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CEO gender, Female Representation in TMT and Firm Innovation: Examining Organizational and Environmental Boundary Conditions

Abstract

Drawing on the CEO/TMT research as well as the gender literature, his study proposes the determinant role of CEO gender on the female representation in top management teams (TMTs) as well as the moderating role of CEO efficacy in the relationship between female representation in TMT and firm innovation, with the further moderating effect from industry growth. We predict female CEOs are more likely to recruit female TMT members, but the positive female CEO-female representation in TMT should be weaker for female CEOs from a larger firm and who are higher in self-efficacy. Moreover, CEO self-efficacy negatively moderates the relationship between female representation in TMT and firm innovation and this moderating effect is especially salient for firms with female CEOs. Finally, the three-way interaction is predicted that the relationship between female representation in TMT and firm innovation should be the highest when both CEO self-efficacy and industry growth are high.

Key words:

CEO gender, female representation in TMT, firm innovation, CEO self-efficacy, industry growth

Word count: 5,274 words
Research on top management teams (TMTs) has emphasized the important role they play in firms’ strategic processes and the influence they have on organizational outcomes including innovation (Alexiev, Jansen, Van den Bosch, & Volberda, 2010; Halebian & Finkelstein, 1993; Quintana-García & Benavides-Velasco, 2016). Specifically, TMT diversity has been widely examined. The basic thesis of this line of research is despite potential conflict and politics among top team members in the decision-making process (e.g., Chatman & Flynn, 2001), a diverse TMT featured with members’ different knowledge, experiences and perspectives tend to facilitate a more comprehensive evaluation of alternatives in problem solving (e.g., Barkema & Shvyrkov, 2007; Somech, 2006), helping to enhance the decision quality which in turn, promotes firm performance.

Among different forms of diversity, gender diversity, or more specifically, female representation in boards and TMTs has drawn a lot of attention of researchers and practitioners alike. Particularly, gender diversity in the board seems to be a central theme of corporate governance reform efforts worldwide (Baulkaran, 2015). Prior research of TMT gender diversity has found its role in the firm’s decision making, competitive aggressiveness and entrepreneurial outcomes among else (e.g., Jeong & Harrison, 2017; Vaniala, Tikkanen, & Huhtala, 2014; Lyngsie & Foss, 2017). The basic thesis underlying this line of research is that female representation could enhance the exchange and integration of different kinds of information, facilitating the improvement of decision-making quality and so add value for the firm (Carpenter & Fredrickson, 2001; Joshi & Roh, 2009; van Knippenberg, De Dreu, & Homan, 2004).

Despite attempts on exploring such influences and how they happen (see the most recent meta-analysis done by Jeong and Harrison, 2017), the fact that based on a sample of 146 primary studies, Jeong and Harrison (2017) found only weak positive linkage between female
representation in TMT and the long-term performance of the firm suggests the need of exploring the variation of the influence, that is, though we know female in top teams does matter to the TMT decision making and means to organizational bottom-line, in terms of women’s higher consciousness of risk and their other characteristics, how such tendency depends along the different level of internal and external business environment is unknown (Kulik & Metz, 2017).

In this study, drawing on the CEO-TMT interface literature, we examine the link between female CEO on female representation in TMT as well as the moderating role of CEO self-efficacy on such link. We also investigate the relationship between female TMT representation and firm innovation as well as the moderating role of CEO self-efficacy on the relationship. Moreover, considering the effect of external business environment on impacting a firm’s strategic process, we propose and test a 3-way interaction among female TMT representation, CEO self-efficacy, and industry growth on firm innovation.

THEORETICAL BACKGROUND AND PROPOSITIONS

Female CEO and Female Representation in the TMT

“CEOs are uniquely responsible for selecting, evaluating, rewarding, motivating, and coaching members of their TMTs” (Ling, Simsek, Lubatkin, & Veiga, 2008, p. 558). The CEO is typically responsible for the build-up of the TMT. As the most powerful actor in an organization, the CEO integrates his/her vision and strategy into the TMT, and does so with his/her function as leader of the team (Calori, Johnson & Sarnin, 1994). Particularly, the CEO can attain this by using his/her role to identify, recruit, and bring together the necessary combination of specialized and managerial skills, and considering the trade-offs between them (Kor & Mesko, 2013).

Klimoski and Koles (2001) noted that the staffing of the TMT may be facilitated by head hunters, assessment centers, employee interviews, personality testing, and informal information
(such as recommendations of other TMT members). And, it is naive to assume that the CEO makes staffing decisions without the influence of outside constituents as he/she may have to consider the views of other stakeholders, such as the board of directors, venture capitalists, other top managers, and important outside organizations. More often than not, however, the responsibility and authority for selecting TMT members reside with the CEO. “The TMT is largely a creation of the CEO” (p. 252). This means that the CEO is able to exercise major influence on the composition of the TMT, among other critical features of an effective TMT.

So, a CEO has the ability to determine the TMT composition according to his/her preferences by hiring and firing members of the TMT. Klimoski and Koles (2001) argued that the TMT must serve the needs of the CEO (as much as the needs of the firm). Given that TMT is essentially a vehicle for protecting the interests of the CEO, TMT staffing (and management) “will depend on the kind of vulnerabilities felt by the CEO as well as the nature of the personal and corporate threats or opportunities that he/she is likely to encounter” (p. 253). As such, for the present research, we ask this pertinent question: Is a female CEO more motivated to hire female TMT members as compared to a male CEO? The homophily (or similarity attraction) perspective, which argues that individuals tend to be attracted to similar others (Byrne, 1971; Ibarra, 1995), provides some hints on answering such question as the perspective suggests that a female CEO’s ability to successfully advance her leadership goals is dependent on the presence of other female leaders within the TMT.

The homophily perspective suggests that social similarity (e.g., gender) among members of a group is necessary in order to overcome distrust and lack of support that occurs when individuals are members of a social minority within organizations or teams (Kanter, 1977). Kanter's (1977) theory of tokenism predicts that, in the absence of leadership homophily, token
female leaders will face challenges to their leadership effectiveness, including heightened scrutiny, exaggerated stereotypes, and negative evaluation bias. They may also be denied requisite resource to exercise authority effectively owing to their perceived lower status and power (Acker, 2006; Eagly & Karau, 2002). As a result, token female leaders will be inhibited from advancing positive organizational outcomes.

Based on the homophily perspective, it should be reasonable to suggest that female CEOs require the presence of other similar others in leadership positions in order to overcome the challenges of tokenism. Scholars have theorized that similarity or homophily among team members increases trust, solidarity, commitment, communication, and coordination and increases a group's ability and productivity to successfully complete tasks (e.g., Reagans & Zuckerman, 2001; Smith, 2002; Stürmer, Snyder, Kropp, & Siem, 2006). According to this perspective, the presence of other women in decision-making positions likely provides a female CEO with requisite resource and support to overcome her token status and successfully advance her leadership goals.

Reasoning along the similar vein, research studies on board composition have indicated that gender diverse boards can support women CEOs by reducing the role conflict that female CEOs experience; limiting the prevalence of gender stereotypes throughout the organization (Ely, 1995; Ely & Thomas, 2001; Konrad & Kramer, 2006; Konrad, Kramer, & Erkut, 2008); serving as important allies or mentors to female CEOs in championing innovation, equity, or novelty policies; reducing the risks faced by female leaders (Eagly, Johannesen-Schmidt, & Van Engen, 2003); as well as increasing the authority and confidence of female leaders (Karpowitz, Mendelberg, & Shaker, 2012).

While the homophily perspective does not deny that a female CEO may contribute
significantly to desirable organizational outcomes, it predicts that the female CEO will appoint more women in the top of the organizational hierarchy in order to increase her ability to do so. Consistent with the prediction, a study of 3001 U.S. listed firms by Lim (2017) revealed that firms led by female CEOs had more female directors on their boards. To evaluate the prediction with TMTs, which are different from company boards, we posit Hypothesis 1a.

Proposition 1. Female CEO is more likely to recruit female TMT members, thus positively related to female TMT representation.

CEO Self-efficacy

A CEO’s self-efficacy is the belief of the CEO in his/her ability to achieve a goal or an outcome (Bandura, 1977). Among various CEO characteristics, self-efficacy is considered important due to its potential influences on the teamwork at the top. As a concept derived from social cognitive theory and is closely associated with self-regulation (Gist & Mitchell, 1992), self-efficacy refers to an individual’s confidence in his or her ability to perform a specific behavior or task (Bandura, 1977). It is a self-regulatory motivational construct concerning “judgments of how well one can execute a course of action required to deal with prospective situations” (Bandura, 1982, p. 122) and “beliefs in one’s capabilities to mobilize the motivation, cognitive resources and course of action needed to meet given situational demands” (Wood & Bandura, 1989, p. 370). In this study, CEO self-efficacy is defined as the extent to which a CEO is confident in his or her work related to the strategic decision making and leading the firm towards its goal.

Bandura (1997) suggested that self-efficacy plays an important role in task-related performance by influencing individuals’ choice, effort, and persistence. Stajkovic (2006) noted, “Having high confidence makes it more likely that people will initiate action, pursue it, and
sustain persistence because they feel certain that they can handle what they desire to do or needs to be done” (p. 1209). Because individuals who are high in self-efficacy tend to set difficult and challenging personal goals, they are more likely to be successful performers (Bandura & Locke, 2003; Stajkovic, 2006). In support, a growing body of research, including ample experimental, longitudinal, and meta-analytic studies, proves the influence of self-efficacy on performance in a variety of organizational settings (e.g., Bandura & Locke, 2003; Chen, Gully, & Eden, 2001, Walumbwa et al., 2011). In particular, a meta-analysis of 114 studies by Stajkovic and Luthans (1998) revealed that self-efficacy was positively correlated with work-related performance.

CEO Self-efficacy Moderates the Relationship between Female CEO and Female TMT Representation

About the effect of homophily manifested in the link between CEO gender and female TMT representation (Hypothesis 1), the present research also propose the level of CEO self-efficacy dampens homophily and test self-efficacy as a negative moderator on such link. We argue that a female CEO with high self-efficacy is more likely to believe she can well accomplish the leadership tasks, leading the TMT and the firm towards achievement of business outcomes disregarding whether the TMT members are of the same gender as she is. It thus follows that the highly self-efficacious female CEO is less motivated to give preference to women in the selection of TMT members, thereby deviating from the prediction by the homophily perspective as discussed in the above paragraphs, but more focused on other non-gender personal attributes as TMT selection criteria. As such, it is posited that:

Proposition 1a. Compared with their male counterparts, Female CEOs who are high in self-efficacy is less likely to recruit female TMT members, i.e., negatively related to female
representation in the TMT.

**Firm Size Moderates the Relationship between Female CEO and Female TMT Representation**

The positive relationship between female CEO and female representation in the TMT may also vary according to firm size. In our research context which consists of new ventures primarily, firm are not real large in terms of size at least compared with those established firms which are more hierarchical (Williamson, 1967) and in which the top managers’ managerial discretion is lower in those larger firms relative to smaller firms (Finkelstein & Hambrick, 1990). However, in even smaller new ventures, the CEOs are to work with the TMT members more frequently and communicate more for daily decisions, which entails the CEOs more discretion, hence the similarity-attraction effect is more salient, making more possible of the female CEO’s choice of female TMT member. Thus it is posited that:

*Proposition 1b. Relative to larger firms, in smaller firms, female CEOs are more likely to recruit female TMT members, i.e., positively related to female representation in the TMT.*

**Female Representation in the TMT and Firm Innovation**

Extant research on gender diversity in the TMT has demonstrated that beyond the social and ethical implications, more female representation in TMT “may have important implications for a firm’s competitiveness, not merely as a reflection of a more gender neutral and thus more meritocratic recruitment and promotion process, but more specifically because of the potential benefits of gender diversity itself” (Dezső & Ross, 2012, p. 1072). A TMT with more female is
endowed with different human and social capital which helps the TMT to generate more new perspectives and opportunities for acquiring and allocating resources, more appropriately, all of which facilitate the firm’s innovation and performance improvement (Miller & Triana, 2009).

Arguing that female representation in top management brings informational and social diversity benefits, Dezső and Ross (2012) further pointed out that women in the TMT help to enrich the managerial behaviors throughout the firm, and even motivates women in middle management. The expected results should be improved managerial task performance which thus better firm performance. Moreover, drawing on previous finance and psychology literature, Baulkaran (2015) also contended that male executives tend to display overconfident behavioral bias compared to female executives that can negatively affect shareholder value; while female executives or directors tend to be more risk-averse, and it does not appear that this behavioral bias is detrimental to shareholders. The various roles women take in their personal life also provide psychological benefits to the TMT, enriching the interpersonal and leadership abilities at the top team (Ruderman, Ohlott, Panzer, & King, 2002).

Empirical studies have indeed revealed that gender diversity is positive for firm innovation (e.g. Østergaard, Timmermans, & Kristinsson, 2011) while female representation in TMT is found to increase the range and number of available ideas and perspectives, promote creativity, board diligence, independence, and informativeness, thereby leading to better innovation performance (Chen, Crossland, & Huang, 2016; Dezső & Ross, 2012). With more women in the TMT, a working atmosphere that is good for communication and idea sharing can be better generated, so the effectiveness of strategic decision making can be enhanced. Even for strategy implementation, the more employee participation as a result of higher female representation in the TMT will facilitate the process, especially the enhanced connectedness
among employees and open working climate, all of which help (Nielsen & Huse, 2010). As such, we posit Hypothesis 2.

*Proposition 2. Female TMT representation is positively related to firm innovation.*

**CEO Self-efficacy Moderates the Relationship between Female TMT Representation and Firm Innovation**

We have hypothesized that female TMT representation is advantageous to firm innovation. For the present research, we take the hypothesis a step further and go on arguing that CEO self-efficacy (once again) plays as a moderator on this link. Here, we argue based on the fact that a CEO is also a member of the TMT. When the TMT makes discussion on any strategic issues, a high self-efficacious female CEO will add more to the female membership to make the diversity effect stronger while if adding too much (too many female members plus a more powerful female CEO) the positive effect of diversity is weakened. As such, we posit Hypotheses 3a and 3b.

*Proposition 3a. CEO self-efficacy negatively moderates the relationship between female representation in the TMT and firm innovation.*

*Proposition 3b. The negative moderating role of CEO self-efficacy on the link between female TMT representation and firm Innovation is more salient for firms with female CEOs.*

**The Secondary-level Moderating Effect of Industry Growth**

The external environment has an indispensable impact on the strategic decision making of TMTs and firm effectiveness. In essence, because the environment is constantly changing, firm
strategic decisions “involve choosing among options with unknown consequences” (Lind & Van Den Bos, 2002, p. 182). Therefore, it is imperative to understand how environmental characteristics will alter the impact the role of CEO and TMT in influencing the firm innovation. In this research, a firm’s industrial characteristics, i.e., industry growth is focused.

As an important indicator of munificence (availability of environmental resources to support growth) (Lumpkin & Dess, 1996), industry growth is a key component of market attractiveness for new ventures (McDougall, Shane, & Oviatt, 1994). Industry growth reflects a high demand in the industry and abundant attractive opportunities for firm development (Li & Atuahene-Gima, 2002 McDougall et al., 1994). In a rapid-growing industry, firms simply adjust strategic actions to take advantage of emerging opportunities to grow (Chandler & Hanks, 1994).

For firms operating in such an environment, it is more likely to benefit from the growth if the TMT can make due strategies to identify the opportunities and act accordingly (McDougall et al., 1994). In general, there is a fit among female representation in TMT, CEO self-efficacy and industry growth; and the relationship between female representation in TMT and firm innovation will be more pronounced when the level of industry growth is high. This is because, firstly, as above discussed, compared with their male counterparts who are usually overconfident and risk-taker, female top managers are less aggressive and good at doing things in more balanced way. Decisions made by top managers with such characteristics are more appropriate for an industrial environment featured as growth. In other words, female represented TMTs are better able to develop the optimal strategies fitting for a growing industry. On the contrary, for firms operating in a more competing environment, they may benefit less from their female represented TMTs but need a more male-dominated top team so that more aggressive strategies can be developed, facilitating the competitiveness of the firm in the market.
Moreover, ample opportunities existed in fast-growing industries will intensify the need for TMT members to create synergy between scheduled and emerging tasks so that the firm’s limited resources will not be overstretched. Through the CEO who is high in self-efficacy, the balanced strategic work better facilitated by female represented TMT will be done more effectively due to the enhanced confidence and commitment of the TMT members. It is more likely that opportunities are seized because female represented TMTs are better able to collaborate in a systematic manner, especially under the management of a CEO high self-efficacy. In contrast, without high-self-efficacy CEOs, the balanced and connected work facilitated by female represented TMTs can only be done with less confidence and creativity, making the firm hardly to harvest fully from the industries with higher potential of growth to engage and so benefit from firm innovation. This would reduce their capability to make good use of limited firm resources to explore new opportunities and complement intended strategies with high-quality emergent strategies, lowing firm innovation. Taken together, we posit Hypothesis 4.

Proposition 4. There is a three-way interaction among female representation in TMT, CEO self-efficacy and industry growth, such that the relationship between female representation in TMT and firm innovation is the strongest when both CEO self-efficacy and industry growth are high.

DISCUSSION

While women have made considerable inroads into domains traditionally dominated by men, and women accounted for over a third of U.S. managers in U.S., women remained significantly underrepresented at the top of the corporate hierarchy, both in the boardroom and in top management team (Chen et al., 2016; Dezső & Ross, 2012). Responding to the call for more empirical evidence of linking female leadership role to organizational outcomes, scholars have
examined female CEO, female representation in boards or TMTs, and their significant influences on the corporate governance and firm performance, including the short-term and long-term organizational outcomes (e.g., Dezső & Ross, 2012; Mahadeo, Soobaroyen, & Hanuman, 2012; Jurkus, Park, & Woodard, 2011; Miller & Triana, 2009; Triana, Miller, & Trzebiatowski, 2013).

Dezső and Ross (2012) confirmed that female representation in top management improves firm performance but only to the extent that a firm’s strategy is focused on innovation, in which context the informational and social benefits of gender diversity and the behaviors associated with women in management are likely to be especially important for managerial task performance. Therefore, to better understand the variations of the influences of female CEO on female TMT representation as well as female representation in TMT on firm innovation, this study is proposed to examine the contextual variables’ role in these influences, specifically, both internal and external contextual variables.

By examining the contextual role of CEO self-efficacy and industry growth, this study will contribute to the literature of gender diversity in general and female representation in TMT’s effect on firm innovation, more specifically. To address the inconsistent findings from prior research on the linkage between female representation in TMT and firm innovation, this study adds to this line of research by proposing to study the contingencies both internal and external to the firm. Drawing on and so contributing the research of CEO-TMT interface, this study provides evidence to the study of CEO role in influencing the effectiveness of teamwork at the top by examining a specific CEO characteristic, i.e., CEO self-efficacy. Future research can explore other kinds of CEO characteristics or trait to see how they may impact the functioning of female represented TMTs. Going beyond industry growth, other environmental factors such as the competitiveness or dynamism of the firm’s business environment can be studied as well.
Practically, with the trend of recruiting more female top managers into the TMTs, CEOs are to learn improve their self-efficacy say through training, so as to increase the effectiveness of the teamwork at the top especially in the TMT with more female members. Such practices are especially helpful for firms operating in a growth industry.
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