

CEO Nomination, Gender and Trading Behavior: Evidence from Lab Experimental Simulations

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Abstract

Using an innovative simulation tool, we develop an experiment to study investor reaction to the nomination announcement of a male or female CEO. Our simulation results show that when a female CEO is nominated, female participants perceive this event as good news since they tend to buy stocks, while male participants perceive it as bad news since they tend to sell stocks. We find the opposite result when a male CEO is nominated. We interpret our results as *gender homophily*.

Keywords: CEO nomination, gender finance, gender homophily, gender stereotypes in finance.

JEL: J16, M14.

1 Introduction

How do investors react to a new CEO's gender when the firm announces his/her nomination? To answer this question, we build an experiment that allows us to study gender stereotypes in financial markets, which is one of the most male-dominated industries, as portrayed in Roth (2006). This issue is important for society because a lack of female representation in leadership positions may result in higher gender inequality, inefficient talent allocation and lower economic growth.

Within the literature on CEO nominations, there are a few papers focusing on gender. For example, Lee and James (2007) study stock market price fluctuations following the appointment of a male or female CEO in large US corporations. They find that the market reacts more negatively following the appointment of a female CEO than following that of a male CEO.

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In this paper, we extend the existing literature by adopting a two-sided approach to the gender dimension: we study both CEO and investor gender. Using experimental simulations in a controlled environment, we disaggregate the market reaction following the CEO appointment according to CEO and investor gender. On the CEO side, an experimental approach allows us to balance the proportion of male/female CEOs, which solves the statistical problems of previous studies (due to too few female CEOs in existing firms). On the investor side, it allows us to balance the proportion of male/female participants.

We build a trading simulation where participants trade their portfolio (cash and stocks) on a particular company and react to the news flow, which is a series of events about the company, its sector and the economy. We introduce a gender-related event: the announcement of the next CEO, either a man or a woman. By randomizing the CEO gender at the launch of the simulation, we can identify the trading reactions of participants following the CEO announcement according to his/her gender. Participants' trading decisions to buy or sell stocks signals their beliefs or expectations regarding the new CEO's impact on future firm performance.

We find that when a female CEO is nominated, female participants perceive this event as good news as they tend to buy stocks, while male participants perceive it as bad news as they tend to sell stocks. The opposite behavior is observed when a male CEO is nominated: female participants perceive this event as bad news as they tend to sell stocks, while male participants perceive it as good news as they tend to buy stocks. Overall, these results show that investors' reactions to CEO gender may depend on their own gender. We interpret this finding as *gender homophily*, a sociological concept meaning that individuals prefer to interact with individuals of their own type.

2 Methodology

2.1 Simulation tool

To carry out our research, we use an on-line trading simulation platform called SimTrade. In terms of experimental design, compared to traditional, out-of-context experiments (such as lotteries), the added value of SimTrade is contextualization: like traders in an investment bank, participants can buy and sell stocks of a particular company in reaction to stock market price fluctuations and news.

2.2 Simulation scenario

At the launch of the simulation, participants are introduced to the scenario, which includes the presentation of the company, and a series of related events that will unfold during the trading day. The event related to the new CEO announcement is then presented to participants as shown in Box 1.²

Box 1. Extract of the simulation scenario

The company SunCar designs, produces and sells low-speed electric vehicles for city use. The batteries of these solar-powered cars can be refilled at public charging points. Due to a severe illness, Jacques Dallara, founder and CEO, will be relinquishing his operational duties in the near future. At midday, SunCar is expected to announce the name of his successor. The two candidates for the CEO position are Anna Farrell and Henri Villa.

2.3 Experimental design

Participants in the experiment were recruited from the *Financial Management* course at ESSEC Business School. The experiment attracted 157 students, including 89 female and 68 male students (the ESSEC student population is gender-balanced). Female and male participants in the experiment have followed the same course track and share the same background in finance (similar success rates in the *Financial Management* course). This rules out confounding factors (education, experience and selection effects) that may influence female and male investors differently. Finally, students from a business school such as ESSEC represent an interesting population because they are likely to take on leadership positions, such as CEO, in their future professional careers.

The experiment was carried out in 2016 in a research lab, an ESSEC facility designed for conducting experiments in a controlled environment.³ The experiment was presented as an opportunity to contribute to a research project studying how economic agents make their financial decisions. Following common practice, the gender aspect of the research project was not revealed to participants. As an incentive to sign up, participants received a bonus for their grade depending on their performance.

² The full script of the simulation scenario is available on-line: <https://goo.gl/HXEYbv>.

³ At the beginning of the experiment, we asked students to read and sign a form explaining the context of the experiment and the use of personal data as required by the French authority (Cnil) in charge of digital issues. The experiment was also approved by the Research Ethics committee.

In the experiment, we randomize the gender of the nominated CEO by building two variants: in the first variant of the simulation, Anna Farrell is nominated as CEO; in the second variant, Henri Villa is nominated as CEO. The probability that a participant faces either of the two variants is theoretically equal to 50%.

3 Results

Results are reported in Table 1, which displays the statistics for trading activity by participants, according to their gender, following the nomination of a female or male CEO. In each cell, we indicate the percentage of participants who buy or sell stocks after the CEO nomination and various measures of trade aggressiveness: the duration between the nomination announcement and the stock market order, the average quantity of assets bought or sold, and the percentage of market orders.⁴

Table 1. Trading activity of participants following CEO nomination announcement

	Female CEO	Male CEO
Female participants	<p>Buy: 55% Duration: 25 min Quantity: 50 assets Market orders: 91%</p> <p>Sell: 45% Duration: 23 min Quantity: 53 assets Market orders: 56%</p>	<p>Buy: 33% Duration: 27 min Quantity: 30 assets Market orders: 100%</p> <p>Sell: 67% Duration: 26 min Quantity: 42 assets Market orders: 100%</p>
Male participants	<p>Buy: 27% Duration: 30 min Quantity: 40 assets Market orders: 100%</p> <p>Sell: 73% Duration: 31 min Quantity: 71 assets Market orders: 100%</p>	<p>Buy: 63% Duration: 23 min Quantity: 73 assets Market orders: 92%</p> <p>Sell: 37% Duration: 37 min Quantity: 40 assets Market orders: 86%</p>

⁴ The market environment proposed by SimTrade is based on the limit order book. This type of market microstructure is nowadays mostly used by exchanges around the world as electronic markets are progressively taking over physical markets. In such a market, investors can send orders of different types, mainly market orders and limit orders. With market orders, investors want to buy/sell as soon as possible at the market price. With limit orders, investors want to buy at a maximum price and to sell at a minimum price (the price limit). With market orders, investors favor quantity over price as they controlled the quantity executed; inversely, with limit orders, investors favor price over quantity as they controlled the execution price. The use of market orders (compared to limit orders) reflects the aggressiveness of investors to trade.

When a female CEO is nominated, female participants perceive this event positively because they tend to buy more stocks: 55% of buyers and 45% of sellers among women. Male participants perceive the event negatively because they tend to sell stocks: 73% of sellers and 27% of buyers among men.

When a male CEO is nominated, the results are the opposite: female participants perceive this event negatively because they tend to sell more stocks: 67% of sellers and 33% of buyers among women. Male participants perceive the event positively because they tend to buy more stocks: 63% of buyers and 37% of sellers among men.

We now discuss our findings from a statistical point of view. Conditional on the new CEO gender, we find that when a male CEO is nominated, the difference between female and male participants' trading is significant at the 5% level. When a female CEO is nominated, the difference between female and male participants' trading is not significant. Conditional on participant's gender, we find that female participants react significantly differently when a male or a female CEO is nominated; they are significantly more likely to buy stocks when a female CEO is nominated than when a male CEO is nominated and the difference is statistically significant at the 5% level. Male participants do not react significantly differently when a male or a female CEO is nominated. Finally, there is no statistically significant difference in trading aggressiveness, mean of the duration between the nomination announcement and the stock market order, mean of the quantity of assets bought or sold, and percentage of market orders, regardless of CEO and participant's gender.

4 Conclusion

In this paper, we extend the existing literature by adopting a two-sided approach to the gender dimension: we study both CEO and investor gender. We build an experiment in which participants trade stocks in reaction to the nomination of a new CEO. We find that participants are more likely to buy stocks for a newly nominated CEO of their own gender. We interpret this situation as evidence of *gender homophily*.

The policy implication of our paper is that the gender issue is not only an issue for corporate leadership to nominate more female CEOs but also for predominantly male professional investors to change their stereotypes.

In the future, we will continue this project by running new experiments with incoming classes of ESSEC students. We plan to extend our current framework in two directions to address the limits

of this paper:

- First, we will enrich our knowledge of the participants in the experiment by using a survey at the end of simulation to estimate the level of their risk aversion, preferences for competition, and attitudes towards gender and to better understand their trading activity: do they buy/sell stocks based on their personal beliefs or market expectations?
- Second, we will enrich the descriptions of CEO candidates to include personal and professional characteristics that may influence perceptions regarding their potential performance as a CEO. These include personal information about age, marital status, and work availability as well as professional information about educational background, work experience, and insider/outsider status. These extensions would allow us to go beyond simulations in which gender is related to the sex of CEO candidates to conducting simulations in which gender is a social construct (de Beauvoir, 1949).

5 References

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