

**Sexism in the Stock Market?**

*Analysis of Investors' Preferences Regarding CEO Gender Based on Earnings Reports*

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## Abstract

This paper questions if investors exhibit sexism through their investment decisions in regard to CEO Gender at the time of earnings report releases. This paper furthers ideas of previous papers which explain that investors favor male CEOs over female CEOs. This is primarily due to media attention on female CEOs gender rather than their accomplishments or ability to lead a company. Male CEOs have significantly more media attention on their accomplishments and abilities providing investors with a greater amount of background knowledge. Therefore, they typically invest in male lead companies at the time of CEO turnover. This paper looks to see if the same is true in regard to the life of the CEO through investments at the time of an earnings report release. The paper examines the 24 female lead companies in the S&P 500 index and 24 randomly selected male lead companies in the index. Over the course of one year (including 4 earnings reports per company) data was gathered 5 days prior to the report and 15 days after. This established a time frame in which “regular” data within the company was able to be established. From this analysis, it was found that there is no significant difference between the female and male lead companies. Still, there are results that further testing could verify. CEO gender does have a slightly negative effect on earnings results. If data was able to be gathered from more female lead companies throughout the stock exchange, there is a possibility that significant results could be formed. There also seems to be more stable returns on female lead companies when analysts predictions were incorrect. Again, while this data is not significant, further testing could provide greater information.

## Introduction

Female CEOs are rare among publicly traded United States companies. While the number of female managers is increasing, the amount in executive positions remains small. In Fortune 500 firms last year, only thirty-two of the CEOs were female and this was the highest amount to date (Fortune Magazine 2017). In this past year, there were only 24 female CEOs in the S&P 500 index. This is only 4.8% of all of the firms. This gender gap is not only present across American firms but it spreads across Europe. Only 3% of the largest Scandinavian companies are lead by female CEOs (Faccio, Mara, et al 2012). Despite the fact the females comprise more than fifty percent of the population and have the ability to diversify a male lead workforce, they are still lacking top leadership positions throughout companies, especially successful companies, across the globe.

Many studies have been done in an attempt to recognize why females are not rising through the corporate hierarchy at the same rates as their male colleagues. There are three effects that have been theorized to be the case for a lack of females in the top positions at United States companies (Cook and Glass 2013). These three theories are the glass cliff, decision maker diversity, and the savior effect. The glass cliff is the theory that women can rise through the ranks of a company but are only placed in top leadership positions when a company is failing, as a last resort. While this is a widely held belief, Cook and Glass found that the glass cliff was a myth and that there was no significant difference in company performance when men or women were placed into positions of power. The second theory, decision maker diversity, states that women are more likely to be placed in positions of power in diverse companies. This was found to be true. The savior effect details that women are more likely to be fired from positions of

power than their male colleagues. This effect was also found to be false. While there was only significant data throughout these studies in terms of diversity of boards, this was stated to be due to the lack of data available for women CEOs.

It is more difficult for females to rise through the corporate hierarchy and therefore have to be more qualified to rise to the position of a CEO. This is why female CEOs represent such a small portion of the CEO population in Fortune 500 firms. In fact, thirty nine percent of females who left corporate positions did so because they were looked over in a promotion in favor of a male colleague (Ding and Charoenwong 2013). In addition, one would assume that investors would react more positively to female CEOs because a company which allows a female to rise throughout the ranks or to take the head position must be a mature company with a positive and innovative internal culture and a diverse set of employees. Female CEOs are also found to be more responsible and risk averse than their male colleagues. This was demonstrated by Murab, Marchicab, and Faccioa in their study CEO gender, corporate risk-taking, and the efficiency of capital allocation (Marchicab and Faccioa 2013). Martin, Takeshi, and Williams had similar findings in their study: CEO Gender: Effects on Valuation and Risk. This study found that while there were insignificant results regarding female versus male CEO appointments but companies with higher risk were more likely to appoint female CEOs to reduce their risk (Leitch, Darren, and Sherif 2013).

In a more recent study by Sherif examining data from 2010 to 2015, it was found that CEO gender seemed to have a positive yet insignificant correlation to stock price (Leitch, Darren, and Sherif 2013). This insignificant correlation was largely found to be due to the lack of female CEO appointments. Out of the appointments studied (S&P 100 firms and FTSE 100 stock

returns) female CEO appointments only accounted for eight percent of total appointments while males accounted for ninety-two percent. There have also been studies on long term stock returns in regard to CEO gender which also resulted in insignificant results. Wolfers in his study of 1500 S&P 1500 firms from 1992 to 2004 found that there was no significant difference between male and female CEOs and the company's stock returns (Wolfers 2010). Rather than looking at immediate stock market reactions to the appointment of male and female CEOs, these firms were studied overtime.

Despite the insignificant and inconclusive results which dominate the current literature, Lee and James found that female CEOs receive a significant negative response from shareholders when compared to their male colleagues in the form of significantly lower stock returns (Lee and James 2007). They believed that this was largely due to gender stereotyping and other discriminatory treatment due to the media's portrayal of female CEO appointments. After analysis, they found that the media portrays female CEOs in a much different way than male CEOs due to the limited number of female CEOs. When a female CEO is appointed, the media focuses on the gender gap and overcoming gender issues rather than the CEO herself. This increase in media attention makes investors more wary of the CEO as the media does not focus on her experience and knowledge but rather on her gender. The lack of background knowledge that the media provides for the CEO also makes investors wary of her credentials. This is known as the token effect in sociology. The female CEO is seen as a rarity and a "token" in a male dominated group. On the contrary, because it is seen as the norm, when a male is put into the CEO position, the media focuses on his credentials and background. The male CEO's credentials are more accessible to shareholders and they respond to this in a positive manner.

In the Singapore Stock Exchange, it was found that female board members increased stock value. Ding and Charoenwong studied CEO and board of directors appointments effects on price in the Singapore Stock Exchange and found that female CEO appointments increased stock value significantly. Female board directors also increase stock prices to an even greater degree. Yet, simply having females on the board did not increase stock price. While this study found results significant to the 1% level, it is fairly outdated as the data is from 1988 to 2001. It also only studied the Singapore stock market. The study also failed to compare the stock market values of companies who appointed male CEOs. Because there were not electronic trading at the time of this study, the market was only traded between brokers at the set stock market hours and announcements for board changes were faxed over. Therefore, all potential gender biases stem from the Singapore Brokers during this time.

There can be additional effects on an earnings announcement beyond CEO gender which must be accounted for. These factors include the way in which the S&P 500 is performing that day, the way in which the company's stocks have been performing over time, the high and low of the day for the company and the S&P 500 and finally the earnings surprise of the company. The surprise is especially important to account for as the companies may outperform or underperform analyst's predictions leading to an increase or decrease in stock price for reasons different than company gender.

#### Question

This study aims to answer the question "Do investors respond differently to the quarterly reports of companies based on the gender of the firm's CEO?" While there is a great deal of literature concerning female CEOs in publicly traded companies, there are no studies conducted

on the effects of CEO gender on investments following quarterly reports on the returns of a company. The differences in stock value after the quarterly report for each of these companies should present a picture on investors views of gender in terms of companies CEOs. My thesis will continue to add to the literature as it furthers the previous literature by providing a more holistic view in the investment process and the degree of sexism that is potentially involved. My thesis uses data from the S&P 500 companies in the United States. This will provide direct access to American investors inherent gender bias. With the rise of internet driven trading, anyone can invest in any company those who are primarily investing in United States based companies are United States based investors. The previous literature is also not focused on the United States but rather the globe or another country. My research should help expand knowledge of how investors view females in the CEO position and the way in which they value the company. As it has been proven that females perform differently than males in the boardroom it will be interesting to see if these differences are viewed in a positive or negative light in regard to quarterly reports (Vishwakarma 2007). My thesis will analyze quarterly reports of all female CEO lead publicly traded companies in the S&P 500 in the United States. These companies will be compared to 50 randomly chosen companies lead by males within the S&P 500 index.

The S&P 500 was chosen as there is published data about the female CEOs within the S&P 500. This data will be used to analyze the specific dates and times in which the CEOs of the publicly traded companies in the New York Stock Exchange changed their CEOs in order to account for potential CEO changes within the year. Stock prices are being analyzed as stocks are used as the current indicator of future returns on a company.

## Data

The data was gathered for 48 companies half of which were lead by female CEOs (24 companies) and half of which were lead by male CEOs (24 companies). The data regarding CEO gender was gathered from Yahoo Finance. These companies were the only companies in the S&P 500 who were lead by female CEOs. Two of the companies: Campbell's Soup Company (CPB) and PepsiCo (PEP) had a turnover of CEOs throughout their time. Campbell's Soup began with a female CEO but this switched on the day that their third quarterly report was published on May 18, 2017. At this point a positive report was published and a male was placed as CEO. Pepsi also started with a female CEO but she resigned on August 7, 2018. Therefore, only their most recent quarterly report was published with a male CEO. As a comparison to the female lead 24 companies, 24 companies were randomly chosen that were lead by male CEOs. The companies are listed in the charts below. The data ranges from November 30, 2017 to November 30, 2018. These dates were chosen as they had accessible data regarding quarterly reports and they included one calendar year, therefore 4 quarterly reports per company. These reports account for the Open, High, Close and Volume traded for each trading day. For each quarterly report day, the Earnings Per Share, EPS Forecast and Percent Surprise were each accounted for. This data was downloaded from NASDAQ.com for each of the 50 companies. The data also accounts for the Open, High, Close, Adjusted Close and Volume traded on the S&P 500 index per each trading day. This data was downloaded from Yahoo Finance. There are 255 trading days in the year which are each accounted for. The gender of the CEO is the



independent variable. This variable was used to run each regression to test the effect of a female CEO.

Table 1: List of Companies

| <b>Symbol</b> | <b>Company</b>                       | <b>Percent of S &amp; P</b> | <b>Gender</b> | <b># on index</b> | <b>CEO Start Date</b> |
|---------------|--------------------------------------|-----------------------------|---------------|-------------------|-----------------------|
| GM            | General Motors Co                    | 0.18%                       | F             | 125               | 1/1/2014              |
| ANTM          | Anthem Inc                           | 0.26%                       | F             | 83                | 1/2/2017              |
| MYL           | Mylan NV                             | 0.07%                       | F             | 291               | 1/3/2012              |
| HSY           | The Hershey Co                       | 0.08%                       | F             | 256               | 1/3/2017              |
| VTR           | Ventas Inc                           | 0.07%                       | F             | 292               | 03/01/1999            |
| ORCL          | Oracle Corp                          | 0.69%                       | F             | 28                | 09/01/2014            |
| PEP           | Pepsico                              | 0.73%                       | F-M           | 29                | 10/3/2018             |
| NDAQ          | Nasdaq Inc                           | 0.05%                       | F             | 363               | 01/2017               |
| KSS           | Kohl's Corp                          | 0.04%                       | F             | 403               | 05/2018               |
| DUK           | Duke Energy Corp                     | 0.21%                       | F             | 108               | 07/01/2013            |
| PGR           | Progressive Corp                     | 0.15%                       | F             | 150               | 07/2016               |
| LMT           | Lockheed Martin Corp                 | 0.36%                       | F             | 63                | 01/2013               |
| OXY           | Occidental Petroleum Corp            | 0.23%                       | F             | 99                | 04/01/2016            |
| LNT           | Alliant Energy Corp                  | 0.04%                       | F             | 440               | 04/01/2012            |
| SYF           | Synchrony Financial                  | 0.09%                       | F             | 235               | 02/01/2014            |
| KEY           | KeyCorp                              | 0.08%                       | F             | 259               | 05/2011               |
| GD            | General Dynamics Corp                | 0.22%                       | F             | 103               | 01/2013               |
| CMS           | CMS Energy Corp                      | 0.05%                       | F             | 364               | 07/01/2016            |
| ROST          | Ross Stores Inc                      | 0.13%                       | F             | 168               | 06/01/2014            |
| IBM           | International Business Machines Corp | 0.51%                       | F             | 37                | 01/01/2012            |
| AWK           | American Water Works Co              | 0.06%                       | F             | 330               | 05/01/2014            |

|       |                                    |       |     |     |                          |
|-------|------------------------------------|-------|-----|-----|--------------------------|
|       | Inc                                |       |     |     |                          |
| AMD   | Advanced Micro Devices Inc         | 0.10% | F   | 207 | 10/1/2014                |
| PCG   | PG&E Corp                          | 0.09% | F   | 225 | 03/01/2017               |
| HOLX  | Hologic Inc                        | 0.04% | M   | 419 | 11/3/2017                |
| HII   | Huntington Ingalls Industries Inc  | 0.04% | M   | 418 | 10/31/2011               |
| DLR   | Digital Realty Trust Inc           | 0.08% | M   | 247 | 11/01/2014               |
| BAX   | Baxter International Inc           | 0.15% | M   | 153 | 01/01/2016               |
| SJM   | JM Smucker Co                      | 0.04% | M   | 225 | 05/01/2016               |
| DISCK | Discovery Inc                      | 0.06% | M   | 324 | 01/01/2007               |
| NKE   | Nike Inc                           | 0.49% | M   | 39  | 01/01/2006               |
| BIIB  | Biogen Inc                         | 0.26% | M-M | 84  | 12/19/2016<br>01/06/2017 |
| HES   | Hess Corp                          | 0.08% | M   | 252 | 05/01/2013               |
| CMI   | Cummins Inc                        | 0.09% | M   | 220 | 01/01/2012               |
| SIVB  | SVB Financial Group                | 0.06% | M   | 310 | 03/01/2008               |
| TRIP  | TripAdvisor Inc                    | 0.03% | M   | 487 | 02/02/2000               |
| CBRE  | CBRE Group Inc                     | 0.06% | M   | 346 | 12/03/2018               |
| WFC   | Wells Fargo & Co                   | 0.94% | M   | 16  | 10/01/2016               |
| TDG   | TransDigm Group Inc                | 0.07% | M   | 283 | 04/30/2018               |
| VZ    | Verizon Communications Inc         | 0.82% | M   | 23  | 08/01/2011               |
| FBHS  | Fortune Brands Home & Security Inc | 0.03% | M   | 480 | 04/01/2009               |
| PXD   | Pioneer Natural Resources Co       | 0.12% | M   | 191 | 01/01/2017               |
| RTN   | Raytheon Co                        | 0.22% | M   | 106 | 01/01/2014               |
| BWA   | BorgWarner Inc                     | 0.03% | M-M | 458 | 01/01/2013<br>08/01/2018 |
| MRO   | Marathon Oil Corp                  | 0.08% | M   | 271 | 08/01/2013               |
| PX    | Praxair Inc                        | 0.18% | M   | 127 | 1/1/2017                 |

|      |                           |       |   |     |          |
|------|---------------------------|-------|---|-----|----------|
| INCY | Incyte Corp               | 0.05% | M | 352 | 5/1/2011 |
| MET  | MetLife Inc               | 0.17% | M | 130 | 6/1/2011 |
| ADM  | Archer-Daniels Midland Co | 0.10% | M | 202 | 1/1/2015 |

Formula

CEO Gender: 1= Female, 0=Male

$$Reg = r_{it} = \alpha + \beta S + P_t + \Sigma$$

$$CAR = \sum_{-5}^{+5} \Sigma_t + Y$$

Earnings Surprise= Regression A

$$CAR = \alpha + \beta_1 + S \& P \ 500 \text{ Return} + \beta_2 \text{ CEO Gender} + \beta_3 \text{ Earnings Surprise} + \beta_4 \text{ Positive Surprise} + \beta_5 \text{ CEO Gender} * \text{ Earnings Surprise}$$

Positive Earnings Surprise= Positive Earnings Surprise Percentage (Regression B)

$$\text{Return} = \alpha + \beta_1 + S \& P \ 500 \text{ Return} + \beta_2 \text{ CEO Gender} + \beta_3 \text{ Earnings Surprise} + \beta_4 \text{ Positive Surprise} + \beta_5 \text{ CEO Gender} * \text{ Earnings Surprise} + \beta_6 \text{ CEO Gender} * \text{ Positive Earnings Surprise} + \beta_7 \text{ Earnings Surprise} * \text{ Positive Earnings Surprise} + \beta_8 \text{ CEO Gender} * \text{ Positive Earnings Surprise} * \text{ Earnings Surprise}$$

The data was analyzed to see if the Return or the closing price the day in which the earnings reports were released was impacted by whether or not the CEO was a male or female.

There were a number of variables that had to be accounted for in this testing. This included variables of the S and P stocks as a whole in order to account for daily differences within the S&P 500 index. These variables have the potential to impact the S&P 500 as a whole so they were accounted for. There were also stock variables that were accounted for for each company.

Table 2: Summary Statistics

| Variable           | Observation | Mean      | Standard Deviation | Min       | Max      |
|--------------------|-------------|-----------|--------------------|-----------|----------|
| Gender Surprise    | 189         | 4.013492  | 16.39628           | -13.16    | 200      |
| S & P Return       | 9502        | .0004296  | .0091118           | -.0375364 | .022974  |
| Return             | 9502        | -.0000994 | .0168741           | -.1972112 | .2274047 |
| ID                 | 12,142      | 24.50165  | 13.85359           | 1         | 48       |
| S&P Open           | 12,143      | 2753.124  | 84.95688           | 2584.04   | 2936.76  |
| S&P High           | 12,143      | 2766.529  | 81.22781           | 2619.14   | 2940.91  |
| S&P Low            | 12,143      | 2738.12   | 89.28913           | 2532.69   | 2927.11  |
| S&P Adjusted Close | 12,143      | 2752.27   | 85.41113           | 2581      | 2930.75  |
| S&P Close          | 12,143      | 2752.27   | 85.41113           | 2581      | 2930.75  |
| S&P Volume         | 12,143      | 3.53e+09  | 6.39e+08           | 1.65e+09  | 5.89e+09 |
| High               | 12,142      | 576.8298  | 1.38e+07           | 38.03     | 3.24e+08 |
| Open               | 12,142      | 101.124   | 87.07509           | 9.53      | 383.83   |
| Low                | 12,142      | 101.1593  | 87.11815           | 9.08      | 380      |
| Close Last         | 12,142      | 102.2336  | 88.0418            | 9.77      | 388.67   |
| Volume             | 12,142      | 33061.53  | 243119.1           | 9.04      | 5792678  |

|                   |     |          |          |       |     |
|-------------------|-----|----------|----------|-------|-----|
| Earnings PE       | 191 | 1.485026 | 1.378835 | -1.01 | 7.4 |
| Earnings Forecast | 189 | 1.389735 | 1.272445 | -.9   | 6.8 |
| Earnings Surprise | 189 | 13.37164 | 73.3143  | -300  | 860 |

Table 3: Regression Results (Test A, Equation A)

| <b>CAR</b>             | <b>Coef</b> | <b>Standard Error</b> | <b>t</b> | <b>P&gt; t </b> | <b>[95% Conf. Interval]</b> |
|------------------------|-------------|-----------------------|----------|-----------------|-----------------------------|
| <b>S&amp;P Return</b>  | .7939102    | .6371937              | 1.25     | 0.214           | -.4635644<br>2.051385       |
| <b>CEOGender</b>       | -.0019368   | .0144402              | -0.13    | 0.893           | -.0304339<br>.0265602       |
| <b>EarnSuprise</b>     | -.0000425   | .0000949              | -0.45    | 0.655           | -.0002297<br>.0001448       |
| <b>Gender Surprise</b> | .0003848    | .0004378              | 0.88     | 0.381           | -.0004791<br>.0012488       |
| <b>Cons</b>            | -.0043336   | .0099269              | -0.44    | 0.663           | -.023924<br>.0152568        |

This table details the first regression run based off of equation A from above.

Table 4: Regression Results (Test B, Equation B)

| <b>CAR</b>            | <b>Coef</b> | <b>Standard Error</b> | <b>t</b> | <b>P&gt; t </b> | <b>[95% Conf. Interval]</b> |
|-----------------------|-------------|-----------------------|----------|-----------------|-----------------------------|
| <b>S&amp;P Return</b> | .8369936    | .644878               | 1.30     | 0.196           | -.4358481<br>2.109835       |
| <b>CEOGender</b>      | .0062452    | .0518434              | 0.12     | 0.904           | -.0960817<br>.1085721       |
| <b>EarnSuprise</b>    | -.000187    | .0003168              | -0.59    | 0.556           | -.0008122<br>.0004382       |
| <b>PosEarnSuprise</b> | .0362625    | .02629                | 1.38     | 0.170           | -.015628<br>.0881529        |
| <b>PosInt</b>         | .0001262    | .0003335              | 0.38     | 0.706           | -.000532<br>.0007844        |
| <b>GenderSup</b>      | .0006329    | .0055785              | 0.11     | 0.910           | -.0103777<br>.0116435       |
| <b>PosGen</b>         | -.0088463   | .0544698              | -0.16    | 0.871           | -.1163574<br>.0986647       |
| <b>GenEarnPos</b>     | -.0003643   | .0055994              | -0.07    | 0.948           | -.0114162<br>.0106876       |

|             |           |          |       |       |                      |
|-------------|-----------|----------|-------|-------|----------------------|
| <b>cons</b> | -.0341668 | .0239282 | -1.43 | 0.155 | -.0813956<br>.013062 |
|-------------|-----------|----------|-------|-------|----------------------|

This table details the second regression run based off of equation B from above.

Table 4: T Test Results

| <b>Test</b>  | <b>CAR (0)-<br/>Males</b>            | <b>CAR (1) -<br/>Females</b>         | <b>Difference</b> | <b>T-Stat</b> | <b>P-Value</b> |
|--|--------------------------------------|--------------------------------------|-------------------|---------------|----------------|
| <b>Return by<br/>CEO<br/>Gender</b>                | .0002542<br>(-.0210265,<br>.015985)  | .0001904<br>(-.0232209<br>.0169581)  | .0000638          | 0.2114        | 0.8326         |
| <b>Earnings<br/>Surprise by<br/>CEO<br/>Gender</b> | 18.23392<br>(-1.904316<br>38.37215)  | 8.245109<br>(3.522054<br>12.96816)   | 9.988809          | 0.9359        | 0.3505         |
| <b>CAR, by<br/>CEO<br/>Gender</b>                  | -.0025207<br>( -.0001565<br>.000665) | -.0031314<br>(-.0002359<br>.0006167) | .0006106          | 0.0445        | 0.9646         |

This table accounts for each of the t-tests.

### Analysis

The data was consolidated into Stata and further analyzed. The data was analyzed to account for surprises in earnings reports in comparison to the analyst reports. The data was also created to account for changes within the stock market. Each day accounts for variances in the S&P 500 index: the open, close, high, low and volume. In addition, each data point accounts for

15 trading days prior to the earnings report and 5 days after. This provides a holistic view of the stock market index and each data point. Therefore, if the differences between male and female lead companies occur one day after the earnings report for example, that will be accounted for.

Based on the previous research, it is anticipated that the stock market returns on male lead companies will be higher following earnings reports releases. This is the anticipated result because as described earlier, female lead companies are often given press in the news for having a female CEO rather than strategies she has employed in the company or the way in which she has run the company. This is also anticipated because of the effect in which female CEOs are put in the CEO position of failing companies. A failing company will likely have lower stock returns. While analysts reports should account for this, it is possible that it would not be taken into account. Therefore, the anticipated result would be that female lead companies would also have lower returns on negative earnings report data.

Regressions were run in order to test the stock returns on the earnings days. These results did not have significant results in terms of earnings results on the days in which the earnings reports were released. The average return value for female CEOs was 8.25 while the average return value for male CEOs was 18.23. While these numbers appear to have significance, the t value for this test was .9359 and the degree of freedom was 187 therefore the values were not significant. Still, it is interesting to see that the female CEOs have a smaller confidence interval, error, and standard deviation. The error for female lead companies is 2.377723 while the error for male lead companies is 10.14529. The mean for male lead companies is 145% larger than that of female lead companies while the error is 426.7% larger. This could be telling of the types



of companies in which females run. Female lead companies would appear to have similar characteristics to each other.

The data was further analyzed to address the findings of others that female CEOs are more risk averse than their male colleagues. A risk aversion would result in less stock returns when the company is doing well yet not as hard of a fall when the company is doing poorly. If a male lead company is doing well, and it is less risk-averse than a female lead company, it should have higher stock returns than the female lead company. Yet, a female lead company should have less negative returns in poor times. Regressions were run in order to analyze this.

Analysis of Table B:

According to the regression results, CEO Gender has a slightly negative impact of  $-.0019368$  on earnings results. While this number is not significant, it exhibits that females receive lower returns than males in terms of earnings reports. While these reports will need further analysis, there is a possibility that more data could prove that there is a significant correlation between the data. Interestingly, the results appear to be opposite in response to earnings surprise for men. Male CEOs have a greater negative impact on earnings results when there is a surprise in market data. Further indicating that companies with male CEOs have investors which respond negatively to unpredicted results. While these specific results are insignificant the data indicates that investors could perceive companies with female CEOs as more stable. More testing would provide further evidence.

Additionally female lead companies have a positive response to Gender Surprise. A gender surprise is the factor in which there was a surprise in results and it happened with a

female as the CEO. This means that investors react positively to an earnings surprise and a gender surprise. In this case female lead companies are more stable in regard to market returns when analysts poorly predict their results. This results was not significant at .0003848 but are slightly positive and could indicate further analysis needed. These results could also be in regard to the lack of information regarding female lead companies in the news. In the study mentioned earlier by Lee and James it is proven that when females enter into a CEO position that they receive less press regarding their skills than male CEOs. The news regarding female CEOs focuses on the fact that they are a female rather than their credentials. There is a possibility that a similar effect takes place when a female CEO's company does not perform as expected in the fact that the media does not focus on the company and the reason for the surprise but that the company is lead by a female. Yet, these are simply predictions and do not indicate results, further testing would be interesting.

## Conclusion

In conclusion, while it does not appear that there is a significant difference within the data described, there is potential for further research. This research could be expanded to further analyze the data throughout time to see if there was ever a time period where this phenomenon took place. The data could also be further analyzed in a greater scope in order to expand further beyond the S&P 500 index or globally to see if this effect takes placed in other stock exchanges. It would also be interesting to conduct further research to see if there are similarities between companies that are lead by female CEOs. There is a possibility that company similarities account

for the reasons for females becoming CEOs of a company. Meaning, companies in which elect females as CEOs are inherently similar so this accounts for the differences in investor reactions rather than the CEO herself.

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