What Differentiates Firms Led by Female CEOs?

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Summary

Research questions: This paper seeks to show what factors differentiate the gender of the CEO in property-casualty insurance firms.

Methods: The sample is drawn from firms operating in the United States property-casualty insurance sector. Logistic models are used to differentiate firms led by female CEOs.

Results: Results indicate that firms led by female CEOs are likely to be listed publicly, tend to be smaller and hold lower risk, even after controlling for performance and other firm differences.

Structure of the article: Introduction; Hypothesis development; Research methodology; Study results; Discussion of the findings; Conclusion; About the authors; Bibliography
Introduction

The need and importance for gender diversity in leadership positions with power and influence has been highlighted and well established in the literature in recent years. Statistics indicate that women make up 50 percent of graduates from universities and seem to be hired in equal percentages in large organizations (Elango, 2019). Anecdotally, it seems there is an overall trend in women increasing their share of managerial positions, but their representation decreases at higher levels within organizations. In 2019 in the United States, women held the title of CEO in 27 (5.4%) S&P 500 and 33 (6.6%) Fortune 500 firms. Similarly, in 2020, women led 167 (about 6%) of the largest 3000 firms (i.e., Russell 3000) in the United States (Fuhrmans, 2020).

There have been several studies focusing on women as corporate leaders of the largest organizations (i.e., S&P 500 firms). Despite the existence of these studies, much remains to be investigated on this topic, as not much is known about industry sector-wise representation of women across a spectrum of firms. For instance, the present study found that CEO positions were held by women in about 10% of property-casualty insurance firms in 2019. While we acknowledge that 10% is still a low number, it should be noted that these numbers are significantly higher than the number of female CEOs at the largest (i.e., S&P 500 or Fortune 500) firms.

This study focuses on the financial services industry, as it is believed this industry has a lower number of women on boards compared to many other sectors (Adams and Kirchmaier, 2016). The financial services industry is interconnected with many areas of the economy and is a critical sector for women to have a breakthrough. Potentially, this study could help address the many inequalities faced by women in other areas in the economy due to overall influence on other industries. Additionally, having more women in leadership positions in the financial services industry would be beneficial for everyone, as it would create more financial stability, better risk management, better investments, and socially conscious investing (Hao, 2019).

Several reasons have been attributed to why women are not doing well at higher levels of the finance sector. These include the false stereotype that women are not suitable for finance, which creates negative job attitudes and discrimination, and increases the likelihood for women to leave these positions. These attitudes and behaviors also create psychological issues such as identity separation and a gender identity which is incompatible with one’s work identity for a woman in the finance sector (Hippal, Sekaquaptewa, and McFaralne, 2015; Steele, 1997). Apart from this gender bias, female executives have long struggled with a lack of recognition for their achievement, a lack of mentoring support, and difficulties balancing business and personal lives (Eldridge, Park, Phillips and Williams, 2007).

Given these issues, this study’s goal is to understand the factors differentiating firms led by female CEOs in the financial services sector. In particular, its emphasis is on property-casualty insurance, as focusing on a single industry will allow for a more reasonable comparison of firms as opposed to a cross-section of firms from a spectrum of sectors. According to the U.S. Equal Employment Opportunity Commission, women held only 33.5% of the Executive/Senior Level Officials & Manager positions, but they held 51.31% of First/Mid Level Officials & Managers, 57.9% of Professional, and 53.11% Technical roles with insurance firms in 2018.

This study has several important implications, as it provides a better understanding of the factors which affect women leaders of insurance firms. It has been argued that having a more significant number of women in higher levels of management could lead to higher performance and lower risk for firms (Khan and Vieito, 2013; Perryman et al., 2016; Elango, 2021). Therefore, by focusing on a group historically discriminated against and consisting of over 50% of the world’s population, it is also beneficial for society as a whole.

Hypothesis Development

Firm type and size

Extant literature offers several reasons for the relatively few women holding the position of CEO. These arguments include the notion of “think manager –
think male” (Page 6: Schein, 2007), wherein female candidates are discriminated against based on the assumption that such roles are more congruent with the male gender role (Braun et al. 2017) or the belief that women are less qualified for or capable of such tasks (Coder et al., 2013). Another explanation is the “similar to me effect” (Rand and Wexley, 1975), wherein the current CEO or individuals in leadership positions involved in selection prefer individuals with similar demographic characteristics and attitudinal traits. Since most of the positions are held by men, this leads to a bias against female candidates.

Even in instances where female candidates succeed in reaching the top spot, they seem to be discriminated against in their performance evaluations. Results of the meta-analysis conducted by Eagly, Makhijani, and Klonsy (1992) and Eagly, Karau, and Makhijani (1995) indicate that women are evaluated more unfavorably and considered less competent in roles typically occupied by men (e.g., CEO). Additionally, Lee and James (2007) find that, for firms with a female CEO appointment, stock valuation effects are more negative compared to those with male CEO appointments. They point out that two factors could be driving this behavior. First, there is a stereotype bias against women, and second, there are few female CEOs in such positions, making such evaluations very difficult due to lack of data.

Given these issues, board members may see a lack of fit (Heilman, 2012) between the required role attributes of the CEO due to biases and negative expectations about their likely success. Therefore, they are likely to resist giving CEO roles to women in publicly traded or large firms. However, this may not be the case for small and non-public firms. This belief can be better understood by looking at board behavior. For instance, Cook and Glass (2014) report that when the firm is not doing well (i.e., failing), the glass ceiling effect seems to be less of a barrier for a woman. It could be that board members are more comfortable appointing women as CEOs in companies which are private or smaller in size, as they pose less risk to them and their organization. Therefore, it is posited that:

**Hypothesis 1a**: Firms led by female CEOs are less likely to be publicly-traded.

**Hypothesis 1b**: Firms led by female CEOs are likely to be relatively smaller.

**Risk preference**

Next, this study focuses on the risk preference of the CEO. Previous research indicates that female CEOs are more risk-averse, care about company resources, and are more ethical in company decision-making (Barber and Odean, 2001; Croson and Gneezy, 2009; Elango, Paul, Kundu and Paudel, 2010; Ford and Richardson, 1994). This attitude toward risk is quite consistent with their behavior in financial choices. Women seem to invest less in risky financial assets compared to men (Agnew, Balduzzi, and Sunden, 2003), which could be reflected in job-related choices. Palvia, Vahamaa and Vahamaa (2014) also report that female CEOs in the banking industry held more conservative levels of capital despite controlling for the bank’s risky asset attributes. At the corporate level, Huang and Kisgen (2013) report that female executives are less likely to undertake large acquisitions or take on too much debt, deeming these actions to be risky for the firm. Zeng and Wang (2015) found this behavior consistent with female CEOs in China. They report that female CEOs are more conservative, more likely to hold higher levels of cash, and seem to care less about the opportunity cost of holding cash. Faccio, et al. (2016), based on their study of European Companies, report that firms with female CEOs tend to have lower leverage and volatility in earnings, and are associated with a decline in corporate risk-taking. Similarly, Ho, et al. (2015) report that in firms run by female CEOs, there is a greater degree of conservatism in terms of accounting and they are more conservative when their firms are exposed to risks. Given these reasons, we propose that:

**Hypothesis 2**: Firms led by female CEOs are likely to be involved in lower risk-taking (i.e., risk retention).

**Research Methodology**

**Sample selection**

The study’s initial sample was based on the list of property-casualty insurers operating in the United States, taken from the SNL Financial database. This database, offered by the Standard and Poors
Corporation, is considered reputable and has been used in previous academic research. The list of insurers in the database contained 577 with CEOs listed for the year 2019. Our first step was to identify the CEO’s gender for each of the insurers based on the CEO’s name. Therefore, we formed a panel of three individuals to classify the gender of the CEO based on the name appearing in the database, and required them to suggest the degree of confidence in their assessment. Additionally, to double-check the categorization of the panel, we made a computerized comparison with common gender-based names. In the event all three of the panel members did not have a full concurrence or 100% confidence, we went to the website of the insurer to ascertain the gender. At the website, we searched for verifiable evidence (textual description or pictures) which confirmed the gender of the CEO. As a side note, we acknowledge that in a few instances, even the website did not provide enough support to enable us to identify the gender of the CEO, in which case we excluded these firms from the analysis. Once we identified the gender, we matched these firms to the financial information from the SNL database for the seven other variables used in this study, resulting in a final sample of 325 property-casualty firms.

Variable operationalization

The study uses a total of eight variables in its models inclusive of the criterion variable. Of the remaining seven variables, three are related to the hypotheses presented while four of them are control variables. The criterion variable of interest, namely the dependent variable for this study, is whether a firm is led by a female CEO. In the event the firm is led by a female CEO, it was coded as 1, and 0 if male. Among the independent variables, we coded firms that are publicly listed as 1, zero otherwise. We measure firm size by taking the log values of total premiums (i.e., revenues) of the insurer. We measured risk-taking of the insurer through risk retention ratio. This ratio is measured as net premium written divided by the gross premium written and is a good proxy to indicate how much of the risk incurred by the insurer is being carried internally or passed externally to reinsurers who then carry the risk.

As noted, this study also uses four control variables. The variables we control for are loss ratio, expense ratio, performance, and liquidity of the insurer. These variables need to be factored in, as they have been known to impact insurer operations. We believe the inclusion of the variables considered critical is important to the integrity of this study. Based on standard industry accounting practice, we measure loss ratio as losses incurred divided by premiums earned by the insurer, and expense ratio as the expenses associated with acquiring, underwriting, and servicing premiums divided by premiums earned by the insurer. We controlled for the performance of the insurer by using return on assets (ROA) as a proxy, and liquidity by using short term cash reserves as a proxy.

Analytical procedure

Using Stata, quantitative analyses were used to test the three hypotheses proposed. Therefore, the primary statistical tool employed is logistic regression models, given the nature of the criterion variable, which takes values of 0 and 1. In these models, the coefficients for the independent variable are presented as odds ratio, which represents the odds that the criterion will occur given the exposure to the independent variable. To increase clarity, we also present the results as the conventional regression coefficient using logistic models in a separate table. We present the results of analysis in the next section.

Study Results

The study’s descriptive statistics (means, correlations, and standard deviations) are presented in Table 1. A review of the correlation table indicates the threat of multicollinearity invalidating the study findings to be minimal. The study findings are presented in Table 2. The first model is the control model with the four control variables. The second model is the main model for this study wherein the hypotheses are tested. The third model is the robustness model, wherein an interaction term is added to test the stability of the study findings. Table 3 repeats the models presented in Table 2 but reports the results with conventional coefficients rather than odds ratio. Since the results are the same with different representation across both tables, Table 3 results are not discussed separately. Overall, all the models tested were empirically supported by Wald $\chi^2$ values, indicating statistical validity. In the control model, only liquidity loaded negatively with the likelihood of a female CEO (odds ratio = -.9801, p
<.05), while loss ratio, expense ratio, and performance were statistically insignificant.

Hypothesis 1a proposed that female CEOs are less likely to lead a public firm. Findings support H1 with a negative relationship, indicating that a woman is less likely to lead public firms (odds ratio = -.2937, p <.01). Hypothesis 1b focused on firm size and was also supported with negative odds ratio but with a significance level of .1, indicating that women are likely to be CEOs of relatively smaller firms (odds ratio = -.7889, p <.1). Hypothesis 2 proposed that female CEOs are less likely to retain risk within the firm. This argument was also supported with the highest negative loading among the independent variables tested (odds ratio = -.9822, p <.05).

While the three hypotheses were supported, a potential counter-argument should be addressed. One could ask if there is a possibility that female CEOs could be taking less risk than they might in firms with higher loss-ratios. This should not be the case, as we had already controlled for the same. However, to rule out this possibility, we created an interaction term with Loss Ratio and Risk-Taking and checked to see if the findings held. The results of this model are also presented in Table 2 and Table 3 as a robustness check.

To our surprise, the addition of this variable strengthens the statistical significance of all the variables in the model while there was no directional change. Therefore, given the stability of the results, we rule out the counter-argument and infer that the above findings are not biased by this fact.

Table 1:
Descriptive statistics and correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tbody>
<tr>
<td>1. Female CEO</td>
<td>0.1015</td>
<td>0.3025</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Public Firm</td>
<td>0.5231</td>
<td>0.5002</td>
<td>-0.168</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Firm Size</td>
<td>10.31</td>
<td>1.79</td>
<td>-0.031***</td>
<td>0.052</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Risk-Taking</td>
<td>71.54</td>
<td>27.6</td>
<td>-0.025</td>
<td>-0.193***</td>
<td>-0.054</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Loss Ratio</td>
<td>62.84</td>
<td>56.16</td>
<td>-0.040</td>
<td>-0.016</td>
<td>0.160***</td>
<td>-0.109**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Expense Ratio</td>
<td>43.03</td>
<td>56.62</td>
<td>-0.041</td>
<td>0.046</td>
<td>-0.270***</td>
<td>0.022</td>
<td>-0.023</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Performance</td>
<td>1.57</td>
<td>10.53</td>
<td>0.040</td>
<td>0.008</td>
<td>0.111**</td>
<td>0.046</td>
<td>-0.121**</td>
<td>-0.168***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. Liquidity</td>
<td>50.26</td>
<td>167.11</td>
<td>-0.069</td>
<td>0.025</td>
<td>-0.361***</td>
<td>0.013</td>
<td>-0.082</td>
<td>0.028</td>
<td>0.003</td>
<td>1</td>
</tr>
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</table>

Note: *, **, *** Significant at the 0.10, 0.05, 0.01 levels, respectively;
Table 2:
Logistic regression models with female CEO as dependent variable
(coefficients expressed as Odds ratio)

<table>
<thead>
<tr>
<th></th>
<th>Control Model</th>
<th>Main Model</th>
<th>Robustness Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>Standard Error</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>Loss Ratio</td>
<td>-0.9867</td>
<td>0.0090</td>
<td>-0.9841*</td>
</tr>
<tr>
<td>Expense Ratio</td>
<td>-0.9864</td>
<td>0.0123</td>
<td>-0.9844</td>
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<tr>
<td>Performance</td>
<td>-0.9941</td>
<td>0.0339</td>
<td>-0.9926</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-0.9801**</td>
<td>0.0100</td>
<td>-0.9684***</td>
</tr>
<tr>
<td>Public Firm</td>
<td>-0.2937***</td>
<td>0.1345</td>
<td>-0.3163***</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0.7889*</td>
<td>0.1131</td>
<td>-0.7399***</td>
</tr>
<tr>
<td>Risk-Taking</td>
<td>-0.9822**</td>
<td>0.0084</td>
<td>-0.9574***</td>
</tr>
<tr>
<td>Interaction Term</td>
<td></td>
<td></td>
<td>1.0004*</td>
</tr>
<tr>
<td>LR χ²</td>
<td>10.78**</td>
<td>25.80***</td>
<td>29.38***</td>
</tr>
<tr>
<td>R-Square (Pseudo)</td>
<td>.0505</td>
<td>.1208</td>
<td>.1376</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-101.35</td>
<td>-93.846</td>
<td>-92.057</td>
</tr>
<tr>
<td>Observations</td>
<td>325</td>
<td>325</td>
<td>325</td>
</tr>
</tbody>
</table>

Notes:
*, **, *** Significant at the 0.10, 0.05, 0.01 levels, respectively;
Interaction Term = Loss ratio * Risk Taking;
LR χ² = Likelihood Ratio (LR) Chi-Square

Table 3:
Logistic regression models with female CEO as dependent variable
(with conventional regression coefficients)

<table>
<thead>
<tr>
<th></th>
<th>Control Model</th>
<th>Main Model</th>
<th>Robustness Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Standard Error</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Loss Ratio</td>
<td>-0.0134</td>
<td>0.0091</td>
<td>-0.0161*</td>
</tr>
<tr>
<td>Expense Ratio</td>
<td>-0.0137</td>
<td>0.0125</td>
<td>-0.0157</td>
</tr>
<tr>
<td>Performance</td>
<td>-0.0059</td>
<td>0.0341</td>
<td>-0.0074</td>
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<tr>
<td>Liquidity</td>
<td>-0.0201**</td>
<td>0.0102</td>
<td>-0.0321***</td>
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<tr>
<td>Public Firm</td>
<td>-1.2253***</td>
<td>0.4580</td>
<td>-1.1512***</td>
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<tr>
<td>Firm Size</td>
<td>-0.2371*</td>
<td>0.1434</td>
<td>-0.3013***</td>
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<tr>
<td>Risk-Taking</td>
<td>-0.0180***</td>
<td>0.0086</td>
<td>-0.0436***</td>
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<tr>
<td>Interaction Term</td>
<td></td>
<td></td>
<td>0.0004*</td>
</tr>
<tr>
<td>LR χ²</td>
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<td>325</td>
<td>325</td>
<td>325</td>
</tr>
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</table>

Notes:
*, **, *** Significant at the 0.10, 0.05, 0.01 levels, respectively;
Interaction Term = Loss ratio * Risk Taking;
LR χ² = Likelihood Ratio (LR) Chi-Square
Discussion of the Findings

In this section we present a discussion of the study findings. This study's primary contribution is that it looks at the factors associated with female CEOs in the financial services sector. In this sector, women are more disfranchised in leadership roles compared to the overall corporate sector in the United States. This study is one step toward an increase in the sector-wise representation of women in higher-level positions. In this section we draw out research and practical implications and present the study’s limitations.

Implications for research

Conventionally, extant research offers a well-articulated set of factors which create barriers for women to reach the top leadership roles. Despite these barriers, in recent years there has been an increase in the number of female executives reaching the top, albeit a small one. This study’s primary thrust was in understanding what factors differentiate the firms where women have succeeded in securing the top spot. It proposed two hypotheses (1a and 1b) based on the conceptual foundations of well-known concepts [i.e., “think manager – think male” (Page 6: Schein, 2007); gender role congruence (Braun et al. 2017); “similar to me effect” (Rand and Wexley, 1975), lack of fit (Heilman, 2012), etc.], both of which were supported. To this extent, this study extends current understanding in newer contexts, thereby serving as an additional validation for these underlying beliefs in the literature. While this study did not test for this assertion directly, it seems there are greater barriers to women in large public firms. One could speculate that in today’s social context, smaller non-public firms are more willing to hire female CEOs despite the gender-based bias. This study’s Hypothesis 2 incorporated the risk preference in financial decisions made by women. Findings support the assertion that female CEOs preferred a conservative allocation of capital. Therefore, by extension, one could argue that such behavior would be desirable for firms needing a leader who will manage capital effectively and tightly, contingent on the external or internal situation of the firm. We hope that future researchers will note and test this assertion in other contexts.

Implications for practice

Based on the study findings, several recommendations can be contextualized to women aspiring to be CEOs. We concede that these recommendations do not rectify the imbalance or unfairness placed upon women, but our suggestions are made with the hope of increasing the odds for women aspiring to become CEOs. Our primary findings indicate that women are more successful in getting the role of CEO in non-public firms. In the insurance sector, these (e.g., Mutuals, risk retention groups, reciprocal exchanges) represent about 50% of the firms. Therefore, targeting such firms for the job of CEO may be a worthwhile endeavor. The second finding is that there is a greater likelihood of a female CEO leading smaller firms. Therefore, one strategy for women seeking a CEO position could be to target smaller firms initially and later advance to larger firms. Additionally, study findings indicate female CEOs are better risk managers. Hence, stressing this attribute in their positioning may work to the advantage of female applicants for the job of a CEO.

Limitations

This study has several limitations by virtue of its design. First, it relies on secondary data and therefore is limited by what is available publicly. Second, it is based on a sample of the property-casualty insurance sector from the United States. Therefore, geographic and cultural boundaries should be applied to interpretations of its findings. However, compared to other industries in the United States, the insurance industry operates under more regulative conditions, which is quite representative of many countries around the world. Replication of these findings in other financial sectors and different countries may alleviate some of these limitations.

Conclusions

This study sought to understand what factors differentiate firms led by women. Using existing frameworks to articulate its hypotheses, we present a valuable addition to the literature by differentiating firms led by a female CEO. It serves as important complement to existing research which focuses on barriers to women attaining leadership positions, by
contrasting instances where women have had success and providing insights for why this may be the case. In the earlier section on research implications, several worthwhile avenues to pursue related to this topic were presented. An emerging stream of research focuses on concepts which could help women once they are selected for this role. One study by Dwivedi, Joshi and Misangyi (2018) note that “male predecessors’ gender-inclusive gatekeeping facilitates female leaders’ success” (page 379). While existing studies (including the current study) have done much work on reasons why women may be discriminated against in such selections, a natural extension to the stream of research could be an understanding of what factors impact the success of women who secure this position against all odds. Therefore, we call for future investigation not only into the selection of a woman as the corporate leader of a firm, but also into the factors driving the success of women in this role, as much remains to be revealed on this topic.

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Bibliography


Elango, B. (2019). When do women reach the top spot?: a multilevel study of female CEOs in emerging markets. Management Decision, 57(9), 2344-2357.


Fuhrmans, V. (2020). Why so few CEOs are woman: traditional steppingstones are jobs that feed the bottom line, and they are mostly held by men. *Wall Street Journal, 275*(31), A1-A9.


