*(1), 281-304. http://doi.org/10.1146/annurev.so.11.080185.001433

Gary Simpson, W., Carter, D. A., & D'Souza, F. (2010). What do we know about women on boards? *Journal of Applied Finance*, *20*(2), 27-43.

Glass, C., & Cook, A. (2016). Leading at the top: Understanding women's challenges above the glass ceiling. *The Leadership Quarterly*, *27*(1), 51-63. http://doi.org/10.1016/j.leaqua.2015.09.003

Glass, C., Cook, A., & Ingersoll, A. R. (2016). Do women leaders promote sustainability? Analyzing the effect of corporate governance composition on environmental performance. *Business Strategy and the Environment*, *25*(7), 495-511. http://doi.org/10.1002/bse.1879

Gorman, E. H. (2006). Work uncertainty and the promotion of professional women: The case of law firm partnership. *Social Forces*, *85*(2), 865-890.

Gregory-Smith, I., Main, B. G. M., & O'Reilly, C. A. (2014). Appointments, pay and performance in UK boardrooms by gender. *The Economic Journal*, *124*(574), F109-F128. http://doi.org/10.1111/ecoj.12102

Grosvold, J. (2011). Where are all the women? Institutional context and the prevalence of women on the corporate board of directors. *Business & Society, 50*(3), 531-555.

Guida, V. (2018). *Fed slams Wells Fargo with penalty, as four board members ousted*. Retrieved from https://www.politico.com/story/2018/02/02/federal-reserve-wells-fargo-penalty-389073

Hambrick, D. C., & Fukutomi, G. D. S. (1991). The seasons of a CEO's tenure. *Academy of Management Review*, *16*(4), 719-742. http://doi.org/10.5465/amr.1991.4279621

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, *46*(6), 1251-1271.

Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*, *28*(3), 383-396. http://doi.org/10.5465/AMR.2003.10196729

Hillman, A. J., Shropshire, C., & Cannella, A. A. (2007). Organizational predictors of women on corporate boards. *Academy of Management Journal*, *50*(4), 941-952. http://doi.org/10.5465/AMJ.2007.26279222

Hodigere, R., & Bilimoria, D. (2015). Human capital and professional network effects on women's odds of corporate board directorships. *Gender in Management: An International Journal*, *30*(7), 523-550. http://doi.org/10.1108/GM-07-2015-0063

Huffman, M. L., Cohen, P. N., & Pearlman, J. (2010). Engendering change: Organizational dynamics and workplace gender desegregation, 1975-2005. *Administrative Science Quarterly*, *55*(2), 255-277. http://doi.org/10.2189/asqu.2010.55.2.255

Iannotta, M., Gatti, M., & Huse, M. (2015). Institutional complementarities and gender diversity on boards: A configurational approach. *Corporate Governance, 24*(4), 406-427. http://doi.org/10.1111/corg.12140

Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*(3), 422-447. http://doi.org/10.2307/2393451

Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review*, *18*(1), 56-87. http://doi.org/10.5465/AMR.1993.3997507

Ibarra, H. (1997). Paving an alternative route: Gender differences in managerial networks. *Social Psychology Quarterly*, *60*(1), 91-102. http://doi.org/10.2307/2787014

Ingersoll, A. R., Glass, C., Cook, A., & Olsen, K. J. (2017). Power, status and expectations: How narcissism manifests among women CEOs. *Journal of Business Ethics* [online version], 1-15. http://doi.org/10.1007/s10551-017-3730-0

Jacobs, J. A. (1989). Long-term trends in occupational segregation by sex. *American Journal of Sociology*, *95*(1), 160-173.

Joecks, J., Pull, K., & Vetter, K. (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass?" *Journal of Business Ethics*, *118*(1), 61-72. http://doi.org/10.1007/s10551-012-1553-6

Kalev, A. (2009). Cracking the glass cages? Restructuring and ascriptive inequality at work. *American Journal of Sociology*, *114*(6), 1591-1643. http://doi.org/10.1086/597175

Kanter, R. M. (1977). *Men and women of the corporation*. New York, NY: Basic.

Keats, B. W., & Hitt, M. A. (1988). A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance. *Academy of Management Journal*, *31*(3), 570-598. http://doi.org/10.2307/256460

Keoun, B., & Keitz, A. (2018). *In Wells Fargo board shakeup, women win big*. Retrieved from https://www.thestreet.com/investing/in-wells-fargo-board-shakeup-women-win-more-power-from-failed-men-14533376

Kesner, I. F. (1988). Directors' characteristics and committee membership: An investigation of type, occupation, tenure, and gender. *Academy of Management Journal*, *31*(1), 66-84. http://doi.org/10.2307/256498

Kmec, J. A. (2005). Setting occupational sex segregation in motion. *Work and Occupations*, *32*(3), 322-354. http://doi.org/10.1177/0730888405277703

Kogut, B., Colomer, J., & Belinky, M. (2014). Structural equality at the top of the corporation: Mandated quotas for women directors. *Strategic Management Journal*, *35*(6), 891-902. http://doi.org/10.1002/smj.2123

Konrad, A. M., Kramer, V., & Erkut, S. (2008). Critical mass: The impact of three or more women on corporate boards. *Organizational Dynamics*, *37*(2), 145-164. http://doi.org/10.1016/j.orgdyn.2008.02.005

Lépinard, É., & Rubio-Marin, R. (2018). *Quotas for gender equality and democratic citizenship. Transforming Gender Citizenship: The Irresistible Rise of Gender Quotas in Europe.* Cambridge, UK:Cambridge University Press.

Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage.

Lorsch, J. W., Berlowitz, L., & Zelleke, A. (2005). *Restoring trust in american business*. Cambidge, MA: MIT Press.

Luoma, P., & Goodstein, J. (1999). Stakeholders and corporate boards: Institutional influences on board composition and structure. *The Academy of Management Journal*, *42*(5), 553-563. http://doi.org/10.2307/256976

Lutter, M. (2015). Do women suffer from network closure? The moderating effect of social capital on gender inequality in a project-based labor market, 1929 of 2010. *American Sociological Review*, *80*(2), 329-358. http://doi.org/10.1177/000312 2414568788

Matsa, D. A., & Miller, A. R. (2013). A female style in corporate leadership? Evidence from quotas. *American Economic Journal*, *5*(3), 136-169. http://doi.org/10.1257/ app.5.3.136

Mattis, M. C. (2000). Women corporate directors in the United States. In R. J. Burke & M. C. Mattis (Eds.), *Women on corporate boards of directors. Issues in business ethics* (14th ed., pp. 43-56). New York, NY: Springer. http://doi.org/10.1007/978-90-481-3401-4_4

Maume, D. J. (1999). Glass ceilings and glass escalators. *Work and Occupations*, *26*(4), 483-509.

McDonald, M. L., & Westphal, J. D. (2013). Access denied: Low mentoring of women and minority first-time directors and its negative effects on appointments to additional boards. *Academy of Management Journal*, *56*(4), 1169-1198. http://doi.org/10.5465/amj.2011.0230

Mcpherson, M., Smith-lovin, L., & Cook, J. M. (2001). Birds of a feather : Homophily in social networks. *Annual Review of Sociology*, *27*, 415-444. http://doi.org/10.1146/annurev.soc.27.1.415

Meyer, J. W., Boli, J., & Thomas, G. M. (1987). Ontology and rationalization in the western cultural account. In G. M. Thomas, J. W. Meyer, F. O. Ramirez, & J. Boli (Eds), *Institutional structure: Constituting state, society, and the individual* (pp. 12-37). Newbury Park, CA: Sage.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340-363.

Meyer, K. E. (2006). Globalfocusing: From domestic conglomerates to global specialists. *Journal of Management Studies*, *43*(5), 1109-1144. http://doi.org/10.1111/j.1467-6486.2006.00631.x

Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, *37*(1), 34-52. http://doi.org/10.1287/mnsc.37.1.34

Mizruchi, M. S., & Fein, L. C. (1999). The social construction of organizational knowledge: A study of the uses of coercive, mimetic, and normative isomorphism. *Administrative Science Quarterly*, *44*(4), 653-683. http://doi.org/10.2307/2667051

Moore, W. E. (1963). The conduct of he corporation. *Human Resource Management, 2*(2), 28.

Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate Governance: An International Review*, *18*(2), 136-148. http://doi.org/10.1111/j.1467-8683.2010.00784.x

Ortiz, J. L. (2018, October 1). California's "giant step forward": Gender-quotas law requires women on corporate boards. *USA Today*. Retreived from https://www.usatoday.com/story/news/2018/09/30/california-law-sets-gender-quotas-corporate-boardrooms/1482883002/

Parkin, F. (1974). Strategies of social closure in class formation. In F. Parkin (Ed.), *The social analysis of class structure* (pp. 1-18). London, UK: Routledge.

Peterson, C. A., & Philpot, J. (2007). Women's roles on U.S. Fortune 500 boards: Director expertise and committee memberships. *Journal of Business Ethics*, *72*(2), 177-196. http://doi.org/10.1007/s10551-006-9164-8

Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal*, *58*(5), 1546-1571.

Powell, W. W. (1991). Exmanding the scope of institutional analysis. In W. W. Powell & P. J. DiMaggio (Eds.), *The new institutionalism in organizational analysis* (pp. 183-203). Chicago, IL: University of Chicago Press.

Prügl, E. (2012). "If Lehman brothers had been Lehman sisters...": Gender and myth in the aftermath of the financial crisis. *International Political Sociology*, *6*(1), 21-35. http://doi.org/10.1111/j.1749-5687.2011.00149.x

Ryan, M. K., & Haslam, S. A. (2005). The glass cliff: Evidence that women are over-represented in precarious leadership positions. *British Journal of Management*, *16*(2), 81-90. http://doi.org/10.1111/j.1467-8551.2005.00433.x

S&P. (n.d.). *Global industry classification standard*. Retrieved from https://www.spglobal.com/marketintelligence/en/documents/112727-gics-mapbook_2018_v3_letter_digitalspreads.pdf

S&P Dow Jones Indices. (2018). *S&P U.S. indices methodology*. Retrieved from https://us.spindices.com/indices/equity/sp-500

Scott, W. R. (1998). *Organizations* (4th ed.). Upper Saddle River, NJ: Prentice-Hall.

Scott, W. R., & Meyer, J. W. (1991). The organization od societal sectors: Propositions and early evidence. In W. W. Powell & P. J. DiMaggio (Eds.), *The new istitutionalism in organizational analysis* (pp. 108-140). Chicago, IL: The University of Chicago Press.

Sharma, R., Yerger, A., & Manoff, M. (2015). *Women on U.S. boards - EY - Global*. Retrieved from http://www.ey.com/GL/en/Issues/Governance-and-reporting/Women-on-US-boards---what-are-we-seeing#increasing-board-size

Singh, V., Terjesen, S., & Vinnicombe, S. (2008). Newly appointed directors in the boardroom: How do women and men differ? *European Management Journal*, *26*(1), 48-58. http://doi.org/10.1016/j.emj.2007.10.002

Singh, V., Vinnicombe, S., & Johnson, P. (2001). Women directors on top UK boards. *Corporate Governance*, *9*(3), 206-216. http://doi.org/10.1111/1467-8683.00248

Skaggs, S., Stainback, K., & Duncan, P. (2012). Shaking things up or business as usual? The influence of female corporate executives and board of directors on women's managerial representation. *Social Science Research*, *41*(4), 936-948. http://doi.org/10.1016/j.ssresearch.2012.01.006

Smith, N., & Parrotta, P. (2018). Why so few women on boards of directors? Empirical evidence from Danish companies in 1998-2010. *Journal of Business Ethics, 147*(2), 445-467. http://doi.org/10.1007/s10551-015-2974-9

Smith, R. A. (2002). Race, gender, and authority in the workplace: Theory and research. *Annual Review of Sociology*, *28*(1), 509-542. http://doi.org/10.1146/annurev.soc.28.110601.141048

Stainback, K., Tomaskovic-Devey, D., & Skaggs, S. (2010). Organizational approaches to inequality: Inertia, relative power, and environments. *Annual Review of Sociology*, *36*(1), 225-247. http://doi.org/10.1146/annurev-soc-070308-120014

Terjesen, S., Aguilera, R. V., & Lorenz, R. (2015). Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors. *Journal of Business Ethics*, *128*(2), 233-251. http://doi.org/10.1007/s10551-014-2083-1

Terjesen, S., Sealy, R., & Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance*, *17*(3), 320-337. http://doi.org/10.1111/j.1467-8683.2009.00742.x

Torchia, M., Calabro, A., & Huse, M. (2011). Women directors on corporate boards: From tokenism to critical mass. *Journal of Business Ethics*, *102*(2), 299-317. http://doi.org/10.1007/s10551-011-0815-z

Triana, M. D. C., Miller, T. L., & Trzebiatowski, T. M. (2014). The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science*, *25*(2), 609-632. http://doi.org/10.1287/orsc.2013.0842

U.S. Census Bureau. (n.d.). *North American industry classification system*. Retrieved from https://www.census.gov/eos/www/naics/

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal*, *18*(4), 303-319. http://doi.org/10.1002/(SICI)1097-0266(199704)18:4<303::AID-SMJ869>3.0.CO;2-G

Weber, M. (1946) *From Max Weber: Essays in sociology.* New York, NY: Oxford University Press.

Weber, M. (1968). *Economy & society.* New York, NY: Bedminster.

Westphal, J. D., & Zajac, E. J. (1995). Who shall govern? CEO/board power, demographic similarity, and new director selection. *Administrative Science Quarterly*, *40*(1), 60. http://doi.org/10.2307/2393700

Zajac, E. J. (1990). CEO selection, succession, compensation and firm performance: A theoretical integration and empirical analysis. *Strategic Management Journal*, *11*(3), 217-230. http://doi.org/10.1002/smj.4250110304

Zajac, E. J., & Westphal, J. D. (1996). Director reputation, CEO/bord power, and the dynamics of board interlocks. *Academy of Management Proceedings*, *1996*(1), 254-258. http://doi.org/10.5465/ambpp.1996.4980568

Zucker, L. G. (1977). The role of institutionalization in cultural persistence. *American Sociological Review*, *42*(5), 726. http://doi.org/10.2307/2094862

Zucker, L. G. (1987). Institutional theories of organization. *Annual Review of Sociology*, *13*(1), 443-464.

# CHAPTER 5

# CONCLUSION

## Summary

Despite the extensive research into the causes of the lack of women in top corporate leadership positions, women continue to be underrepresented at the highest levels of the corporation. While women continue to make inroads in the boardroom through gains in representation, their prevalence among the executive ranks seems to be shrinking (Catalyst, 2018a, 2018b). This comes at a time when the importance of women among senior corporate leadership ranks has never been more salient. Recent corporate scandals and crises have only increased the existing calls for more women to acquire a larger portion of corporate board seats (Erhardt, Werbel, & Shrader, 2003; Higgs, 2003; Keoun & Keitz, 2018; Stuart, 2018). While research and public opinion appears to favor an increase in women's leadership roles (Holden, 2017; McGregor, 2017), the pace at which women's representation is increasing among the top corporate ranks does not equate.

The reality is that the barriers to women's advancement are difficult to overcome. The slow changing social position of women within society, coupled with the rigidity of social norms lead to slow progress (Eagly & Heilman, 2016). The purpose of this research is to understand the contexts that support the barriers to women's advancement and to identify the conditions under which women leaders overcome the barriers to attain top corporate leadership positions. I have identified and discussed three distinct

approaches for understanding how we can increase women's representation and influence in the executive and director ranks within top U.S. corporations. The first approach investigates the complexities of leveraging the social and cultural capital attained through post-secondary education in order gain entry into the corporate elite. The second approach examines gendered stereotypes of risk-taking versus the organizational risk-taking realities that are inherent in women corporate leaders' climb to the top. The final approach considers the impact of institutional isomorphic pressures in increasing the prevalence, power and influence of women corporate directors. In what follows I will discuss the key findings from all three approaches. I will then discuss the implications from the research, limitations of the study and potential avenues for future research.

**Social and Cultural Capital**

The results of the first approach suggest that executive women within the largest U.S. companies rely on cultural capital and credentials to overcome preconceived notions of stereotypical male leadership and to grant them legitimacy within their positions. The analyses examine a dataset consisting of all S&P 500 executives for the period 2009-2013. I use logistic regression, ordered logistic regression and a generalized ordered logistic model to test gender differences in educational attainment, educational reputation, and educational network benefits.

The results reveal first, that among senior corporate executives, women are more likely to possess academic credentials. Thus, the results reaffirm extant research suggesting that women have consistently higher educational attainment rates than men (Fiske, 2016). Next, results from the examination of the rank of post-secondary programs

attended by the executives in the study suggest that men executives are more likely to attend higher ranked schools for their undergraduate degrees, while women executives are more likely to attend higher ranked graduate schools. Finally, the results from considering the firm network ties afforded by post-secondary education networks reaffirm previous work suggesting that men executives continue to have stronger network ties than women (Burt, 2000; Ibarra, 1992), specifically when it comes to their undergraduate networks.

**Risk Taking**

The second approach analyzed the role of gender composition within top leadership on the likelihood of firms undertaking accounting based or market-based risk. A dataset consisting of all executives and directors of S&P 500 firms for the period 2009-2013 was used for analyses. I use a panel data linear regression model with time and firm random effects to test the research questions. Two very different constructs of organizational risk-taking were presented in the research. The first, examines expenditures-based risk undertaken by the firm. The second, examines the stock price volatility of the firm and the perceived riskiness of the firm to investors. The expenditure-based measure lies completely within the control of the firm's leadership (Chatterjee & Hambrick, 2011). The second, market return measure is an investor reaction to the actions undertaken by firm leadership and is subject to the macroeconomic conditions that influence market fluctuation (Beltratti & Morana, 2006; Schwert, 1989).

The result analyzing gender alone as a predictor of risk among corporate executives of the S&P 500 were inconclusive. However, the results from the model

examining CEO gender indicate that firms led by women CEOs do in fact take on more accounting-based risk than those led by men. Results of the examination of director gender also suggest that boards with a higher composition of women directors are associated with higher levels of accounting-based risk for the firm. The findings for the market-based measure of risk suggest that women CEOs and directors lead to less risk in terms of stock volatility for the firm. A finding which suggests either a gendered difference in types of corporate risk, or an investor reaction to the firm, potentially based upon gender composition.

**Institutional Isomorphic Pressures**

The final approach investigates the effect of institutional isomorphic pressures on the prevalence, power and influence of women corporate directors. Data from all S&P 500 firms for the period 2009-2015 was used for statistical testing. Isomorphic pressures, as described by DiMaggio and Powell (1983), were operationalized as the coercive pressure of legislative quotas for board gender composition, the mimetic pressure of a critical mass of three or more women on a board, and the normative pressure of the percent of women within senior management for the industry. Poisson and logistic regression models were constructed to test the impact of isomorphic pressures on corporate boards related to gender diversity.

Results from the analyses suggest that isomorphic pressures do influence the prevalence, power and influence of women on corporate boards of directors. Evidence proposes that both coercive and normative pressures strongly influence the total number of women serving as corporate directors, while mimetic pressures are linked to the power

of women directors, as evidenced by their election to board leadership positions. Results also suggest that normative pressure may have the greatest impact on the influence of women directors, as evidenced by their appointment to influential board committees. Overall, the findings highlight isomorphic pressures as a structural influence for overcoming significant barriers and bias that inhibit gender representative boards of directors.

## Research Implications

A recent critique of research on women and leadership is that current research is attempting to conform to cultural narratives concerning prejudice and discrimination and is omitting inconsistent evidence in favor of advocacy (Eagly & Heilman, 2016). Emphasis is placed on diversity and training to overcome existing barriers and to change the salience of gender stereotypes (Carnes et al., 2015). However, the effectiveness of training and interventions is questionable within the literature (Dobbin & Kalev, 2017; Kalinoski et al., 2013). Scholars argue that the stereotypes that these interventions are attempting to change are enmeshed within social roles and social norms (Koenig & Eagly, 2014). Therefore, as long as occupational role segregation persists, so too will bias and discrimination (Eagly & Heilman, 2016).

This research presents approaches to ease role segregation within the top ranks of corporate occupations. I suggest means of addressing deficiencies in social and cultural capital and in altering the gender composition of occupational roles by activating isomorphic pressures. The results indicate that women executives are best served through

a combination of credentials and cultural capital offered through post-secondary education. Additionally, examination of isomorphic pressures suggest that coercive and mimetic pressures serve to increase the prominence of women on corporate boards. Further, by focusing on women leaders' aptitudes for risk-taking, I challenge conventional stereotypes and present another avenue to combat role segregation. Data demonstrating that women executives are willing to take risks for the firm dispels myths of gendered risk aversion. These myths have been used as a justification for women's corporate underrepresentation and pay differentials (Croson & Gneezy, 2009; Hoffman & Yoeli, 2013). Dispelling myths and stereotypes surrounding gender and risk removes the justification and eliminates the barrier.

My findings also reveal some of the complexity in both the antecedents and consequences of gender diversity within top leadership of large U.S. firms. This provides a much needed link between social science and stakeholders (Eagly & Heilman, 2016). Instead of contributing to the prevailing work focusing on interventions, or the business case for gender diversity, I convey the organizational and societal contexts that lead to more diverse corporate leadership. For example, my findings relative to isomorphic pressures suggest that in order to increase the number of women serving as directors, industry must first increase the overall number of women serving in senior management roles.

## Limitations and Future Research

A primary concern of this research, as well as other studies of women in

leadership, is that it neglects other salient categories, such as race and class, which may influence findings (Berrey, 2014; Torre, 2017; Wingfield & Alston, 2012). The exclusion of interactions between gender and other salient variables, as well as the lack of examination of the intersectionality of race, class and gender throughout the structure of the organization remain a gap within the literature. Further, this study fails to specify conditions for the majority in-group and the minority out-group without considering the propensity for internal divisions within groups (DiTomaso, Post, & Parks-Yancy, 2007). Acknowledging the simultaneous existence of multiple outgroups will bring intersectionality into the research streams and help incorporate gender and diversity research into the fold of studies of inequalities.

Next, the availability of secondary data relevant to the CEOs and boards of the largest corporations make them easy targets of study. However, the size and resources available at the largest firms allow them to enact programs to combat cognitive bias, social closure, and homophily, as well as, glass ceilings, cliffs and escalators (Dobbin, Sutton, Meyer, & Scott, 1993; Kelly & Dobbin, 1998). The mid-size and small firms that employ the majority of workers are overlooked with the exception of small case studies. Surveys of small and mid-sized organizations will allow researchers to dig into the black box of employment in which most women reside. It is time to expand beyond the study of S&P or *Fortune* firms within the U.S. context

A final limitation and pathway for future research lies in uncovering the day-today mechanisms in the workplace that either contribute to the reproduction of gender inequality or negate it (Reskin, 2000). The concepts of micro-inequities or micro-

advantages present in daily interaction need to be further explored (DiTomaso et al., 2007). Uncovering the day-to-day, taken for granted interactions that produce inequality or advantage within organizations will help to explain the structural embeddedness of gender within the organization that limits women's mobility. Women have made solid progress within organizations since the 1960s, decreased the gender wage gap and gained management and leadership positions within the largest corporations (Jacobs, 1992). Women are even close to bridging the gap within the pharmacy profession where earnings and authority for women are consistent with men (Goldin & Katz, 2016). However, in looking back over 50 plus years of empirical research into the proximate causes of and solutions to organizational gender segregation, we see very little has changed overall. A solution has not been found and continued research is necessary in order to unlock the answer to organizational gender equality.

## References

Beltratti, A., & Morana, C. (2006). Breaks and persistency: Macroeconomic causes of stock market volatility. *Journal of Econometrics*, *131*(1-2), 151-177. http://doi.org/10.1016/j.jeconom.2005.01.007

Berrey, E. (2014). Breaking glass ceilings, ignoring dirty floors: The culture and class bias of diversity management. *American Behavioral Scientist*, *58*(2), 347-370. http://doi.org/10.1177/0002764213503333

Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, *22*, 345-423. http://doi.org/10.1016/S0191-3085(00)22009-1

Carnes, M., Devine, P. G., Baier Manwell, L., Byars-Winston, A., Fine, E., Ford, C. E., … Sheridan, J. (2015). The effect of an intervention to break the gender bias habit for faculty at one institution. *Academic Medicine*, *90*(2), 221-230. http://doi.org/10.1097/ACM.0000000000000552

Catalyst. (2018a). *Quick take: Women in management*. Retrieved from https://www.catalyst.org/research/women-in-management/

Catalyst. (2018b). *Quick take: Women on boards*. Retreived from https://www.catalyst.org/research/women-on-corporate-boards/

Chatterjee, A., & Hambrick, D. C. (2011). Executive personality, capability cues, and risk taking: How narcissistic CEOs react to their successes and stumbles. *Administrative Science Quarterly*, *56*(2), 202-237. http://doi.org/10.1177/0001839211427534

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, *47*(2), 448-474. http://doi.org/10.1257/jel.47.2.448

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147-160.

DiTomaso, N., Post, C., & Parks-Yancy, R. (2007). Workforce diversity and inequality: Power, status, and numbers. *Annual Review of Sociology*, *33*(1), 473-501. http://doi.org/10.1146/annurev.soc.33.040406.131805

Dobbin, F., & Kalev, A. (2017). *Training programs and reporting systems won't end sexual harassment…promoting more women will*. Retreived from Retreived from https://hbr.org/2017/11/training-programs-and-reporting-systems-wont-end-sexual-harassment-promoting-more-women-will

Dobbin, F., Sutton, J. R., Meyer, J. W., & Scott, R. (1993). Equal opportunity law and the construction of internal labor markets. *American Journal of Sociology*, *99*(2), 396-427. http://doi.org/10.1086/230269

Eagly, A. H., & Heilman, M. E. (2016). Gender and leadership: Introduction to the special issue. *The Leadership Quarterly*, *27*(3), 349-353. http://doi.org/10.1016/j.leaqua.2016.04.002

Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance*, *11*(2), 102-111. http://doi.org/10.1111/1467-8683.00011

Fiske, S. R. (2016). Gender stereotypes, risk-taking, and gendered mobility. In S. R. Thye & E. J. Lawler (Eds.), *Advances in group processes* (pp. 179-210). Bingley, UK: Emerald Group Publishing.

Goldin, C., & Katz, L. F. (2016). A most egalitarian profession: Pharmacy and the evolution of a family-friendly occupation. *Journal of Labor Economics*, *34*(3), 705-746. http://doi.org/10.1086/685505

Higgs, D. (2003). *Review of the role and effectiveness of non-executive directors*. London, UK: Stationery Office London.

Hoffman, M., & Yoeli, E. (2013). The risks of avoiding a debate on gender differences. *Rady Business Journal*, *6*, 6-7.

Holden, M. E. (2017). *Female leadership is a business imperative*. Retrieved from https://theharrispoll.com/female-leadership-business-imperative/

Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. *Administrative Science Quarterly*, *37*(3), 422-447. http://doi.org/10.2307/2393451

Jacobs, J. A. (1992). Women's entry into management: Trends in earnings, authority, and values among salaried managers. *Administrative Science Quarterly*, *37*(2), 282-301. http://doi.org/10.2307/2393225

Kalinoski, Z. T., Steele-Johnson, D., Peyton, E. J., Leas, K. A., Steinke, J., & Bowling, N. A. (2013). A meta-analytic evaluation of diversity training outcomes. *Journal of Organizational Behavior*, *34*(8), 1076-1104. http://doi.org/10.1002/job.1839

Kelly, E., & Dobbin, F. (1998). How affirmative action became diversity management: Employer response to antidiscrimination law, 1961 to 1996. *American Behavioral Scientist*, *41*(7), 960-984. http://doi.org/10.1177/0002764298041007008

Keoun, B., & Keitz, A. (2018). *In Wells Fargo board shakeup, women win big*. Retrieved January 2, 2019, from https://www.thestreet.com/investing/in-wells-fargo-board-shakeup-women-win-more-power-from-failed-men-14533376

Koenig, A. M., & Eagly, A. H. (2014). Evidence for the social role theory of stereotype content: Observations of groups' roles shape stereotypes. *Journal of Personality and Social Psychology*, *107*(3), 371-392.

McGregor, J. (2017, December 26). Will the #MeToo Movement speed up the number of women in leadership or slow it down? *The Washington Post*. Retreived from https://www.chicagotribune.com/business/ct-biz-metoo-movement-female-leadership-20171227-story.html

Reskin, B. F. (2000). Getting it right: Sex and race inequality in work organizations. *Annual Review of Sociology*, *26*(1), 707-709. http://doi.org/10.1146/annurev.soc.26.1.707

Schwert, G. W. (1989). Why does stock market volatility change over time? *The Journal of Finance*, *44*(5), 1115-1153. http://doi.org/10.1111/j.1540-6261.1989.tb02647.x

Stuart, D. (2018, July). The power of three: Why we need more women on boards. *CEO Magazine*. Retreived from https://www.theceomagazine.com/business/management-leadership/the-power-of-three-why-we-need-more-women-on-boards/

Torre, M. (2017). Attrition from male-dominated occupations : Variation among occupations and women. *Sociological Perspectives*, *60*(4), 665-684. http://doi.org/10.1177/0731121416683160

Wingfield, A. H., & Alston, R. S. (2012). The understudied case of black professional men: Advocating an intersectional approach. *Sociology Compass*, *6*(9), 728-739. http://doi.org/10.1111/j.1751-9020.2012.00503.x

# CURRICULUM VITAE

ALICIA R. INGERSOLL

4676 Hollow Road
Nibley, UT 84321
Phone: 801-755-0481
Email: alicia.ingersoll@aggiemail.usu.edu

## EDUCATION

**Utah State University**
Doctor of Philosophy in Sociology (Anticipated May 2019)
Emphasis: States and Markets
Minor Emphasis: Environment

Dissertation Title: *The Rise and Run of Women Corporate Leaders*
Dissertation Committee: Dr. Christy Glass, Professor of Sociology (Chair); Dr. So-Jung Lim, Assistant Professor of Sociology; Dr. Gabriele Ciciurkaite, Assistant Professor of Sociology; Dr. Ronda Callister Professor of Management; Dr. Merideth Thompson, Associate Dean for Academic Affairs at the Jon M. Huntsman School of Business and Associate Professor of Management.

**Westminster College**
**Bill and Vieve Gore School of Business**
Master of Business Administration, 2011
Graduated with honors, Delta Mu Delta

**Weber State University**
APICS Certified Supply Chain Professional, 2007

**University of Utah**
Bachelor of Science, 2004
Major: Political Science

## REFEREED PUBLICATIONS

**Ingersoll, A**., Glass, C., Cook, A., & Olsen, K. (Forthcoming). Power, status and expectations: How narcissism manifests among women CEOs. *Journal of Business Ethics.*

Cook, A., **Ingersoll, A.** & Glass, C. (Forthcoming). Gender gaps at the top: Does board composition affect executive compensation? *Human Relations*.

Li, K., Li, Y., Gu, Q. & **Ingersoll, A.** (Forthcoming). Optimal service channel decisions with remanufactured product and protection plan service. *International Journal of Production Research*.

Glass, C., Cook, A., & **Ingersoll, A.** (2016). Do women leaders promote sustainability? Analyzing the effect of corporate governance composition on environmental performance. *Business Strategy and the Environment* 25(7):495-511.

## BOOK CHAPTERS

Glass, C., Cook, A. & **Ingersoll, A.** (2017). Women and minority CEOs: When are they appointed and what difference do they make? The American Middle Class: An Economic Encyclopedia of Progress and Poverty, edited by Robert Rycroft. Santa Barbara, CA: Greenwood Press.

Glass, C. & **Ingersoll A.**, (2017). Sociological approaches to women and leadership theory. Handbook of Research on Gender and Leadership, edited by Susan R. Madsen. Edward Elgar Publishing.

## RESEARCH UNDER REVIEW

**Ingersoll, A.** Collisions of difference: Teaching gender and sexuality in a conservative and religious culture. *(Revise and Resubmit, The Social Studies)*

**Ingersoll, A.**, Li, K., Cook, A., & Glass, C. Under pressure: Finding organizational legitimacy through the supply chain. (*Revise and Resubmit, International Journal of Physical Distribution and Logistics Management)*

## REFEREED PRESENTATIONS

Ingersoll, A., Glass, C. & Cook, A. (March 2019). *Credentialed for Success*. To Be Presented at the Pacific Sociological Association Conference, Oakland, CA.

Ingersoll, A., Cook, A. & Glass, C. (August 2018). *Is it all about who you know or what you know?* Presented at the Academy of Management Annual Conference, Chicago, Il.

Cook, A., Glass, C. & Ingersoll, A. (June 2018). *Gender gaps at the top: Does board composition affect executive pay structures?* Presented at the European Academy of Management Conference, Reykjavik, Iceland.

Ingersoll, A., Cook, A. & Glass, C. (April 2017). *Power, status and expectations: How narcissism manifests among women CEOs.* Presented at the Pacific Sociological Association Conference, Portland, OR.

Beorchia, A., Glass, C. & Ingersoll, A. (April 2017). *Si Se Puede! Latina representation in top leadership positions.* Presented at the Pacific Sociological Association Conference, Portland, OR.

Ingersoll, A., Cook, A. & Glass, C. (March 2017). *Excellence at what cost? The consequences of supply chain management rankings.* Presented at the Western Academy of Management Conference, Palm Springs, CA.

Ingersoll, A., Beus, P., & Browne, S. (March, 2016). *Tracking women's representation in Utah's high-tech industry*. Presented at the Pacific Sociological Association Conference, Oakland, CA.

Glass, C., Cook, A., & Ingersoll, A. (March, 2015). *Do women leaders promote sustainability? Analyzing the effect of corporate governance composition on environmental performance*. Presented at the Western Academy of Management Conference, Kauai, HI.

**INVITED PRESENTATIONS**

Ingersoll, A. (October, 2014). When strategy and application align: The linkage between corporate citizenship and a lean culture. Presented at the Partners in Business Operational Excellence Regional Conference, Logan, UT.

Ingersoll, A. (November, 2016; October 2017). Navigating trade compliance. Presented to the upper division undergraduate business law course, Utah State University.

Ingersoll, A. (November, 2014; November, 2015). Supply chain strategy and decision making. Presented to the upper division undergraduate operations course, Utah State University.

Ingersoll, A. (November, 2013; April, 2014). Effective virtual team processes. Presented to the upper division undergraduate team management course, Utah State University.

## TEACHING EXPERIENCE

**Weber State University**
MGMT 3010: Organizational Behavior and Management (Fall 2018, Spring 2019)
Adjunct Professor
Goddard School of Business & Economics

**Utah State University**
SOC 2370: Sociology of Gender (Fall 2018)
Instructor (of Record, Graduate Assistantship)

SOC 2370: Sociology of Gender (Fall 2017)
Instructor (of Record, Graduate Assistantship)

MGT 1050: Foundations of Business and Leadership (Spring 2017)
Adjunct Instructor
Jon M. Huntsman School of Business

SOC 2370: Sociology of Gender (Fall 2016)
Instructor (of Record, Graduate Assistantship)

MGT 3710: Team Management (Spring 2016)
Adjunct Instructor
Jon M. Huntsman School of Business

## HONORS AND AWARDS

Graduate Student Teacher of the Year Award for the Department of Sociology, Social Work and Anthropology, Utah State University, 2019.
Doctoral Student Researcher of the Year Award for the College of Humanities and Social Sciences, Utah State University, 2018
Doctoral Student Researcher of the Year Award for the Department of Sociology, Social Work and Anthropology, Utah State University, 2018
Calvin R. & Janet E. Mauer Fellowship, 2017, 2018
Utah State University Center for Women & Gender Teaching Fellowship, 2018
Earl A. and Carmen D. Frederickson Graduate Research Fellowship, 2017
Delta Mu Delta International Business Honor Society, 2011

## SERVICE EXPERIENCE

Ad hoc reviewer for *Social Problems*
Ad hoc reviewer for *Business, Strategy & the Environment*
President, Utah State University Sociology Graduate Students Association, 2016-2017

**SELECT PROFESSIONAL EXPERIENCE**

President and Founder; Ingersoll Cook LLC, Logan, UT; July 2013 - Present

- Provide specialized supply chain and logistics consulting services targeted toward the outdoor industry. Select clients have included Black Diamond, Shred, Pieps, Avatech, Mountain Hub, Simms and Grudens.

- Assist companies with integrating business strategy and supply chain initiatives to drive operational excellence.

- Provide deep industry experience that encompasses product development, inventory strategy and integrated demand planning, sourcing and commodity management, manufacturing strategy and operations, distribution network and logistics optimization, and sustainability.

Director of Global Logistics, Black Diamond, Inc., July 2003 - June 2013

- Responsible for all Black Diamond, Inc. global logistics functions, consisting of operations within the US, Asia and Europe.

- Developed Black Diamond Corporate Social Responsibility (CSR) program. Determined CSR policy, metrics and reporting methods. Developed criteria and implemented vendor factory audits. Collaborated cross functionally to determine and bench mark best practices. Participated in Outdoor Industry Association working groups to set industry sustainability standards.

- Developed, deployed and managed regulatory and trade compliance programs.

Southeast Regional Operations Manager, Netflix, July 2002 - July 2003
Inventory /Distribution Systems Manager, Salt Lake Olympic Committee, Jan. 2000 - July. 2002