CEO Gender and Company Performance during Times of COVID: Did COVID Cause Gender Discrimination in Company Leadership and Performance?

Tina Kaddoum

A Thesis
in
The Department of Finance

Presented in Partial Fulfillment of the Requirements for the Degree of
Master of Science (Finance)

at Concordia University

Montreal, Québec, Canada

March 2023

School of Graduate Studies

This is to certify that the thesis prepared

By: Tina Kaddoum

Entitled: CEO Gender and Company Performance during Times of COVID: Did COVID Cause Gender Discrimination in Company Leadership and Performance?

and submitted in partial fulfillment of the requirements for the degree of

Master of Science (Finance)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

_____ Chair
Dr. Denis Schweizer

_____ Examiner
Dr. Thomas Walker

_____ Thesis Supervisor
Dr. Juliane Proelss

Approved by _____ Graduate Program Director

Dr. Nilanjan Basu

Approved by _____ Dean of John Molson School of Business

Dr. Anne-Marie Croteau

Date _____, 2023

CEO Gender and Company Performance during Times of COVID: Did COVID Cause Gender Discrimination in Company Leadership and Performance?

Author: Tina Kaddoum

Supervised by: Dr. Juliane Proelss

Abstract

The announcement of COVID-19 as a global pandemic had a negative impact on the economy worldwide. In this paper, we examine whether female-led companies were able to recover faster during the pandemic than male-led companies. Using a sample of 470 U.S. companies, we find that male CEOs outperformed female CEOs. The company's current ratio, size, P/E ratio, as well as the CEO's age are all negatively correlated with the post-announcement buy-and-hold abnormal return (BHAR) of the firm. We also find that compensation can be positively correlated with the BHAR in certain event windows.

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor Dr. Juliane Proelss for her continuous support throughout the whole process. Her constant guidance and encouragement not only helped me persevere through this thesis, but also enhanced my intellectual abilities. It was a great privilege to have been supervised and taught by her.

I would also like to extend my gratitude to Dr. Denis Schweizer and Dr. Thomas Walker for serving on my thesis committee, and providing me with their valuable feedback and comments.

Last but not least, I would like to thank my family and friends for their unconditional support and encouragement throughout the past two years. I would not have been able to be where I am today if it wasn't for them.

Table of Contents

List of Figures

List of Tables

1. Introduction

It is undeniable that COVID-19 was an extraordinary turn of event that had a major impact on global economies. Population mobility dropped significantly due to the quarantine policies, leading to less spending power, higher uncertainty, and a stagnant economy. Since the government restrictions worldwide as well as the WHO announcement of the COVID-19 as a global pandemic on March 11, 2020, the world has not been the same. Shen, et al. (2020) state that the 2020 pandemic has caused the worst global recession since 1930. According to Iboi et al. (2020), the government implemented lockdown measures from March till end of June 2020. These measures have not only stopped the transmission of the virus, but have also affected many companies negatively as there was major uncertainty during that period of time. It was unclear when employees could go back to work, or when life could go back to normal.

Although the pandemic had negative implications on the economy, certain industries were considered high-performing, whereas others were "lagging" in their recovery process. Notably, industries such as aerospace, air and travel, and oil and gas—continued to stay well below their pre-pandemic highs (Bradley & Stumpner, 2022). Nevertheless, the authors found that companies in the consumer durables, healthcare services, media, and advanced electronics industries were high-performing and witnessed a fast recovery in the first few months post the WHO announcement. The abrupt closure of many workplaces accelerated the remote-working trend; consequently, many workers have found themselves in need of more equipment, good office furniture, as well as video conferencing applications required for their comfort and work completion (Sava, 2022). Thus, the work-from-home obligations has led to an increase in demand of products in the associated industries. Simultaneously, the drop in mobility and border closures has not only affected the air and travel industries, but also the oil and gas one (Khalid, 2020). Thus,

it is safe to say that COVID-19 had an impact on certain sectors more than others; especially the ones that require social contact (Fu and Shen, 2020). Table 1 depicts the best to worst performing industries in the studied sample during the observed period. As we can see, industries which included businesses that had to shut down temporarily due to the quarantine measures, were affected the most. Similarly, companies in the food and communication industries which both seemed crucial during that time period, performed well. There were some industries that were affected neither positively nor negatively, however it was not that significant. It is worth noting that the distribution in the female/male leaderships was not equally distributed among industries; the ratio of Women/N CEOs ranged between 20% and 50% based on the number of observations in each industry. For example, for N=15, the ratio was 25% for the apparel and accessories stores industry, and 20% for the electronics and electrical equipment industry.

Whether globally or in the corporate world, the response of female leaders was different from that of male leaders (Goswami, 2020). On a global level, when examining the COVID-19 responses of 194 countries out of which 19 were female-led, Garikipati and Kambhampati (2020) found that female leaders were able to take quicker and more decisive responses compared to their male counterparts; which has led on average to a lower mortality rate in their countries. For example, New Zealand's Prime Minister Jacinda Ardern addressed to her citizens by telling them how important it is to take action to stop the virus from having control like it did elsewhere. Consequently, the PM implemented lockdowns even when the country had zero reported deaths. The quick actions of PM Ardern have led New Zealand to have one of the lowest mortality rates globally during the pandemic; with only 5 COVID-related death per million inhabitants (Luoto and Varella, 2021). On the other hand, when Brazil's president Jair Bolsonaro was asked about the pandemic, he responded with "So what? What do you want me to do?" (Prado, 2020). The

president's downplay of the COVID health threats has led to Brazil being ranked 6th most COVID-related deaths, with 746 deaths per million inhabitants (Luoto and Varella, 2021).

While Garikipati and Kambhampati (2020) found that COVID-19 outcomes were systematically better for countries with a female leader, what was the experience of women in the business world? When asked about her experience during the pandemic, Sarah Beale, Chief Executive of the UK's Construction Industry Training Board, stated that empathy is key, and that in order to cope with the situation, she had to take a step back in order to put herself in the shoes of those she is working on behalf of (Goswami, 2020). Similarly, Yvonne Wassenaar, CEO of the US technology firm Puppet, stated that by allowing herself to be vulnerable, others will also allow themselves to be vulnerable, and this is when true progress occurs (Goswami, 2020). An interview conducted by the San Francisco Business Times with CEO of Medicines360, Jessica Grossman, reported that there are many challenges during the pandemic, one of which included balancing caregiving responsibilities to her child, and full-time work. Moreover, she stated that the pandemic has led her to change logistics in order to ensure the safety of her employees and keep their needs in forefronts, while still focusing on the company's mission. Grossman stated that in order to cope with the anxiety of the uncertainty, communication with her team were very important; that way, every member will still feel connected to the team, even when working remotely. Her advice on making it through the pandemic was to stay transparent in order to instill trust and security.

Luoto and Varella (2021) highlighted the differences between the two genders, stating that the differences that they found were consistent with that of broader findings in psychology. Particularly, the authors found that while female leaders focused on empathy, decreasing the suffering of people caused by the virus, and care-taking orientation; men leaders focused more on financial success and status, as well as risk-taking. Moreover, men worked on minimalizing the

economic disruptions by taking riskier short-term decisions; while women worked on minimalizing the human suffering caused by the pandemic. Corporate performance and risk management behavior differ depending on the gender of the CEO among many other variables. For example, Faccio, Marchica, and Mura (2015) report that a change from a male to a female CEO is accompanied by a decrease in the firm's risk taking. Moreover, Jianakoplos and Bernasek (2007) state that the higher risk-aversion that females have is represented by their safer choices in financial and investment decisions. Ample of literature document the superior performance that a female CEO can bring to a company. For example, Barber and Odeon (2001) state that although men tend to trade more, women tend to perform better. Additionally, Campbell and Minguez-Vera (2008) report that board gender diversity increases company value. During times of crises characterized with ambiguity, Schubert, Brown, and Brachinger (2000) state that the difference in risk aversion between men and women increases. Adding to the differences in leadership styles and risk aversion, the pandemic has caused the uneven distribution of workload on women. Specifically, Bateman and Ross (2021) state that working mothers still spend 50% more time taking care of the children than working fathers. In a society were both parents work outside home, the inadequate childcare system worsened the situation on women. It is undeniable that working fathers were also facing the negative circumstances of closing schools and daycares, however, the study showed that women held more of the responsibility which had some of them to even quit their jobs. Although women possess all the requisite personality traits that enabled them to perform better than men in executive positions, it would be interesting to investigate whether this still holds true in light of the additional caregiving responsibilities that women must shoulder.

While women were successful in reducing the death rates caused by COVID in their countries, as well as enhancing communication and transparency in their teams, were these the right

approaches to recover faster financially from the pandemic? Or were the risky short-term decisions taken by male leaders more effective in this context? In other words, were companies better able to recover during the pandemic while they were run by a female rather than a male CEO? Although plenty of literature has discussed gender-based differences and company performance and risk-taking, only a few studies have shed light on the difference in performance of woman-led and man-led companies during the pandemic. The current study contributes to the literature by examining whether companies performed better during the pandemic when they were led by female executives. In order to do so, we compare the performance of female-led versus male-led companies past the announcement of COVID-19 as a global pandemic. We find that male-led companies outperformed women-led companies; and certain characteristics such as the firm's current ratio, size, P/E ratio as well as the CEO age and compensation, had an influence on firms' performance during that period of time.

The rest of this paper will be as follows. Section I provides some previous literature relating to the relationship between CEO Gender, CEO characteristics, and firm characteristics with company performance. Section II presents the data, event study methodology, and the regression model. Section IV presents the empirical results of both the event study and the regression analysis. Section V is the conclusion, and section VI discusses the study's limitations along with the potential research extension.

2. Theoretical Background

2.1 CEO Gender and Company performance during times of COVID

It is unquestionable that the COVID-19 pandemic had a negative impact on firms. In fact, Baker, et al. (2020) state that no disease outbreak, not even the Spanish flu, has had a stronger

impact on the market than COVID. According to the Bureau of Economic Analysis (BEA), since 1947, GDP has never before undergone a decline exceeding 3 percent in a non-annualized quarterly rate. As for 2020, the US witnessed the deepest recorded decline in the second quarter of 2020 at 9.1% (Bauer & al., 2022). Furthermore, Baker et al. (2020) document that volatility levels in the United States in the latter part of March and April 2020 surpassed those that were reached back in 1929, 1930, 1987, and even 2008. Although these levels fell sharply after this period of time, they remained higher than what they used to be pre-pandemic.

A variety of CEO characteristics are examined in relation to company performance, with gender being the most popular one (Peni, 2014). A series of literature has indicated that companies led by a female CEO tend to perform better than those led by a male CEO. For instance, Bernardi et al. (2009) state that including more women on a company's board is a positive sign for both external and internal constituents as it improves corporate culture. A study by Li, et al. (2021) found that firms with a strong corporate culture are more willing to be involved in their local communities, more likely to develop new products, and more willing to embrace the digital transformation; all of which make them more attractive to investors. Moreover, Brammer, Millington, and Pavelin (2009) found that women tend to bring a healthier work environment which gives them a better reputation in the eyes of both managers and stock market analysts.

The superior performance that a woman brings to a company can be attributed to several personality features. For example, Dallas (2002) and Fondas (1997) state that women tend to have better problem-solving and decision-making skills than men, which are both important management skills (Peni, 2014). Additionally, women executives have less risk-tolerance than men which helps them avoid taking extreme risks, and thus positively impacting the company's financial performance (Schubert, et al., 2000). The difference in risk-aversion can be attributed to

the overconfidence of men executives (Bonner, 2008) which pushes them to take more risk when they should not. Heaton (2002) and Malmendier and Tate (2005) agree that overconfidence can lead to either overinvestment or underinvestment as well as an increase cashflow sensitivity and engagement in value-destroying mergers. Shang, Wu, and Zhou (2022) examine a sample of realtors working in the Quebec real estate brokerage industry and find that women tend to have better multitasking skills which led them to be more productive than men. Thus, in the context of the pandemic, we would expect that female CEOs outperform their male counterparts as they take more careful and risk-averse decisions amid the uncertain circumstances.

Hence, we hypothesize:

Hypothesis 1: *During COVID-19, women-led companies outperformed men-led companies.*

2.2 Firm Characteristics and performance during COVID

2.2.1 Liquidity and Firm Performance during Crises

Current assets play an important role in a firm's liquidity as these types of assets can be easily converted into cash to meet a company's short-term obligations. Cash can be used by firms as a safety net in order to avoid bankruptcy, and to reduce the risk of financial distress when the market is volatile (Ferreira and Vilela, 2004). However, holding too much cash can also be costly, since it is not an active asset that can generate return on investment (Opler, et al., 1999). Thus, Yudaruddin (2020) states that the right amount of liquid assets can ensure smooth company operations. Koh, Brigham, and Ehrhardt (2014) found that investors do not prefer companies with high current ratios, since current assets are non-productive assets that may become obsolete before being sold. Moreover, Martinez-Sola, García-Teruel, and Martínez-Solano (2013) found that there exists a trade-off between the costs and benefits of holding financial assets. In other words, the authors concluded that there is an optimal level of cash that the firm can hold in order to increase

its value; any deviation from the optimal level, whether left or right, would have negative impacts on the firm's value. While the optimal capital ratio usually ranges between 1.2 and 2, any deviation from this range would likely decrease firm value. Since our sample's average current ratio for both female-led and male-led companies is around 3.3, we hypothesize a negative relationship between current ratio and firm performance.

Hypothesis 2-a: *There exist a significant negative relationship between current ratio and the company's BHAR post-announcement.*

2.2.2 Relationship Between the Company's size and its Performance During COVID

Golubeva (2021) states that among many factors affecting firm performance during the pandemic, size is one of the most significant ones. A company's size can be measured by several methods, including its market cap or its total assets. A study by Lafrance (2012) examined a sample of Canadian firms across all provinces from 2000 to 2009, and found that small-cap firms tend to exhibit a higher profitability variation. Another study by Dhawan (2001) found that small-cap firms are productive and innovative. Alekseev, et al. (2021) explored the first two pandemic waves and found that larger, older, and male-owned companies tend to outperform their counterparts by being more likely to stay open at the early stages of the pandemic. In contrast, Kraus et al. (2020) found that family businesses in five different European countries were able to cope with the pandemic. Similarly, the authors found that companies, regardless of their size or their industry, and within a short period of time, were able to change their business models depending on the changing situations. A study by Alves et al. (2020) found that smaller firms were more flexible in order to adapt to the changing market conditions and pursue new opportunities. This flexibility can come from the low levels of bureaucracy as well as limited social responsibility compliance. Similarly, a report by Yelp (2020) found that customers during the pandemic shifted to their local

businesses, away from the big chains; and those businesses who were able to build a strong connection with their communities were more resilient. By having less employees and a more localized customer based, small-cap businesses were able to build better relationships with their customers which increased the loyalty of their local community. Lastly, Bartik et al. (2020) showed that small-cap firms characterized by lower fixed cost and lower debt, were more resilient to the economic shocks resulted from COVID-19. Due to the flexibility that small-cap businesses tend to have during these times, we hypothesize:

Hypothesis 2-b: *Small-cap businesses outperformed larger businesses during times of COVID.*

2.2.3 Relationship Between the Company's ROE and its Performance During COVID

ROE is a measure of profitability calculated by dividing net income over total equity. Many studies have been done to examine the effect of profitability on firm value and performance. For example, Data et al. (2017) and Sudiyatno et al. (2021) stated that a company with a higher ROE witnesses a higher stock price. Moreover, Handayati et al. (2022) stated that investors prefer companies with a high profitability as it indicates the company's promising future prospects. However, Suteja et al. (2023) state that investors pay attention to the company's liquidity and financial security along with its profitability. Due to the role of profitability in improving firm's reputation in the eyes of the investor, we hypothesize:

Hypothesis 2-c: *There exist a positive relationship between a company's ROE and its performance post announcement.*

2.2.4 Relationship Between the Company's P/E Ratio and its Performance During COVID

Lastly, another factor that could have a potential impact on firm's performance is the price to earnings ratio. According to Seabury (2022), investors may be more inclined to pay a premium for a company's earnings if the company has a high P/E ratio. Nonetheless, a high P/E ratio can be

interpreted as a warning sign that the stock is overvalued and may be due for a decline. Conversely, a low P/E ratio may be viewed as an indication that the stock is undervalued, and that the market has pushed down the share price below its true value, making it an appealing investment. In 1977, Basu conducted a study on the New York Stock Exchange, which found that portfolios with low P/E ratios generally yielded higher absolute and risk-adjusted returns compared to those with high P/E ratios, over the period of April 1957 to March 1971. In an original study of the Istanbul Stock Exchange (ISE) conducted by Nargelecekenler (2011), he examined the correlation between the P/E ratio and investment returns during a six-year period from April 1989 to March 1995. To conduct the study, he constructed 30 different portfolios categorized as high, low, or medium P/E ratios. The study's findings indicated that the P/E ratio had a significant impact on ISE, and it was possible to achieve higher investment returns in the long term by investing in low P/E ratio portfolios. Moreover, Ozturk (2017) found that while price and P/E ratio are positively correlated, there exist a significant negative relationship between P/E ratio and future stock market return. Thus, we posit:

Hypothesis 2-d*: Companies with a lower P/E ratio performed better during covid*.

2.3 CEO Characteristics and Company Performance During COVID

2.3.1 CEO age and Company Performance During COVID

Apart from gender, several CEO characteristics can affect the way they handle operations during times of crises. The literature on the CEO's age and company performance has been mixed. For example, Bertrand and Schoar (2003) state that older executives tend to take more conservative decisions which may affect the firm's performance either positively, or negatively. Moreover, Gibbons and Murphy (1992) found older executives may want to focus on projects that would pay off right before their retirement. Hirshleifer (1993) also found that younger CEOs may also be

focused on short-term goals in order to be able to build up a good reputation. A more recent study by Serfling (2014) finds that portfolios consisting of firms with younger CEO tend to have a higher risk-adjusted portfolio returns than those consisted of firms with older CEOs. Thus, we hypothesize,

Hypothesis 3-a: *There exist a positive relationship between the CEO's age and company's performance during COVID.*

2.3.2 CEO Tenure and Company Performance During COVID

Similar to age, the literature on the CEO's tenure is mixed. Baysinger and Hoskisson (1990) found that tenure increases the executive's specific knowledge which not only would it let him provide valuable resources to the company, but also better able to increase its financial performance and health. However, Ryan and Wiggins (2001) suggested that long tenures may be associated with the CEO's pursue of his personal interests which may harm company performance. Huson, Malatesta, and Parrino (2004) found that hiring new CEOs might have a positive impact on the company's performance. Since COVID-19 has brought major economic shocks, we expect that CEOs with long years of expertise are better able to handle the situation. Thus, we hypothesize:

Hypothesis 3-b: *There exist a positive relationship between the CEO's tenure and company's performance during COVID.*

2.3.3 CEO Compensation and Company Performance During COVID

Compensation is one of the tools that has been used to reduce the agency problem between the agent (the CEO) and the principal (the stakeholders). Jensen and Murphy (1990a) have suggested that compensation should be aligned with the company's performance, which would encourage executives to perform better. Core et al. (1999) found that a company with weak governance structure have more agency problems, which in turn leads to higher CEO compensation and lower

firm performance. Grove et al. (2011) found that incentive compensation is positively related to company's performance during the financial crisis in 2008; whereas Van Essen, Engelen, and Carney (2013) found that incentive compensation can have a negative effect. We hypothesize:

Hypothesis 3-c: *There exist a positive relationship between CEO compensation and company's performance during COVID.*

3. Methodology

3.1 Data

For the study, we consider all domestic firms listed on NASDAQ or NYSE, a total of 5153 firms. This list was taken from Factset. Nevertheless, to be included in the studied sample, a company has to meet certain criteria. First, only small-cap to mid-cap companies were included in the studied sample; that is, companies that have a market cap ranging between $300 million and $10 billion. By excluding large caps companies (those who have a market cap exceeding $10 billion), we obtain a sample of 2,806 US companies from of the period 250 business days before and after the event period, that is, from March 13, 2019 till March 9, 2021. Out of those, 32 do not report the gender of their CEO. Moreover, two of the companies have 2 CEOs, a male and a female.

By excluding these two categories of companies, we are left with 2,772 companies divided into two samples; the first one includes 184 companies led by women CEOs, and the second one includes 2588 companies led by men CEOs. In order to get data, each company was matched with its unique permanent security identification number (PERMNO) that allowed us to retrieve data on the relevant stock data from CRSP. Since Compustat and Execucomp do not have PERMNO, we also had to match each company with its respective CUSIP. By removing companies with a missing PERMNO, we are left with 182 companies led by women and 2,524 companies led by men.

Second, companies that are examined will not have CEO turnover during the studied period, even if the executive's gender remained the same. Furthermore, following 4each company with a female CEO was matched with up to 5 companies with a male CEO based on its industry and size measured by market cap. In order to be an eligible match, a male-led company should have the same first-two digits SIC code as the female-led company. For example, a male-led company with an SIC of 1090, can be a potential match for a company with an SIC of 1081. Since SIC alone is not an accurate criterion to match companies, size will also be used. Particularly, following (Burchard et al., 2020), a male-led company will be matched to a female-led company if it has a market cap ranging between 70% and 130% of that of female-led companies. Lastly, each female-led company is limited to a maximum of 5 matches. As a robustness test, we matched companies using the nearest-neighbor matching. Results of the analysis are provided in the Appendix.

Several factors contributed to the loss of so many companies. First, while some companies had a PERMNO, they did not have a CUSIP in order to be able to get their data from Execucomp and Compustat. Moreover, once all companies were matched with their CUSIP, there was a lot of missing CEO data that was not available on Execucomp; especially for small-cap firms. Lastly, some female-led companies did not have a male-led company to be matched with; the market cap of the latter did not meet the [70%;130%] bracket to be an eligible match with the former. After matching the companies, omitting all companies with a changed CEO or with missing data, we ended up with a sample of 470 companies divided between 110 with a female CEO and 360 with a male CEO.

As we can see, the sample of female-led companies is relatively small compared to that of male-led companies. Interestingly, a report by Equileap revealed that there are more CEOs named James and Michael than there are female CEOs. Looking at Fortune 500 companies, back in the

year 2000, there were only 2 female CEOs compared to the 2020 data that showed that there are 41. Currently, in 2023, the percentage of women occupying CEO positions account for over 10% of the Fortune 500 companies with 53 female CEOs (Hinchliffe, 2023), compared to 8.8% that was documented in 2022 (44 female CEOs). Although it would be interesting to include Fortune 500 companies in our sample, it could have introduced bias. Specifically, Fortune 500 companies include the 500 largest US companies which is not appropriate in our sample since we are using small to mid-cap companies. Not to mention that these large and well-established companies may have access to more resources that would allow them to behave differently during crises. That said, their experience may not generalizable to other smaller or newer companies. Moreover, such large corporations might have more than one CEO which could diminish the impact of any one individual.

3.2 Event-Study Analysis

3.2.1 Fama-French Three-Factor Model

Following Barber and Lyon (1997), the long-term valuation effect of the COVID-19 announcement is calculated using the Buy-and-Hold abnormal return (BHAR) of each company, on each trading day, beginning 5 days before the event until 250 days after. In order to reduce the noise, an estimation window of [-130; -30] is used. Using the Fama & French (1993) three factor model with the model's factors provided by WRDS, we calculate the BHAR for all the companies in each of the samples using the following equation:

$$BHAR_{i,T} = \prod_{t=0}^{T}(1 + R_{it}) - [\prod_{t=0}^{T}(1+ \beta_i (R_{mt} - r_f) + \emptyset_i SMB_t + \gamma_i HML_t)]$$

Where:

- R_{it} is the return of company i on day t,
- R_{mt} is the market return,

- r_f is the risk-free rate,
- SMB corrects for the size effect,
- HML corrects for valuation differences.

The coefficients β_i, $\emptyset_i$, and γ_i are estimated from [-130;-30] trading days before the pandemic announcement, using the eventstudy2 on Stata.

3.2.2 Industry-Specific Index Model

Xiong et al. (2020) stated that the 2020 pandemic affected some industries more than others; thus, the Fama-French three factor model may not accurately depict the intense negative impact that COVID-19 had on the most vulnerable industries. In order to get a more precise picture, we compare each company to its specific industry based on the first two-digits SIC codes. In total, we had 42 different industries, and their description was provided on www.siccode.com. Thus, each company was matched with its respective industry index based on the first two-digits SIC code. For example, the BHAR of a company whose SIC starts with 10 will be calculated using the mining industry as the market index. In order to calculate the abnormal returns, we first had to get the industry index returns from Factset. Thus, the BHAR equation will be as follows:

$$BHARs_{i,T} = \prod_{t=0}^{T}(1 + Rit) - [\prod_{t=0}^{T}(1+ \beta_i (Rm_{j,t} - r_f)]$$

Where $Rm_{j,t}$ refers to the market return of industry *j* at time *t*.

3.3 Multivariate Regression Analysis

After having calculated the BHAR using both the Fama-French three factor model and the industry-specific index model, we conduct a multivariate regression in order to examine whether there exist other factors that could be explanatory variables for the announcement. The regression analysis is conducted for the BHARs at day 50-100-150-200-250 days post-announcements. The equation is as follows:

$$postBHARs_{i,T}=\beta_0 + \beta_1 Women + Industry_{fixed} + \beta_4 preBHAR_{i,t} + \beta_5 FirmCharacteristics_i + \beta_6 CEOCharacteristics_i + \varepsilon_{it}$$

Where $BHAR_{i,T}$ refers to all the BHARs of each company i at time t; *Women* is a dummy variable that is equal to 1 if the firm's CEO is a woman, and 0 if the CEO is a man; *Industry_Fixed* refer to the industry fixed effects respectively, *Pre-COVID* are control variables that refer to all the BHARs at day 50-100-150-200-250 pre the COVID-19 announcement on March 11th,2020; $FirmCharacteristics_i$ is a vector of company-related firm control variables (such as: *ROE, Current Ratio, SIZE measured by log of total assets, price/earnings ratio, Book-to-Market ratio*); and $CEOCharacteristics_i$ is a vector of all CEO-related control variables (such *as age, total compensation, tenure, percentage of shares owned, and total awards*). The variables used are defined in Table 2. The firm characteristics such as ReturnonEquity, Current Ratio, Book to market Ratio, and Price/Earnings Ratio are all obtained from Compustat, whereas SIZE is obtained from CRSP. The CEO characteristics variables are all obtained from Execucomp.

*** Insert Table 2 About Here ***

Multicollinearity is a common problem in empirical analysis; it refers to the high correlation between variables within the same regression model, which leads to some of them overlapping. Hence, multicollinearity is a problem that violates the assumptions of the classical regression model. While Siegel (2016) suggested the correlation matrix as a way to track multicollinearity and examine the bivariate correlations, it may not always be an accurate approach. Alin (2010) stated that multicollinearity may exist even when the bivariate correlation is low. Thus, a more accurate approach would be the Variance Inflation Factor (VIF) which evaluates the extent to which the variance of a regression coefficient has increased due to the presence of multicollinearity among the predictors. A VIF higher than 5 indicates that multicollinearity may become a concern

in our analysis. Table 3 refers to the correlation matrix between the regression variables. The only concerning correlation is between LogTotalCompensation and SIZE which is about 0.622. This indicates that the bigger the company, the more compensation the CEO gets.

*** Insert Table 3 About Here ***

Panel A and Panel B of Table 4 provide the descriptive statistics of both the CEO and firm characteristics variables for the women-led and the male-led companies respectively. As we can see, on average, women tend to earn higher salaries; however, their total compensation is generally lower than men. As mentioned earlier, total compensation includes salaries, bonus, dividends, as well as options and stock awards. We can see that men tend to earn more awards than women (4.348 versus 3.192), which would increase their total compensation. Moreover, men tend to own a higher percentage of the company's share and have a higher tenure than women. The average age of female CEOs is 56, while the minimum is 35 and the maximum is 88. This indicates that the majority of the CEOs in our samples might not have young children who require constant care and attention. As for the average age of male CEO, it is 57, and the ages range between 36 and 78. Lastly, male CEOs have an average tenure that is almost 2 years more than that of female CEOs (9.88 versus 7.95). Thus, on average, men seem to have more experience than women in executive positions.

As for firm characteristics, although the maximum current ratio that the men-led companies in our sample is higher than that of the women-led companies (55.875 versus 17.868), on average, the latter tend to have a slightly higher current ratio than the former. However, both averages seem to be well higher than what would be considered as the optimal current ratio. Male-led companies seem to be bigger (2.66 versus 2.58 in SIZE), and have a lower P/E ratio. Additionally, female-led companies have a lower ROE and a lower book to market ratio than their male-led counterparts.

*** Insert Table 4 About Here ***

3.4 Univariate t-Test

In the univariate setting, Table 5 indicates that there seems to be a significant difference in the *Tenure* between male-led and female-led companies. In other words, the number of years that a male CEO has been in charge is significantly higher than his female counterpart. This significant difference might be a contributor to why men would be able to perform better during the crisis. Moreover, *LogAwards* also seems to significantly higher for men compared to women. There also seems to exist a signficant difference in the means of the ROE of both samples, indicating that male-led companies are more profitable than women-led companies, although both of their averages seem to be negative. As for the rest of the variables, we do not see any significant result. This particular result could indicate that the firms were well matched and that the difference in their CEO or firm characteristics may not be the main reasons behind the difference in BHARs. Instead, these findings suggest that CEO gender could be a significant factor contributing to the difference in BHARs between the groups.

*** Insert Table 5 About Here ***

4 Empirical Results

4.1 Event Study Analysis

We first start analyzing how companies' BHARs were affected around the announcement date. By looking at Figure 1 and 2, we can see that in both the Fama-French three-factor model and the Industry-Specific Index Model, the BHAR of companies led by female CEOs are slightly higher than that of men-led companies within the first month post-announcement after which the trend turns. The BHAR for male-led companies spikes compared to that of women-led companies and remains higher throughout the whole event period. That is opposing our hypothesis that states

companies led by women outperformed companies led by men during times of COVID-19. By looking at the Industry-Specific Index Model, we can see that companies led by men start recovering at the 100-days post-announcement period, while companies led by women remain to be negative until the 200-days post announcement period compared to the Fama-French three-factor model where BHARs for both male-led and women-led companies start increasing at day 35; however, BHARs for women-led companies remain well below that of their counterparts. Thus, we can see that both models indicate that companies were able to recover almost half a year post-announcement, which coincides with less governmental restrictions towards the pandemic and higher population mobility.

*** Insert Figure 1 & 2 About Here ***

We decide to test for the significance in the difference between the mean BHARs of female-led and male-led companies for five different event windows: [-5;50], [-5;100], [-5;150], [-5;200], and [-5;250]. By looking at Panel A of Table 6, we can see that the mean BHARs for the first three event windows is negative for women-led companies then starts becoming signficantly positive at 200 and 250 days post-announcement. For male-led companies, the mean BHAR is signficantly positive for the 100-150-200-250 days post-announcement for the Fama- French three-factor model, and in the 200-250 days post-announcement for the industry specific index model. As for the difference in means, it is negative still but not significant for the first two event windows, but becomes significant for windows [-5;150], [-5;200], and [-5;250]. As for Panel B, the difference in BHARs is only insignficant for the first event window but becomes significantly negative for the rest of the windows. Essentially, we can see a similar trend using both models; nevertheless, the Fama-French model displays a greater scale of performance difference between men-led and female-led companies. The reason behind the difference in scale is the fact that in the

Fama-French three-factor model, all companies are compared to one specific index; this index could be performing bad but not as bad as certain companies in the most affected industries. However, in the industry-specific index model, each company is compared to its own industry. Thus, in that case, the performance of a company will be more accurate and more precise.

In order to reduce the adverse economic effects of pandemic, the US government introduced rescue packages that are worth 10% of the country's GDP (Seven & Yilmaz, 2020). The authors found the positive correlation between these stimulus packages and the recovery of the market. The study found that the government's support restored investors' confidence, which led better performance of the stock market. Another factor that has led to the market recovery is the development of vaccines. In particular, Lee et al. (2023) found that firm-specific vaccination rate has decreased the volatility of stock performance. Similarly, Ngwakwe (2021) found that the mean stock prices increased significantly with the enrollment of vaccines.

As for the underperformance of female-led companies compared to male-led companies, a study by Deloitte could provide some reasoning behind the results. More particularly, Emma Codd, a Deloitte Global Inclusion Leader surveyed over 400 working women from 9 different countries and found that the number of women with caregiving responsibilities, whether to children or to other family members, has tripled to 48% post-COVID, compared to pre-COVID. Additionally, whether they have caregiving responsibilities or not, 27% of women stated that the pandemic has reduced their ability to focus on their well-being and personal time, and 54% of these women state that they believe that their male counterparts do not feel the same pressure.

*** Insert Table 6 About Here ***

4.2 Regression Analysis

In order to get a clearer idea of what are the different variables that could have affected the BHARs, we conduct a regression analysis that uses the different post-announcement BHARs as the dependent variables, the pre-announcement company BHARs as control variables, women CEOs as a dummy variables, and firm and CEO characteristics as independent variables.

Tables 7 and Table 8 present the regression results of the Industry-Specific Index Model and the fmaa-French Three-Factor model respectively. First of all, by looking at the VIF, we can see that multicollinearity may not be a concern in our analysis, since the maximum VIF never exceeded 5. Moreover, as we can see for both models, there is negative significant relationship between the *Women* coefficient and the post-150, post-200, and post-250 BHARs. The coefficients are -0.308, -0.309, and -0.474, indicating that women-led companies underperformed their male counterparts by 30.8%, 30.9%, and 47.4% respectively. As for the Fama-French Three-Factor Model, we can see a 26.6%, 31% , and 49.4% undeperformance of the female-lead compared to the male-led companies for the post-150, post-200, and post-250 BHARs respectively. This indicates that companies performed better when the CEO was a man during these event windows. These results not only allow us to reject the first hypothesis, but also are in line with our univariate test. In other words, after controlling for both CEO and firm characteristics, men-led companies were still able to outperform female-led firms. After over two months, the quarantine measures in the US eased, and companies were able to return gradually to their normal activities. Nevertheless, recovery seems faster for male-led companies. Jawed, Vinod Tapar, and Dhaigude (2021) found that capital intensity proved to be a contributor in the fast recover of firms. Kersten and Athanasia (2022) have highlighted how financial capital can be a roadblock for women's success. Particularly, a report by Third Way (2017) found that femal-led companies tend to rely more on internal than external funding, as they are able to raise less capital than their male counterparts.

As for liquidity, we can see a negative significant relationship between both the *CurrentRatio*, and the post-150, post-200, and post-250 BHARs for the industry-specific index model, specifically, for an increase of 1 in current ratio, we see a decrease of 2.1%, 2.8%, and 4.48% for the last three event windows respectively. As for the Fama-French three-factor model, an increase of 1 in current ratio is associated with a decrease of 1.69% and 3.6% for only the last two event windows respectively. Therefore, our results are in accordance with Hypothesis 2-a that a higher current ratio decreases firm performance. As we saw earlier, previous literature found that a deviation from the optimal liquidity level could lead to a decrease in firm performance. The average current ratio for our samples is around 3.3, which is higher than the average current ratio that company should have in order to maximize their value. Hence, we can see that these companies had too mcuh liquidity that they became inefficient and underperformed during the pandemic.

Additionally, both models show that there is a signficant negative relationship between the SIZE and the company performance for all the postBHARs except for Post50 and Post150 in the industry-specific index model. Thus, this shows that small-cap companies performed better than larger companies during COVID. This may be due, as mentioned earlier, to the strong relationships that local businesses were able to build with their customer base, as well as their flexibility in adapting faster to the current situation. Hence, we fail to reject Hypothesis 2-b that small-cap companies outperformed larger ones during the pandemic. As for profitability, both model show that there exist no relationship between the ROE and post-announcement BHAR. Although post200 has a positive signficant relationship with ROE, the coefficient is almost zero. Hence, we reject our Hypothesis 2-c that there a exist a significant positive relationship between ROE and post-announcement BHARs. Moreover, we can see that a lower P/E ratio is associated with a better

performance in both models. The lower the P/E ratio means that investors are paying less for every dollar of earnings, which makes the company more attractive to invest in. Typically, a high P/E ratio indicates a lot of room for growth for a company, which can be risky, and thus negatively affect company's performance (Wu, 2013). Thus, we our results are in accordance with Hypothesis 2-d that companies with a lower P/E ratio outperform those with a higher one.

As for CEO characteristics, the signficant negative relationship between *ExecutiveAge* and each of post-150, post-200, and post-250 BHARs in the industry-specific index model allows us to reject Hypothesis 3-a that there exist a significant positive relationship between a CEO's age and firm performance during COVID-19. Simiarly, the relationship is significantly negative for the last event windows in the Fama-French Three-Factor model, which is in accordance with Hypothesis 3-a. Lastly, we are unable to reject our Hypothesis 3-b due to the insignficant relationship between post BHARs and the CEO's tenure in both models. Both the industry-specific index model and the Fama-French three-factor model show a postive relationship between LogTotalCompensation and the post announcement BHARs for all event windows; this relationship is signficant for the fourth event window for the former and the first event window for the latter model. These results are in accordance with our Hypothesis 3-c that a CEO's compensation might be an incentive to perform better during crises.

Thus, we can see that both models gave us almost the same results when it comes to the main factors affecting the post-announcement BHARs. The smaller the firm, the lower its current ratio and the lower its P/E ratio, the better the performance after the pandemic. Moreover, companies are better able to adapt to the situation when the CEO is younger, has higher compensation, and is a man. These results show that when a company is small-cap and has a young CEO, it is better able to adapt to the situation due to the CEO's innovative ways and flexibility. Furthermore, a

higher current ratio indicating high current assets might have constituted an opportunity cost for companies during that time.

*** Insert Table 7&8 About Here ***

4.3 Regression Analysis with Clustered Variables

We cluster the variables into 2 groups by topic: *CEOCharacteristics*, which includes *ExecutiveAge, LogTotalCompensation, Tenure, Ownership, LogAwards,* and *LogSalary; FirmCharacteristics*, which includes *ROE, Current Ratio, SIZE, price/earnings ratio, and Book-to-Market ratio.* In order to see which group dominates the other, we conduct 4 different regressions with the Post150 BHAR as the dependent variable and different independent variables as the following:

1) PRE150+ Women+ FixedEffects
2) PRE150+ Women+ FixedEffects+ CEOCharacteristics
3) PRE150+ Women+ FixedEffects+ FirmCharacteristics
4) PRE150+ Women+ FixedEffects+ CEOCharacteristics+ FirmCharacteristics

In all cases, we obtain a significant negative relationship between the Post-150 BHAR and both the Women and the FixedEffects variables. This means that in all cases, the CEO gender and the industry to which a company belongs to, play a crucial role in determining the company's performance post-announcement. However, as we can see, the CEOCharacteristics and the FirmCharacteristics do not dominate each other, but rather certain variables that are in each group. Thus, these results provide support for our previous findings that even after controlling for firm and CEO characteristics, it is the gender of the company that led to the significant deviation between BHARs of female-led and male-led companies.

*** Insert Table 9 About Here ***

5 Conclusion

The negative effect that the 2020 pandemic had on the global economy was unquestionably harmful. Companies all around the world had to deal with uncertainty and governmental restrictions that affected their daily operations. However, some companies were able to recover faster than others; and this is due to several reasons. Besides the industry to which a company belongs to, both the CEO and the firm's characteristics played an important role in the recovery of the company. In this study, we compare the performance of 110 women-led companies matched with 360 men-led firms and examine the effect of gender on company's performance during COVID. Our event study analysis indicated that both male-led and female-led companies witnessed negative BHARs post-announcement of COVID-19 as a pandemic by the WHO., However, it took almost two months for companies to recover, which can be considered a relatively rapid recovery given the severity of the pandemic's economic impact. Moreover, BHARs of female-led companies seemed to be lower than that of their male counterparts, and the difference in BHARs was only significant in the last 3 studied event windows. In order to examine these results more closely, we conducted a multivariate regression analysis to identify the variables that had the most impact on the companies' performance. After controlling for the BHARs pre-announcement, we found that firms with a higher P/E ratio tend to have a lower BHAR which indicates that value firms outperform growth firms. Moreover, small-cap firms tend to have higher post-announcement BHAR due to the flexibility that they had during the pandemic as well as the CEO having more influence that one would in a large company. Lastly, a high current ratio was associated with a lower BHAR. The median current ratio in the US in 2020 was 1.94. Our sample indicated around 3.3, thus, companies had too much liquidity that they became inefficient and had to deal with the opportunity cost of holding unproductive assets.

We cannot deny the negative impact that the pandemic has had on everyone's physical and mental well-being. Nevertheless, studies have shown that the pressure has been on working women the most. It is undeniable that the problems facing women in the labor force have always been there; however, we tend to find it inconvenient to discuss or to solve as they became part of the daily operations and what is considered to be "normal". Furthermore, COVID-19 has led to a gender discrimination in company leadership. Particularly, a study by the World Economic Forum shows that the pandemic has led companies to hire CEOs with experience, hence, men. The percentage of women hired as CEOs has dropped from 12% in October 2019, to only 6% post COVID-19 announcement. While men exhibited a greater performance post-COVID announcement that may be due to their greater access to resources, capital, and connections; we are optimistic that women will be able to catch up and to narrow the gap as the pandemic is fading into a more distant memory.

6 Limitations and Future Research

Just like any other study, our research has certain limitations that could be accounted for in future research. For example, although many studies have mentioned the additional pressure that women face due to their caregiving responsibilities, we do not have specific knowledge on whether the female CEOs in our sample have little children. Future research can look more into that by introducing a little children dummy that would give a more precise picture on whether having little kids is a signficant reason for the underperformance of female CEOs compared to their counterparts.

Future reasearch could also introduce the leverage variable in order to assess whether female CEOs took more or less risk during the pandemic, and to see whether that affected their performance as well.

Lastly, why is it that even after a year, female-led companies continued to be underperforming? Did the media give a bad image of female-led companies that has led to the discouragement of potential investors? Or is that female CEOs took more sick-leaves and focused less on work to give more of their attention to their families? Future research can look more into that.

References:

Alekseev, G., Amer, S., Gopal, M., Kuchler, T., Schneider, J., Stroebel, J., & Wernerfelt, N. (2023). The effects of covid-19 on U.S. small businesses: Evidence from owners, managers, and employees. Management Science, 69(1), 7-24.

Alin, A. (2010). Multicollinearity. Wiley Interdisciplinary Reviews: Computational Statistics, 2(3), 370-374.

Alves, J. C., Lok, T. C., Luo, Y., & Hao, W. (2020). Crisis management for small business during the COVID-19 outbreak: survival, resilience and renewal strategies of firms in Macau.

Baker, S., Bloom, N., Davis, S., Kost, K., Sammon, M., & Viratyosim, T. (2020). The unprecedented stock market impact of COVID-19 (NBER working paper 269945).

Barber, B. M., & Lyon, J. D. (1997). Detecting long-run abnormal stock returns: The Empirical Power and specification of test statistics. Journal of Financial Economics, 43(3), 341-372.

Barber, B.M., Odean, T., 2001. Boys will be boys: gender, overconfidence, and common stock investment. Q. J. Econ. 116(3), 261–292.

Bartik, A. W., Bertrand, M., Cullen, Z. B., Glaeser, E. L., Luca, M., & Stanton, C. T. (2020). The impact of COVID-19 on small business outcomes and expectations. National Bureau of Economic Research. 117(30),17656-17666.

Basu S. (1977). Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of Efficient Market Hypothesis. Journal of Finance, 32(3), 663-682.

Bateman, N., & Ross, M. (2021, January 06). Why has covid-19 been especially harmful for working women? Retrieved from https://www.brookings.edu/essay/why-has-covid-19-been-especially-harmful-for-working-women/

Bauer, L., Broady, K., Edelberg, W., & O'Donnell, J. (2022, March 09). Ten facts about covid-19 and the U.S. economy. Retrieved from https://www.brookings.edu/research/ten-facts-about-covid-19-and-the-u-s-economy/

Baysinger, B., & Hoskisson, R. E. (1990). The composition of boards of directors and strategic control: Effects on corporate strategy. Academy of Management Review, 15(1), 72–87.

Bernardi, R. A., Bosco, S. M., & Columb, V. L. (2009). Does female representation on boards of directors associate with the 'most ethical companies' list? Corporate Reputation Review, 12(3), 270-280.

Bertrand, M. & Schoar A., 2003, Managing with style: The effect of managers on firm policies, Quarterly Journal of Economics 118, 1169-1208.

Bonner, S. (2008). Judgment and decision making in accounting. Upper Saddle River, NJ: Prentice-Hall.

Bradley, C., & Stumpner, P. (2021, March 10). The impact of covid-19 on Capital Markets, one year in. Retrieved from https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/the-impact-of-covid-19-on-capital-markets-one-year-in

Brammer, S., Millington, A., & Pavelin, S. (2007). Gender and ethnic diversity among UK corporate boards. Corporate Governance, 15(2), 393–403.

Cord H.B., Proelss J., Schäffer U., and Schweizer D. (2021). "Bad News for Announcers, Good News for Rivals: Are Rivals Fully Seizing Transition - Period Opportunities following Announcers' Top Management Turnovers?" Strategic Management Journal 42 (3): 579–607.

Campbell, K. & Minguez-Vera, A. 2008. Gender diversity in the boardroom and firm financial performance. Journal of Business Ethics, 83: 435-451

Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. Journal of Financial Economics, 51(3), 371-406.

Dallas, L. (2002). The new managerialism and diversity on corporate boards of directors. Tulane Law Review, 76(5–6), 1363–1405.

Data, A., Alhabsji, T., Rahayu, S.M., & Handayani, S.R. (2017). Effect of Growth, Liquidity, Business Risk and Asset Usage Activity, Toward Capital Structure, Financial Performance and Corporate Value (Study at Manufacturing Companies Listed in Indonesia Stock Exchange in 2010-2015). European Journal of Business and Management, 9(3), 9-25.

Deloitte Global (2020). Understanding the pandemic's impact on Working Women. Retrieved from https://www.deloitte.com/global/en/about/people/social-responsibility/understanding-the-pandemics-impact-on-working-women.html

Dhawan, R. (2001). Firm size and productivity differential: Theory and evidence from a panel of US firms. Journal of Economic Behavior & Organization, 44(3), 269-293.

Faccio, M., Marchica, M., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. Journal of Corporate Finance, 39, 193–209

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and Bonds. Journal of Financial Economics, 33(1), 3-56.

Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. European Financial Management, 10(2), 295–319.

Fondas, N. (1997). Feminization unveiled: Management qualities in contemporary writings. Academy of Management Review, 22(1), 257–282

Fu, M., & Shen, H. (2020). COVID-19 and corporate performance in the energy industry – Moderating Effect of Goodwill Impairment. Energy Research Letters, 1(1),12967.

Garikipati, S., & Kambhampati, U. (2021) Leading the fight against the pandemic: Does gender 'really' matter? Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3617953

Gibbons, R., & Murphy, K. (1992). Does executive compensation affect investment? Journal of Applied Corporate Finance, 5(2), 99–109.

Golubeva, O. (2021). Firms' performance during the COVID-19 outbreak: International evidence from 13 countries. Corporate Governance: The International Journal of Business in Society. Retrieved from https://www.semanticscholar.org/paper/Firms%E2%80%99-performance-during-the-COVID-19-outbreak%3A-13-Golubeva/0e594e79269f588451fbc05efd442416c7d31df9

Goswami, N. (2020). Have female CEOS coped better with Covid than men? Retrieved from https://www.bbc.com/news/business-54974132

Grove, H., Patelli, L., Victoravich, L. M., & Xu, P. T. (2011). Corporate governance and performance in the wake of the financial crisis: Evidence from US commercial banks. Corporate Governance: An International Review, 19(5), 418-436.

Handayati, P., Hadi S., and Bagus S. N. 2022. Corporate Social Responsibility Disclosure and Indonesian Firm Value: The Moderating Effect of Profitability and Firm's Size. Journal of Eastern European and Central Asian Research 9: 703–14.

Heaton, J. B. (2002). Managerial Optimism and Corporate Finance. Financial Management, 31(2), 33–45.

Hinchliffe, E. (2023). Women run more than 10% of fortune 500 companies for the first time. Retrieved from https://fortune.com/2023/01/12/fortune-500-companies-ceos-women-10-percent/

Hirshleifer, D. (1993). Managerial Reputation and Corporate Investment Decisions. Financial Management, 22(2), 145–160.

Huson, M. R., Malatesta, P. H., & Parrino, R. (2004). Managerial succession and firm performance. Journal of Financial Economics, 74(2), 237–275

Iboi, E. A., Ngonghala, C. N., & Gumel, A. B. (2020). Will an imperfect vaccine curtail the COVID-19 pandemic in the U.S.?. Infectious Disease Modelling, 5, 510–524

Jawed, M. S., Vinod Tapar, A., & Dhaigude, A. S. (2021). Crisis, firm characteristics and stock performance: Evidence from hospitality and tourism sector. Tourism Recreation Research, 1-18.

Jensen, M.C. & Murphy, K.J. 1990a, "Performance Pay and Top-Management Incentives", The Journal of political economy, 98(2), 225-264.

Jianakoplos, N., & Bernasek, A. (2007). Are female more risk averse? Economic Inquiry, 36(4), 620–630

Kersten, A., & Athanasia, G. (2022). Addressing the gender imbalance in venture capital and entrepreneurship. Retrieved from https://www.csis.org/analysis/addressing-gender-imbalance-venture-capital-and-entrepreneurship

Khalid, A. (2020, March 29). The tech industry will recover faster from the pandemic than we do. Retrieved from https://qz.com/1826317/the-tech-industry-will-recover-from-coronavirus-faster-than-others

Koh, A., Ang, S. K., Brigham, E. F., & Ehrhardt, M. C. (2014). Financial management: theory and practice. Cengage Learning.

Kraus, S., Clauss, T., Breier, M., Gast, J., Zardini, A. and Tiberius, V. (2020**),** "The economics of COVID-19: initial empirical evidence on how family firms in five European countries cope with the corona crisis", International Journal of Entrepreneurial Behavior & Research, 26(5), 1067-1092.

Lafrance, A. (2012). Firm Dynamics: Variation in Profitability Across Canadian Firms of Different Sizes, 2000 to 2009. The Canadian Economy in Transition, no. 26. Statistics Canada Catalogue no. 11-622-M. Ottawa: Statistics Canada.

Lee, S., Liu, B., Jung, S., & Kim, B. (2023). The effect of vaccination during the covid-19 for the restaurant industry. *International Journal of Hospitality Management, 110*, 103451.

Luoto, S., & Varella, M. A. C. (2021). Pandemic leadership: Sex differences and their evolutionary–developmental origins. Frontier.

Malmendier, U., & Tate, G. (2005). CEO overconfidence and Corporate Investment. The Journal of Finance, 60(6), 2661-2700.

Martínez-Sola, C., García-Teruel, P., & Martínez-Solano, P. (2013). Corporate cash holding and firm value. Retrieved from https://www.tandfonline.com/doi/full/10.1080/00036846.2011.595696

Mouras, J. (2021). Yelp economic average 2020 annual report. Retrieved from https://medium.com/locally-optimal/yelp-economic-average-2020-annual-report-abba18764915

Nargelecekenler, M. (2011). Stock Prices and Price/Earnings Ratio Relationship: A Sectoral Analysis with Panel Data. Business and Economics Research Journal, 2(2), 165-184.

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. Journal of Financial Economics, 52(1), 3–46.

Öztürk, H. (2017). The relationship between earnings-to-price, current ratio, profit margin and return: An empirical analysis on Istanbul Stock Exchange. Accounting and Finance Research, 7(1), 109.

Peni E. 2014. CEO and Chairperson characteristics and firm performance. Journal of Management & Governance, 18(1): 185-205.

Ryan, H. E., Jr, & Wiggins, R. A., I. I. I. (2001). The influence of firm- and manager-specific characteristics on the structure of executive compensation. Journal of Corporate Finance, 7(2), 101–123.

Schubert M., Brown M, Brachinger H. Gender specific attitudes towards risk and ambiguity: An experimental investigation, Center for Economic Research, Swiss Federal Institute of Technology Zürich Working Paper, 2000.

Shang, G., Wu, Y. and Zhou, T. (2022) "Gender differences in multitasking: Evidence from the real estate brokerage industry," SSRN Electronic Journal [Preprint].

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. Emerging markets Finance and trade, 56(10), 2213-2230

Serfling, M. A. (2014). CEO age and the riskiness of corporate policies. Journal of Corporate Finance, 25, 251–273.

Seven, Ü. And Yilmaz. (2020) World Equity Markets and covid-19: Immediate response and recovery prospects, Research in International Business and Finance. Elsevier.

SICCODE.com (2021) Sic code lookup: Sic code search tool, SIC & NAICS Codes, Company Search, Business Lists - SICCODE.com.

Siegel, A. (2016) "Multicollinearity: Are the Explanatory Variables Too Similar?", in Practical Business Statistics (7th edition)

Sudiyatno, B., Puspitasari, E., Nurhayati, I., & Rijanti, T. (2021). The relationship between profitability and firm value: Evidence from manufacturing industry in Indonesia. International Journal of Financial Research, 12(3), 466.

Suteja, J., Gunardi, A., Alghifari, E. S., Susiadi, A. A., Yulianti, A. S., & Lestari, A. (2023). Investment decision and firm value: Moderating effects of corporate social responsibility and profitability of non-financial sector companies on the Indonesia Stock Exchange. Journal of Risk and Financial Management, 16(1), 40.

The Lancet (2020). COVID-19 in Brazil: "So what?". Lancet (London, England), 395(10235), 1461.

Van Essen, M., Engelen, P., & Carney, M. (2012). Does "good" corporate governance help in a crisis? the impact of country- and firm-level governance mechanisms in the European financial crisis. Corporate Governance: An International Review, 21(3), 201-224.

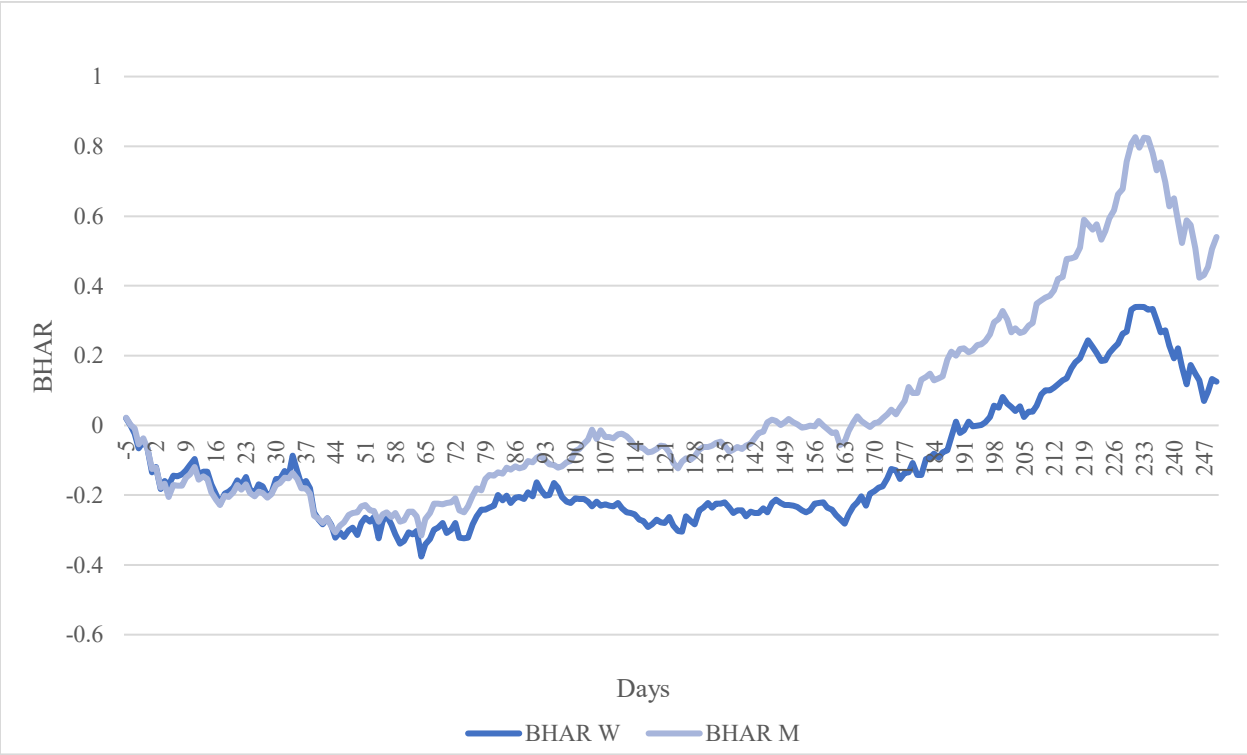
Wu, W. (2013). The P/E ratio and profitability. Journal of Business & Economics Research (JBER), 12(1), 67.

Xiong, H., Wu, Z., Hou, F., & Zhang, J. (2020). Which Firm-specific Characteristics Affect the Market Reaction of Chinese Listed Companies to the COVID-19 Pandemic? Emerging Markets Finance and Trade, 56(10), 2231-2242

Yudaruddin, R. (2019). Determinants of corporate cash holdings: Evidence of the mining sector in Indonesia. International Journal of Scientific & Technology Research, 8(10), 1523–1526.

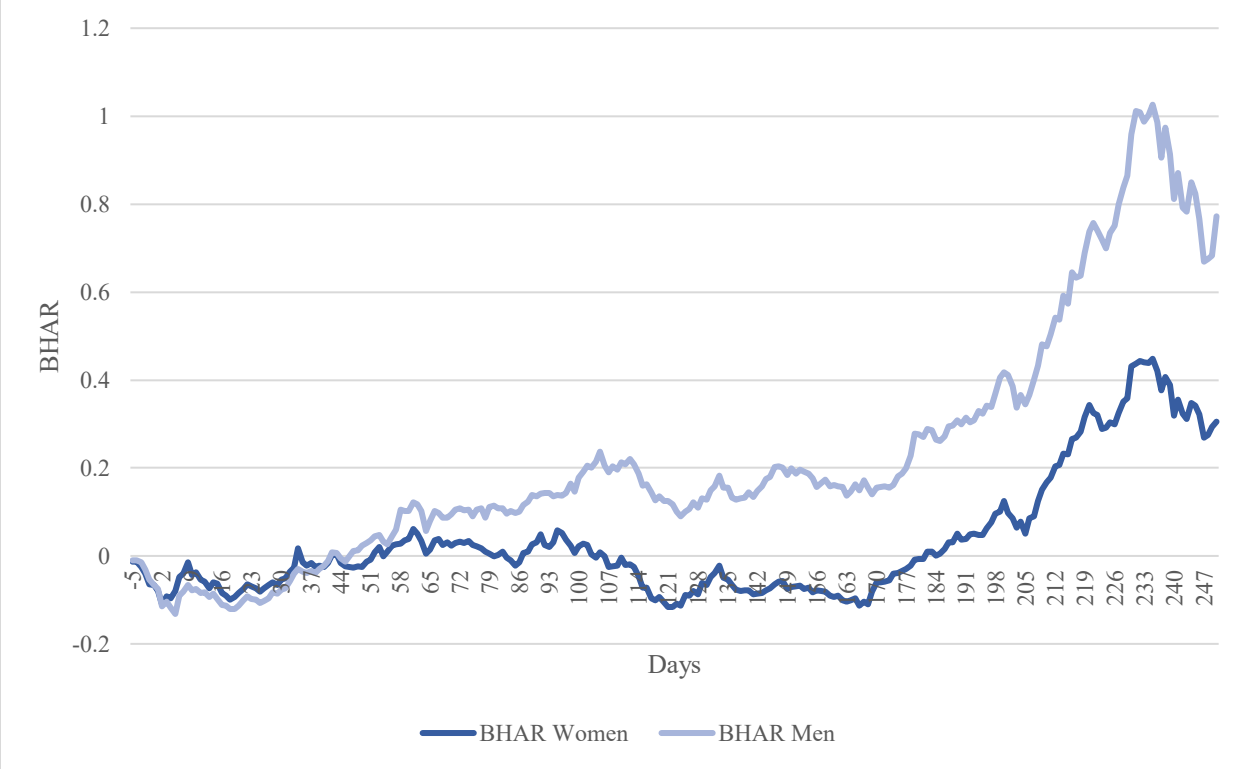
Figures

Figure 1: BHAR Comparison using Industry-Specific Index Model for Companies Matched Using "Simple Matching"



Note: The figure reports the buy-and-hold abnormal return calculated using the industry-specific index model for. The orange line reports the average BHAR of the 110 companies with a female CEO; whereas the gray line reports the average BHAR of the 360 companies with a male CEO.

Figure 2: BHAR Comparison using the Fama-French Three-Factor Model for Companies Matched Using "Simple Matching



Note: The figure reports the buy-and-hold abnormal return calculated using the Fama-French Three-Factor Model for. The blue line report the average BHAR of the 110 companies with a female CEO for when the abnormal returns were calculated based on the equally weighted CRSP index; whereas the grey line report the average BHAR of the 360 companies with a male CEO, for when the abnormal returns were calculated based on the equally weighted CRSP index.

Tables

Table 1: Best to worst performing industries during times of COVID-19

N	SIC Code	SIC Code Specification	Women/N
4	51	Wholesale-Trade Non-Durable Goods	25%
5	54	Food Stores	20%
12	48	Communications	25%
4	57	Home Furniture	25%
4	15	Building Construction General Contractors	25%
4	23	Apparel and Other Finished Products	25%
2	24	Lumber and Wood Products	50%
5	26	Paper and Allied Products	20%
107	28	Chemicals and Allied Products	20%
4	33	Primary Metals Industries	25%
10	34	Fabricated Metal Products	30%
15	36	Electronics and Other Electrical Equipment	20%
18	37	Transportation Equipment	22%
5	42	Warehousing	20%
5	49	Electric, Gas and Sanitary Services	20%
7	50	Wholesale Durable Goods	29%
15	56	Apparel and Accessory Stores	27%
3	65	Real Estate	33%
4	67	Holding and Other Investment Offices	25%
72	73	Business Services	21%
10	80	Health Services	20%
5	82	Educational Services	20%
8	87	Engineering Accounting Research	25%
4	44	Water Transportation	25%
3	53	General Merchandise Stores	33%
4	10	Mining	25%
9	20	Food and Kindred Products	22%
5	13	Oil and Gas Extraction	20%
4	17	Construction Special Trade Contractors	25%
8	25	Furniture And Fixtures	38%
2	30	Rubber and Miscellaneous Plastics Products	50%
19	35	Fabricated Metal Products	21%
20	38	Measuring, Analyzing and Controlling Instruments	20%
2	39	Miscellaneous Manufacturing Industries	50%
2	61	Non-Depository Credit Institutions	50%
2	70	Hotels, Rooming Houses, Camps, Aad Other Lodging Places	50%
2	78	Motion Pictures	50%
19	99	Non-Classifiable Establishments	26%
12	58	Eating and Drinking Places	25%
19	59	Miscellaneous Retail	26%
2	55	Automotive Dealers and Gas Stations	50%
4	79	Amusement and Recreation Services	25%

Note: The first column indicates the number of observations belonging to each of the listed industries. SIC code refers to the first two-digits of the SIC that would indicate to which industry a company belongs to. The SIC description names all the listed industries. The Women/N ratio indicates the percentage of women-led companies in the studied industries.

Table 2: Variable Description

Variable	Description	Database
Panel A: Firm Characteristics		
ROE	Net income over total equity; measures profitability	COMPUSTAT
Current Ratio	Current assets over current liabilities, measures liquidity	COMPUSTAT
Book to Market Ratio	Measure of a company's value over its actual worth	COMPUSTAT
Price/Earnings Ratio	the amount that investors are willing to pay for a dollar of earning	COMPUSTAT
SIZE	Logarithm of the total assets	CRSP
Panel B: CEO Characteristics		
Tenure	Number of years a CEO has been in his/her role	EXECUCOMP
Ownership	percentage of shares owned by the CEO	EXECUCOMP
LogAwards	Logarithm of the sum of the CEO's stock and the option awards	EXECUCOMP
LogSalary	Logarithm of the CEO's salary	EXECUCOMP
ExecutiveAge	age of the CEO	EXECUCOMP
LogTotalCompensation	Logarithm of the sum of all the obtained compensation of the CEO	EXECUCOMP
Panel C: Other Variables		
Women	Dummy Variable equal to 1 if CEO is a woman, 0 if CEO is a man	Factset
Pre50-Pre250	Pre-announcement BHARs	Stata
Post50-Post 250	Post-announcement BHARs	Stata

Table 3: Correlation Matrix of "Simply Matched" Companies

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
LogAwards.	(1)	1.00											
Women	(2)	-0.19	1.00										
SIZE	(3)	0.00	-0.04	1.00									
LogTotalComp	(4)	0.25	0.05	0.62	1.00								
LogSalary	(5)	0.06	0.03	0.22	0.26	1.00							
Ownership	(6)	-0.17	-0.05	0.17	0.07	-0.06	1.00						
Tenure	(7)	-0.02	-0.11	-0.07	-0.05	0.09	0.01	1.00					
Exec.Age	(8)	-0.04	-0.07	-0.06	0.03	0.05	-0.01	0.31	1.00				
CurrentRatio	(9)	-0.03	0.00	-0.17	-0.08	-0.02	-0.02	0.11	0.07	1.00			
ROE	(10)	-0.07	-0.03	0.04	-0.10	-0.02	-0.03	0.02	0.07	-0.02	1.00		
P/E	(11)	0.01	0.03	0.07	0.07	0.03	0.09	-0.01	-0.01	-0.05	0.00	1.00	
BookMarket	(12)	-0.08	-0.03	0.04	-0.15	0.01	0.00	-0.08	-0.06	-0.04	-0.04	-0.01	1.00

Table 4: Descriptive Statistics

Panel A: Women-Led Companies					
Variable	Obs	Mean	Std. dev.	Min	Max
LogSalary	110	5.67	0.67	0.00	6.55
Ownership	110	0.04	0.08	0.00	0.38
Tenure	110	7.95	5.10	1.00	26.00
LogTotalComp	110	6.35	0.55	4.81	8.45
LogAwards	110	3.19	2.99	0.00	7.16
ExecutiveAge	110	56.29	7.89	35.00	88.00
SIZE	110	2.58	0.83	0.87	4.25
CurrentRatio	110	3.38	3.32	0.00	17.87
P/E Ratio	110	12.90	58.40	-94.59	464.50
BookMarket	110	0.55	0.51	0.00	2.97
ROE	110	-4.74	33.92	-338.37	45.89
PanelB: Men-Led Companies					
Variable	Obs	Mean	Std. dev.	Min	Max
LogSalary	360	5.62	0.79	0.00	6.30
Ownership	360	0.05	0.09	0.00	0.41
Tenure	360	9.88	8.47	1.00	42.00
LogTotalComp	360	6.42	0.58	2.44	8.20
LogAwards	360	4.35	2.37	0.00	8.20
ExecutiveAge	360	57.43	7.45	36.00	78.00
SIZE	360	2.66	0.76	0.82	4.53
CurrentRatio	360	3.35	4.93	0.00	55.88
P/E Ratio	360	8.83	71.76	-344.64	331.31
BookMarket	360	0.60	0.68	-2.38	5.02
ROE	360	-0.80	8.31	-94.20	62.40

Table 5: Univariate t-test

	Observations (Men)	Observations (Women)	Mean (Men)	Mean (Women)	dif	St Err	t value	p value
LogAwards	360	110	4.35	3.19	1.16	0.28	4.20	0.00
LogSalary	360	110	5.62	5.67	-0.05	0.08	-0.60	0.54
LogTotalCompensation	360	110	6.42	6.35	0.07	0.06	1.15	0.25
ExecutivesAge	360	110	57.47	56.19	1.28	0.82	1.55	0.12
Tenure	360	110	9.88	7.95	1.94	0.85	2.30	0.02
Ownership	360	110	0.05	0.04	0.01	0.01	1.05	0.31
ReturnonEquity	360	110	-0.80	-4.74	3.94	1.95	1.99	0.04
CurrentRatio	360	110	3.35	3.38	-0.03	0.50	-0.05	0.95
BookMarket	360	110	0.60	0.55	0.05	0.07	0.50	0.61
SIZE	360	110	2.66	2.58	0.08	0.09	0.95	0.34
P/E	360	110	8.83	12.90	-4.08	7.51	-0.55	0.59

Note: Observations (Men) and Observations (Women) indicate the number of observations of male-led and female-led companies respectively. Mean(Men) and Mean(Women) indicate the average value of each of the indicated variables for male-led and female-led companies respectively.

Table 6: Mean Comparison Test

Panel A: Industry-Specific Index Model									
	Female-Led Companies			Male-Led Companies			Difference in Means		
Event Window	N	Mean	p-value	N	Mean	p-value	N	Difference	p-value
[-5;50]	110	-0.281	0.016	360	-0.236	0.017	470	-0.045	0.124
[-5;100]	110	-0.210	0.121	360	-0.081	0.298	470	-0.129	0.223
[-5;150]	110	-0.229	0.147	360	0.018	0.461	470	-0.247	0.000
[-5;200]	110	0.082	0.371	360	0.318	0.068	470	-0.236	0.001
[-5;250]	110	0.125	0.327	360	0.318	0.091	470	-0.193	0.010
Panel B: Fama-French Three-Factor Model									
	Female-Led Companies			Male-Led Companies			Difference in Means		
Event Window	N	Mean	p-value	N	BHAR	p-value	N	BHAR	p-value
[-5;50]	110	-0.014	0.606	360	0.029	0.269	360	-0.043	0.103
[-5;100]	110	0.021	0.379	360	0.178	0.003	360	-0.156	0.000
[-5;150]	110	-0.070	0.799	360	0.199	0.006	360	-0.269	0.000
[-5;200]	110	0.126	0.098	360	0.418	0.000	360	-0.293	0.000
[-5;250]	110	0.305	0.003	360	0.772	0.000	360	-0.467	0.000

Note: The table reports the mean comparison test of for BHARS calculated using the Fama-French Three-Factor Model in Panel A and the Industry- Specific Index Model in Panel B, for companies matched using “Simple Matching”.

Table 7: Regression Results Using the Industry-Specific Index Model for Companies Matched Using "Simple Matching".

	(1)	(2)	(3)	(4)	(5)
	Post50	Post100	Post150	Post200	Post250
Women	-0.07	-0.17	-0.308**	-0.309*	-0.474**
	(0.301)	(0.144)	(0.006)	(0.024)	(0.004)
Panel A: Firm Characteristics					
CurrentRatio	0.00	-0.02	-0.0210*	-0.0280**	-0.0448**
	(0.906)	(0.054)	(0.01)	(0.005)	(0.002)
ROE	0.00	0.00	0.00	0.00	0.00
	(0.523)	(0.846)	(0.388)	(0.759)	(0.695)
P/E	0.00	0.00	0.00	-0.00144*	-0.00196*
	(0.507)	(0.198)	(0.103)	(0.017)	(0.012)
Book/Market	-0.05	-0.12	-0.03	-0.01	0.07
	(0.373)	(0.308)	(0.828)	(0.93)	(0.774)
SIZE	-0.11	-0.281*	-0.20	-0.336*	-0.465*
	(0.065)	(0.034)	(0.082)	(0.023)	(0.016)
Panel B: CEO Characteristics					
LogTotalCompensation	0.14	0.16	0.17	0.409*	0.24
	(0.09)	(0.39)	(0.367)	(0.045)	(0.36)
LogAwards	-0.01	-0.01	-0.01	-0.03	-0.02
	(0.342)	(0.693)	(0.659)	(0.376)	(0.643)
LogSalary	0.02	0.02	-0.01	-0.07	-0.11
	(0.531)	(0.845)	(0.901)	(0.548)	(0.425)
Ownership	-0.01	0.00	0.54	1.12	1.00
	(0.985)	(0.998)	(0.382)	(0.237)	(0.312)
Tenure	0.00	0.01	0.01	0.02	0.01
	(0.295)	(0.582)	(0.08)	(0.117)	(0.746)
ExecutiveAge	0.00	-0.01	-0.0170*	-0.0285**	-0.0256*
	(0.368)	(0.26)	(0.026)	(0.007)	(0.037)
Pre50	0.09				
	(0.192)				
Pre100		-0.16			
		(0.058)			
Pre150			-0.232**		
			(0.009)		
Pre200				-0.381***	
				0	
Pre250					0.744***
Industry	YES				
Constant	-0.69	-0.12	0.30	0.18	1.79
	(0.122)	(0.903)	(0.76)	(0.856)	(0.206)
Observations	470	470	470	470	470
Mean VIF	1.19	1.19	1.20	1.20	1.20
Max VIF	2.51	2.51	2.53	2.57	2.52
Adjusted R^2	0.16	0.07	0.11	0.13	0.12
p-values in parentheses					
* p<0.05,**p<0.01, ***p<0.001					

Table 8: Regression Results Using the Fama-French Three-Factor Model for Companies Matched Using "Simple Matching".

	(1) Post50	(2) Post100	(3) Post150	(4) Post200	(5) Post250
Women	-0.06	-0.17	-0.266**	-0.310*	-0.494**
	(0.32)	(0.11)	(0.01)	(0.01)	(0)
Panel A: Firm Characteristics					
CurrentRatio	0.01	-0.01	-0.01	-0.0169*	-0.036***
	(0.13)	(0.1)	(0.07)	(0.03)	(0)
ROE	0	0	0	0.00381*	0
	(0.79)	(0.29)	(0.19)	(0.03)	(0.05)
P/E	0	0	-0.0008*	-0.00126*	-0.0015*
	(0.34)	(0.07)	(0.02)	(0.01)	(0.03)
BookMarket	-0.02	-0.01	0.06	0.1	0.2
	(0.71)	(0.92)	(0.53)	(0.37)	(0.27)
SIZE	-0.18***	-0.33**	-0.26*	-0.39**	-0.49**
	(0)	(0)	(0.01)	(0.01)	(0.01)
Panel B: CEO Characteristics					
LogAwards	0.01	0.01	0.01	-0.01	-0.01
	(0.6)	(0.79)	(0.79)	(0.79)	(0.86)
LogTotalComp	0.185*	0.23	0.26	0.35	0.17
	(0.02)	(0.16)	(0.09)	(0.06)	(0.53)
LogSalary	-0.01	-0.03	-0.05	-0.09	-0.1
	(0.82)	(0.67)	(0.5)	(0.4)	(0.48)
Ownership	0.11	-0.01	0.49	0.86	0.68
	(0.6)	(0.99)	(0.38)	(0.29)	(0.4)
Tenure	0	0	0.01	0.02	0.01
	(0.74)	(0.64)	(0.16)	(0.11)	(0.61)
ExecutivesAge	0	0	-0.01	-0.02	-0.02
	(0.92)	(0.95)	(0.3)	(0.06)	(0.13)
Pre50	0.0435				
	(0.571)				
Pre100		-0.192			
		(0.141)			
Pre150			-0.171		
			(0.146)		
Pre200				-0.112	
				(0.338)	
Pre250					-0.551**
					(0.005)
_cons	-0.667	-0.25	-0.212	0.734	2.434
	(0.156)	(0.753)	(0.783)	(0.462)	(0.083)
Observations	470	470	470	470	470
Adjusted R^2	0.032	0.014	0.014	0.022	0.052
Max VIF	2.03	2.05	2.05	2.05	2.06
Mean VIF	1.24	1.24	1.24	1.25	1.25
p-values in parentheses					
* p<0.05, **p<0.01, *** p<0.1					

Table 9: Regression Analysis with Clustered Variables

	(1) Post150	(2) Post150	(3) Post150	(4) Post150
Pre150	-0.203**	-0.204**	-0.198**	-0.204**
	(0.004)	(0.004)	(0.005)	(0.004)
Women	-0.261*	-0.257*	-0.249*	-0.255*
	(0.011)	(0.011)	(0.016)	(0.012)
FixedEffects	0.0136*	0.0136*	0.0137*	
	(0.023)	(0.023)	(0.021)	
CEOCharacteristics	0.0262	0.0267		
	(0.477)	(0.47)		
FirmCharacteristics	0.144			0.168
	(0.137)			(0.15)
Constant	-0.252**	-0.334*	-0.519	-0.839*
	(0.002)	(0.032)	(0.07)	(0.035)
Observations	470	470	470	470

p-values in parentheses
* p<0.05,**p<0.01, ***p<0.001

Appendix: The Nearest-Neighbor Matching Analysis

Nearest-neighbor matching consists of pairing each "treated unit", in this case, companies with female CEOs, with a "control unit" based on several criteria. In this study, female-led companies are exactly matched with one male-led companies based on their first-two SIC code digits. Moreover, the selection variables include total revenues, the logarithm of companies' age, total sales, as well as profitability. After considering all these criteria, we get a sample of 110 firms with female CEOs matched with 89 firms with male CEOs. Table 10 shows the nearest-neighbor matching quality.

*** Insert Table 10 About Here ***

In order to compare the performance of female-led companies to the male-led companies, we conduct an event study with the same event date (March 11th, 2020) using the industry-specific index model; as it showed to be the most significant analysis. Figure 1 reports the BHAR comparison between companies with a male vs. a female CEO. Consistent with the simply matched sample, we can see the same trend where the BHAR of the female-led companies continue to be lower than that of male-led companies. Moreover, male-led companies started to recover at almost day 90 post announcement, whereas female-led companies started to recover at almost day 190.

*** Insert Figure 3 About Here ***

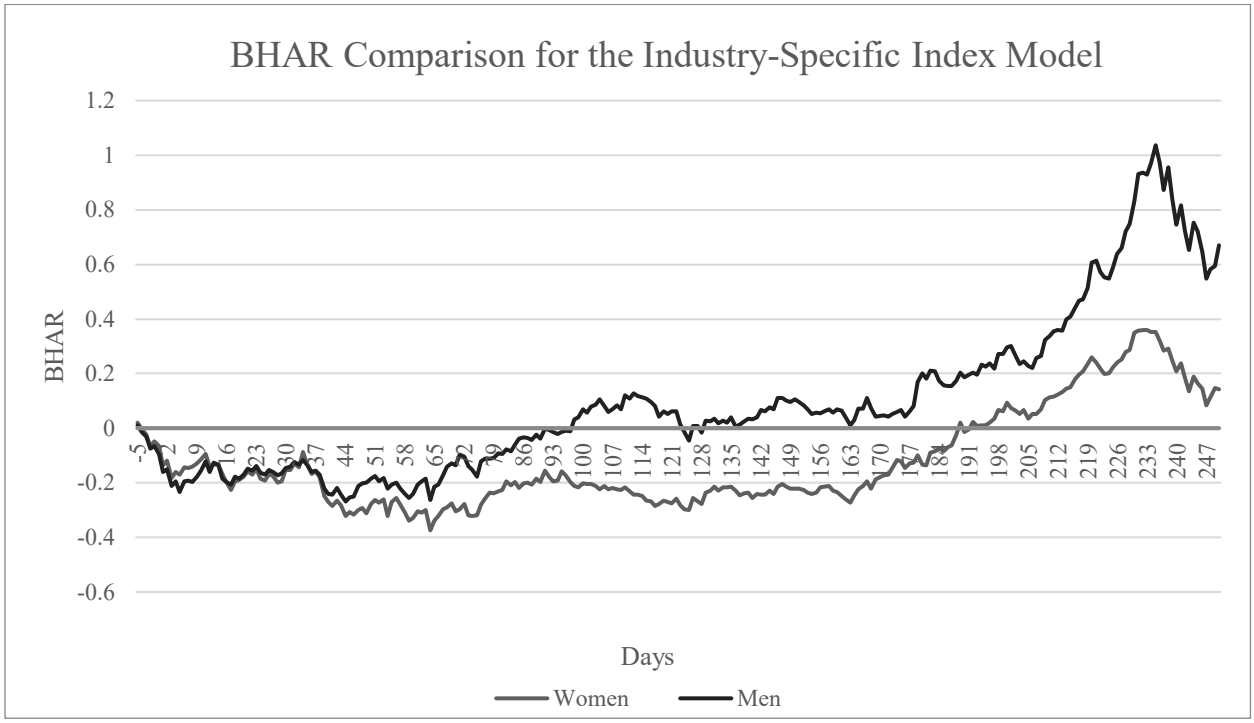
Lastly, in order to see which variables affect the post-announcement BHARs the most, conduct a regression analysis with the same independent variables used earlier. Consistent with the earlier analysis, we observe a negative relationship between the post-announcement BHARs and the Women coefficient; however, this relationship is only significant for the last event window. Moreover, the current ratio coefficient is only negatively significant in the last two event windows. The only result that differs from the previous analysis related to the book to market ratio. As we

can see, there is a significant negative relationship between the book-to-market ratio and the post-announcement BHARs for the first two event windows.

*** Insert Table 11 About Here ***

Figures

Figure 3: BHAR Comparison using Industry-Specific Index Model for Companies Matched Using "Nearest-Neighbor Matching"



Note: The figure reports the buy-and-hold abnormal return calculated using the industry-specific index model for. The gray line reports the average BHAR of the 110 companies with a female CEO; whereas the black line reports the average BHAR of the 360 companies with a male CEO.

Tables

Table 10: Matching Quality

Treatment-effects estimation				Number of obs =	470	
Estimator: nearest-neighbor matching				Matches: requested =	1	
Outcome model: matching				min =	1	
Distance metric: Mahalanobis				max =	5	
Sales	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
ATE						
treat						
(1 vs 0)	-210.1365	127.2587	-1.65	0.099	-459.559	39.2859

Table 11: Multivariate Regression Results

	(1)	(2)	(3)	(4)	(5)
	Post50	Post100	Post150	Post200	Post250
Women	-0.0926	-0.278	-0.316	-0.35	-0.690*
	(0.14)	(0.1)	(0.05)	(0.07)	(0.05)
Panel A: Firm Characteristics					
LogAwards	-0.0188	-0.00273	0.00894	-0.0222	-0.0411
	(0.23)	(0.96)	(0.85)	(0.63)	(0.47)
CurrentRatio	-0.00698	-0.0307	-0.0321	-0.038**	-0.049**
	(0.2)	(0.08)	(0.06)	(0.01)	(0.01)
ReturnonEquity	0.001	0.003	0.000	0.002	0.000
	(0.59)	(0.5)	(0.91)	(0.68)	(0.96)
P/E	0.000	-0.001	-0.001	-0.001	-0.002
	(0.53)	(0.67)	(0.66)	(0.46)	(0.18)
BookMarket	-0.214**	-0.515*	-0.321	-0.209	-0.285
	(0.01)	(0.02)	(0.14)	(0.22)	(0.2)
SIZE	-0.0225	0.0722	0.218	-0.00733	-0.185
	(0.83)	(0.8)	(0.47)	(0.98)	(0.55)
Panel B: CEO Characteristics					
LogTotalComp	-0.207	-0.617	-0.658	-0.285	-0.212
	(0.12)	(0.15)	(0.12)	(0.39)	(0.6)
LogSalary	-0.000881	0.0706	0.109	0.0739	0.21
	(0.99)	(0.72)	(0.53)	(0.64)	(0.47)
Ownership	0.159	-0.253	0.0567	0.0479	0.161
	(0.52)	(0.65)	(0.91)	(0.94)	(0.88)
Tenure	0.00519	0.024	0.036	0.0335	0.019
	(0.37)	(0.43)	(0.28)	(0.22)	(0.56)
Executivesage	-0.003	0.009	0.004	0.0004	-0.007
	(0.54)	(0.63)	(0.83)	(0.98)	(0.71)
Pre50	0.104				
	(0.31)				
Pre100		-0.369			
		0.29			
Pre150			-0.223		
			0.23		
Pre200				-0.313***	
				0	
Pre250					-0.757***
					0
_cons	1.808*	3.344*	2.943*	1.619	1.61
	(0.02)	(0.02)	(0.03)	(0.24)	(0.43)
Industry	YES				
Observations	199	199	199	199	199
Mean VIF	2.04	2.04	2.07	2.08	2.07
Max VIF	3.74	3.72	3.9	3.96	3.79
Adjusted R^2	0.235	0.11	0.108	0.09	0.07
p-values in parentheses					
* p<0.05,**p<0.01, ***p<0.001					