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**California Senate Bill 826:
Implications on Female Executive Compensation and Representation**

by

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Honors Senior Thesis submitted to the Peter T. Paul College of Business and Economics

University of New Hampshire

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Abstract

In 2018, the State of California passed Senate Bill 826, requiring that all public companies headquartered within the state have at least one female on the board of directors. Prior literature has identified a significant connection between female board representation and the impact on female executives and their pay. The prominence of female leaders has been shown to enable fellow females to pursue leadership positions. In addition, prior studies have found that female board members have encouraged an increase in female executives, and an increase in female executive pay has been identified due to the role of the board in compensation decisions. This study analyzed the impact of California Senate Bill 826 and the impact on both the number of female executives and the gender pay gap in response to an increase in female members of the board. Using data from California public companies, correlational and graphical analysis will be used to evaluate representation and compensation trends between 2015 and 2020. This study found a substantial impact on the increase in female executive positions, particularly after the announcement of the Bill in 2018. There were also noticed impacts on the pay gap between male and female executives and the reduction in the difference for firms who were not in compliance. Further analysis of this study can be utilized to evaluate the impact of the bill in future years, as there are additional requirements for female board representation based on firm size.

Introduction

On September 30, 2018, the state of California approved Senate Bill (SB) 826, mandating that all public companies headquartered in the state have at least one female on their board of directors by the end of 2019. Further requirements for representation were enacted for the end of 2021 based on board size. Prior literature has shown that appointing women to the board of directors and the compensation committee has led to an increase in pay for female executives (Shin, 2012). The compensation gap between men and women has been a topic of debate for decades. As more women have entered the workforce since the second half of the 20th century, including in top executive roles at public corporations, concerns have arisen due to drastic differences in compensation compared to men. According to Vieito and Khan (2010), the percentage of female executives in the S&P 1500 grew from 1.12% in 1992 to 6.15% in 2004, and that trend has continued to increase. This study will investigate the potential increase in female representation in executive roles at public companies in California. It will look at the potential change in pay patterns for female executives in the state of California based on the required bill mandating that all public companies have at least one female on the board. It is critical to see the influence of females in leadership roles and how they influence the incentive of women who wish to pursue management positions through the recent board requirement.

Literature Review

Background Information on California SB 826

California is the first state in the United States to impose a government mandate requiring at least one female to be on the board of directors. Known as California Senate Bill (SB) 826, it was approved by former California Governor Jerry Brown on September 30, 2018 (Fuhrmans, 2018b). This bill required female membership on the board but allowed for companies to expand

their board total with additional female members for mandate compliance. SB 826 also included increased requirements for companies to follow by the end of 2021, which revolved around the total number of directors. If a public company had a total of four or fewer directors, it would continue to need at least one female on the board. If a public company had a total of five directors, it would need at least two females on the board. If a public company had a total of six or more directors, it would need to have at least three females on the board (SB 826, 2018). For a greater context of this bill, the term “female” is defined as an individual who self-identifies her gender as a woman, without regard to the individual’s designated sex at birth (SB 826, 2018). If a company was not in compliance, it would be imposed with fines from the California government. If a firm was in violation of the mandate or did not report their board numbers on time, then they would face a \$100,000 fine for the first offense. If they violated any of the board composition requirements a second or subsequent time (for example, not complying once again in 2021), there would be an additional \$300,000 fine for the firm (SB 826, 2018).

This law had a significant impact on a variety of firms in the state, from startups who planned to go public, to tech giants such as Facebook and Alphabet, who have heavily tenured boards and were concerned to add additional members. In 2018, other states followed suit in adding female directors to their boards, with approximately a third of board seats at the 3,000 biggest U.S. companies going to women. There are several challenges from many different parties. These include the rejection of potential males who want to serve on boards, constitutional disagreements due to companies being chartered in other states, and the average tenure of board members being approximately 8 years without term limits (Fuhrmans, 2018b).

Greene, Intintoli, and Kahle (2020) analyzed the implications of this new requirement through stock market reaction and firm value. They built a sample of 602 firms based in

California and found that 28% still needed to add a director by the end of 2019, and 88% needed to add one or more women to the board by the end of 2021. Results also showed that the stock market went down 1.2% at the announcement of the new requirement and that returns continue to decrease from the number of women that still need to be added to the board (Greene et al., 2020). Another interesting find is that this new law can be quite costly for smaller firms, and it is more optimal for larger companies to delay appointing a woman to their boards because the level of pay offered for executives is higher than the \$100,000 government fine for non-compliance (SB 826, 2018). This study emphasized the point female directors can have a variety of effects based on industry. Some industries, such as science, technology, engineering, and math (STEM), have a limited supply of female candidates who would be willing and available to accept a board position, so these industries are more negatively impacted by this mandate. Another discovery is that most firms expanded their boards with more female directors instead of cutting existing members to fulfill the requirement (Greene et al., 2020).

Compensation Comparison for Men & Women

Vieito and Khan (2012) looked at the compensation gap due to employee experience as a factor in the difference in executive compensation but expanded on the contrast chronologically. Specifically, they looked at the narrowing trend of the executive compensation gap due to some historical trends. A major finding is that a minimizing gap comes from increased educational opportunities for women. There are significantly fewer barriers for women to receive higher levels of education, and having a degree is the norm for corporate executives. Therefore, with these trends, a significant increase has occurred in women receiving bachelor's degrees and beyond, providing greater skills for higher-level jobs (Vieito & Khan, 2012). Muñoz-Bullón (2010) found supporting results by looking at multiple factors that accounted for compensation

differences, and through a regression analysis, was able to control for many of those variables. One of the variables analyzed was the company tenure of the employee, along with the firm size and the personal performance of the employee. The results show that when those factors were controlled, the compensation gap between males and females dropped from 40% to almost half, at 20.47% (Muñoz-Bullón, 2010). Cook, Ingersoll, and Glass (2019) expanded on these findings and analyzed the impact on the pay gap between men and women with changes in female representation in board leadership positions. Specifically, they looked at the composition of the board of directors and the compensation committee and investigated the degree of impact based on the role a woman had on the committee. The study found that the executive compensation gap is narrower in firms with three or more women on the board, as the increase in pay is 2% larger for women in the firms sampled (Cook et al., 2019). There was also a positive association found for companies with women in decision-making roles for pay, finding a more significant impact on the pay gap reduction between men and women with women in influential, decision-making positions in leadership, such as the chair of the compensation committee (Cook et al., 2019).

Changes in Female Executive Representation

When it comes to executive compensation for women, there are social-psychological factors that influence the pay women earn. A study by Shin (2012) looked at these impacts and connected possible pay gaps with the role of the board of directors. A company's board of directors has a profound influence on company culture and gives an overall brand representation to the public. Having an executive at the top of the corporate hierarchy also gives many women a role model to look up to, and a mentor to lean on for support. It also states that female leaders are very inspiring to those in management because they offer an opportunity to prove legitimacy and protect them from outside discrimination based on gender roles (Shin, 2012). Compensation

amounts for corporate executives are based on the representation present on the compensation committee. The value of compensation increases slightly with one woman added to the committee, but changes in representation are marginally impacted. For female executives, there is a more notable change as more women are added to the compensation committee. On a board with only male members, it was found that the average compensation value for women from the data was \$883,000. However, on committees with one female member, compensation grew by 34% to \$1,185,000 for a female executive (Shin, 2012). When there were two or more female members, the value grew by another 38% to \$1,635,000 (Shin, 2012).

Carter, Franco, and Gine (2017) confirm Shin's previous results in highlighting the influence of the board of directors on executive compensation. They sampled company executives and the characteristics of their board of directors between 1996 and 2010. They found that if a firm has the proportion of their board being female (at approximately 9%), then the gender pay gap in total compensation is 5% lower than the 21% gap that existed between males and females with no females on the board (Carter et al., 2017). These results highlight reasonings behind pay gaps being tied to gender bias in the boardroom and lower governance oversight with female influence. This study also found that risk aversion plays a significant role in the gender pay gap. Women are innately risk-averse, and in turn, receive less pay based on their preferences for less risky components in their compensation packages, such as equity. The effects of risk aversion for women may inhibit full pay convergence to men, even with greater gender diversity on the board of directors (Carter et al., 2017). Cook et al. (2019) confirmed these results by highlighting the impact of women in greater leadership roles having an impact on a pay gap reduction. They found partial support for a reduced compensation gap with women, especially with a female being in the chairperson role of the compensation committee (Cook et al., 2019).

Impact of Other Female Board Requirements

While patterns in board representation have varied within the United States, increase progress has been apparent in certain countries in Europe. In Italy and Germany, for example, the number of women on large company boards has tripled in recent years (Fuhrmans, 2018a). In addition, France passed a law in 2011, seven years before California SB 826, that required 40% of board seats to be given to women at blue-chip firms within six years (Fuhrmans, 2018a).

While progress has been made in female board representation, its goal to increase the number of females in management roles has not been met as easily. In Norway, for example, only 15 of the country's 200 biggest companies had a female CEO, even with a 40% female board quota set over a decade ago (Fuhrmans, 2018a). Diversity advocates are pleading for greater female representation in these roles to promote company reputation and stronger financial performance.

Other states in the United States have considered female board mandates or quotas that exist in California and parts of Europe. However, they have not gained as much traction, and female representation remains quite low nationwide compared to other parts of the world. Aside from the state of California, there have been 11 states that have enacted or considered board diversity legislation (Covert, 2022). In Washington and Illinois, certain requirements have been recently enacted to promote board diversity. While bills were passed with more stringent requirements relative to California SB 826, including fines for non-compliance, both states imposed explanatory writing as to why companies have not increased diversity (Covert, 2022). However, the most effective promotion of diversity would include firms being fined for not having the appropriate board composition on time. In the past three years of SB 826, about 70 percent of California firms have met the requirement, with room for error of more companies complying based on changes in disclosure times (Covert, 2022).

Research Questions

This study will analyze the impact of SB 826 on the composition of executive boards at public companies headquartered within the state of California. Since the bill was announced at the end of 2018, there was an initial reaction after the bill was announced for companies to adjust their board of directors, along with differences in the appointment of executive positions. Prior research has found a noticed increase in female executives within a company if there are female members on the board. The first question to analyze within this study is if California SB 826 led to an increase in female executives within public companies. Furthermore, is there a substantial impact for companies that did not have any females on the board before SB 826 was passed, compared to companies that were already in compliance before the 2019 board deadline?

In the review of the literature, there is some evidence that the gender pay gap has been reduced based on an increase in female board members. The study from Shin (2012) found a significant increase in pay for female executives as female representation increased on the compensation committee. Carter et al. (2017) built off these findings by looking at the board of directors for a sample of companies and found a noticeable reduction in the compensation gap between men and women with more females on the board of directors. The second question to analyze within this study is if California SB 826 led to a reduction in the pay gap between male and female executives. To dive into this question further, it would be most effective to analyze the pay differences before the mandate, and in the years after the announcement of SB 826.

It is expected that the number of female executives would increase across California companies after the announcement of SB 826 due to the increase in female board members. Further, there is a potential impact on the compensation gap apparent for male and female executives. It is expected that there would be a pay gap reduction between men and women.

Methodology

This study will utilize financial statements filed by US public firms headquartered in California. Since SB 826 was passed at the end of 2018, looking at company data before and after the shock of the announcement will be most appropriate to see the impact of the mandate. Public filings will be collected for this study between the years 2015 and 2020, as this is the most readily available data to analyze at this point. Data from California companies are collected primarily using ExecuComp. Any missing firm years are to be hand-collected and compiled into Excel using proxy statements (DEF 14A) through the EDGAR Company Search Tool. In the collection of the data, executive compensation will be sorted based on each firm-year, the fiscal year-end for the company, and the company name. Each line of data will include the employee's name, job title, and a binary code to identify if they are either a chief executive officer (CEO) or chief financial officer (CFO). From there, each component of an employee's pay will be distributed within the data, including their salary, bonus, options, stocks, non-equity incentive pay, pension pay, other compensation components, and the total pay for the fiscal year. The gender of each executive will be appropriately coded, and any missing values will be verified.

Similar techniques will be used to collect data from the board of directors. The data for the board of directors will be hand-collected for board representation between 2018 and 2020. Each year will be identified with board characteristics, including the breakdown of male-to-female executives. Data from 2018 will be used to analyze which firms are compliant before SB 826 is enacted, and which ones would need to appoint a female board member by the end of 2019. These values will aid in research to see how SB 826 impacted the firms who were complying compared to those who did not yet comply with the mandate. Another source utilized is the annual public disclosures from the state of California that release a listing for each public

company headquartered in the state that gives the known numerical values of male and female members on each company's board of directors.

For this data set, the company data collected was reflected in the parameters of SB 826 and the definitions of the companies required to comply. Within California SB 826 (2018), a public company headquartered within the state is defined as a corporation with outstanding shares listed on a major United States stock exchange. Any firm that moved its corporate headquarters outside of California after the 2018 announcement, or was no longer publicly traded, was considered, and omitted, from the data collection, as compliance was no longer required due to those corporate changes according to SB 826 (2018).

Once data collection was complete, both the compensation and board data will be merged to compile the data for each firm-year for both executives and board members. Then, the board of director dataset will be merged with the complete listing of California firm data between 2015 and 2020. Various binary identifiers will be used to analyze the impact of SB 826 on female representation and compensation most effectively. An additional line of data will be used to identify the firm years that were not in compliance with the mandate when it was enacted in 2018, with a "1" for the firms that were not in compliance, and a "0" for the firms that already had at least one woman on the board of directors when SB 826 was passed.

For the data analysis, variables that impact female representation and pay will be used to identify statistically significant results regarding California SB 826. Correlations will be coded to analyze the impact of female board members on multiple factors, including the number of female executives, along with factors relating to the pay gap and if it was minimized between male and female executives. A graphical analysis will be completed to compare the number of female executives at California companies based on compiling averages for firms based on compliance.

Results

Female Executive Representation

When it comes to the number of women on the executive board at California public companies, the first component to look at is the average number of women at California public companies across all companies, regardless of firm compliance. Figure 1 highlights the comparison of female executives to male executives based on an average for all companies by firm-year. On average, the number of women in the executive suite at California public companies sat below 1 per company in 2015 at 0.5, indicating a considerable number of public firms in California having male-dominated executive boards. The average number of male executives was approximately four. In 2018, the average number of female executives remained constant upon the announcement of California SB 826. However, before the announcement, the number of male executives at California public companies fell to an average of 3.7 per executive board. After the shock of the announcement, there was a bigger growth in the average number of female executives than during the period before the shock, rising to a value of 0.6 in 2020. The value of male executives continued to decline on average, but at a slower rate than in the period before the shock, declining to a value of 3.55 male executives per firm on average.

Figure 2 identifies the comparison between the percentage of companies that have at least one female executive based on board compliance. In other words, the binary code used to identify SB 826 compliance was used to analyze the cumulative effect of female representation. A vertical line indicates the year 2018, the year of the approval of California SB 826. The public company data was categorized into two groups for this analysis based on the binary result of board compliance. The first group included all the firms that had at least one woman on the board of directors before they were required to have one. These firms had female membership

well before the deadline of the end of 2019. The second group was comprised of the companies that did not have a woman on the board of directors at the time of the approval of SB 826. Due to the various focus of the analysis, the compliance factor was not used at this point, and all firms in this group are assumed, for the sake of the analysis, to have complied with SB 826 by the end of 2019. A percentage calculation was used in the dataset to determine the average percentage of women that were on the executive board at California companies based on this board breakdown.

The data shows a significant result in the growth of female executive representation at California public companies based on board compliance in 2018. For companies that did not have at least one woman on the board of directors in 2018, there was a greater increase in the percentage of companies with female executives than those that were already in compliance. In 2018, the gap between the two groups of companies carried a difference of over 5%. For companies that were already complying with SB 826, 14% had females on the executive board, whereas only 8.2% of companies not in compliance had female executives. This gap closes considerably within two years when looking at the valuation in 2020. For the companies in compliance well before the 2019 deadline, there was only a 1% increase in the number of companies with at least one female in the executive suite. For the companies that were not yet in compliance with the SB 826 approval, there was a 4% increase in companies with women on the executive board, growing past 12%. The gap between these two categories shrank considerably between 2018 and 2020, sitting at approximately 3%, compared to almost 6% in 2018.

Table 1 displays the results of a regression run to evaluate the impact on female board representation and female pay. The results are comprehensive of the effect of female board members on female executive representation and compensation. Beginning with Column 1, the increase in female board members is associated with an increase in the number of female

executives, and the results are statistically significant ($p < 0.01$). In addition, the number of female executives has a high statistical significance with the average rate of a company's return on assets (ROA) [$p < 0.01$], indicating an inverse relationship between female representation and a firm's profitability. The number of female executives per company shares a moderate significance ($p < 0.05$) with a company's market-to-book value. An association between the number of female board members and the total number of executives is found with slight significance ($p < 0.10$). There was no strong relationship between the board composition and the size of the firm, which was ranked on a categorical scale.

Female Executive Compensation

Along with female executive representation, a correlation was run to analyze differences in the gender pay gap. The correlation between the increase in female board representation and the average pay for company executives was also compared in Table 1. Unlike the number of female executives having a connection to firm size, there is a high statistical significance associated with female executive pay and firm size ($p < 0.01$). The pay for female executives, on average for the total of all firm-years, has a relationship of moderate significance ($p < 0.05$) with a company's market-to-book value. In addition, a significant relationship was found between average female pay and the composition of the board of directors. There is a positive correlation of moderate significance ($p < 0.05$) between both average pay and the number of board members, along with a more relative connection between the value of female pay and the number of females on the board. There was no significant connection found between the average female pay across firms and ROA. The biggest finding of this correlation analysis was the positive association found between female executive pay and the average total pay for all company executives. With $p < 0.01$, a significant correlation was found between the average female pay

and the average total pay for California executives. In essence, the increase in female board members led to the noted increase in female executive representation, and female board membership is indicative of an increase in pay for female executives relative to their male counterparts. This increase in female pay in California, also noted by the prior literature, relates to an increase in total average pay.

Table 2 analyzes the effect of the gender pay gap in reaction to California SB 826. Several factors were analyzed to note the potential factors that related to a change in the compensation gap between male and female executives. The binary variable used to identify the firms that were not yet in compliance with SB 826 was analyzed through the correlation analysis compiled in Table 2. This variable is identified as “Firms Not Compliant in 2018.” The firms treated are ones that did not yet have females on the board in 2018 upon the announcement of SB 826. This factor was compared to the number of females on the board, both as a raw average and as a percent of the entire executive board. It was also compared to the pay gap between male and female executives along with a differentiator of the pay gap excluding CEO positions, which have a much higher percentage of male representation. For the firms identified as not yet following the mandate, there was no significant relationship identified between the grouped firms and the number and percentage of female executives. This indicates the distinct comparison from Table 1, where the increase in female board members led to an increase in the number of female executives. This is also apparent in Graph 1, comparing the firms that were not yet in compliance with SB 826, and the more pronounced increase in the percentage of female executives at California companies. The correlation analysis in Table 2 notes the minimal connection between the number of female executives for those firms, especially in the years before 2018, before SB 826 was announced, when female representation was significantly less.

For the treated firms that were not in compliance with SB 826, the connection between the firms and the pay gap calculation was also analyzed. For the treated firms, a significant negative correlation ($p < 0.01$) was found with the identified pay gap between male and female executives, calculated as a ratio value for each firm-year. In those grouped firms, an increase in the pay gap is found for those firms with reduced female representation, as these firms did not have female board members, along with a lower average value of female executives. These statistics are indicative of all executive roles, but the same connection was also evaluated for the pay gap for non-CEOs. A negative correlation was also found, but with a reduced significance level ($p < 0.01$). This is a relative find with the total pay gap value, as the difference in pay is less significant for job roles outside of the CEO position due to the reduction in female representation in that role along with the significantly higher pay packages. The connection still exists for the treated firms, but it is not as large in comparison.

The factors that were used in Table 1, including ROA, firm size, and market-to-book value, were also compared to additional factors in Table 2. These include the percentage of female executives, along with the pay gap indicators. Several factors in the table did not carry a significant correlation with the female compensation or representation columns. This is indicative of the range of factors that go into pay packages and discrepancies between males and females. There were no significant factors identified that went into the valuation for the percentage of female executives, although the number of females measurement indicated differing metrics. There was a moderate positive correlation ($p < 0.05$) found between the size of the firm and the gender pay gap in its entirety, indicating the wider difference and higher pay discrepancies between male and female executives at larger firms. Furthermore, a more pronounced positive correlation ($p < 0.01$) was found between the size of the firm and the pay

gap for non-CEO positions. This connects to the correlation analysis for treated firms because of the reduced differences apparent for non-compliant firms for non-CEOs. The size of the firm plays a key role in the pay discrepancies and the compensation packages of higher value. Finally, another moderate correlation ($p < 0.05$) was identified between ROA and the pay gap excluding CEOs. There were no significant correlations found between the representation and compensation indicators for female roles and the market-to-book value.

Discussion

Looking at the results, there seems to be a noticeable impact on both female executive representation and compensation upon the implementation of California SB 826. Beginning with the factors of female representation, evidence is in alignment with the prior literature that there has been a noticeable increase in female representation for executive roles at public companies within the state of California. Particularly, the firms that were not yet in compliance with SB 826 upon the announcement of the bill experienced the most prominent results. Based on the graphical analysis, the percentage of female executives at non-compliant firms grew at a rate that was double the rate of the firms that already had at least one female member on the board. These finds support those that had been found previously by both Shin (2012) and Cook et al. (2019). The influence that female board members and executives provide their peers for the potential for female leadership is essential to this pattern. With increased female representation, there has been an increase in females who have taken leadership roles and have found more opportunities to further their careers. This factor is reminiscent of the study by Vieito and Kahn (2012) who found an increase in female representation in the workplace due to increased levels of education across the board, furthering the potential for women to take on more leadership roles and inspire other female colleagues to pursue opportunities for promotions and other management positions.

As noted, the increase in female representation at California companies is recognizable, especially for those firms that did not display compliance as of 2018. Further development of this study would have looked at those firms that did not have women on the board at the time of the announcement to see if they chose to comply with SB 826, or if they were penalized. For the scope of this study, the companies that were part of the treated group were assumed to have been following SB 826, so a further development in the study to compare those firms that did not comply in 2019 and beyond would be an area for further research.

Regarding the number of female executives to their male counterparts, a minimal difference was found in the rate of male to female executives, even with the addition of SB 826. The average number of female executives across California firms remains below 0 into 2020, whereas male executives are well above 4 per company. Any potential for a closer rate of male-to-female executives is likely a factor that would be apparent in several years. While there is a noted increase in female representation, the average compared to males still holds a major gap. Analyzing the impact of SB 826 in future years could further the question regarding female representation, and if the rate of female executives continues to increase at a rate closer to the average number of males. The number of males in executive roles has declined, on average, and there was a further rate of decline after the announcement of SB 826. Further research would enable a comparison to see if this representation gap would be reduced in the next several years.

The correlation analysis confirmed the significance of female board members with female executive membership. There was a statistically significant result found between female board representation and female executive membership. This indicates that as female board representation increased, which has occurred in place of SB 826, there was a noted increase in female representation in executive roles at California public companies from 2015 to 2020. This

strong correlation is representative of the graphical analysis shown in Graph 1, which has the percentage increase pictured from 2015 to 2020. The most notable increase was shown after 2018, enabling the strong relationship found through the correlational analysis. Another interesting find was the significant relationship between female executives and a company's return on assets. There are more females in executive roles for companies with a higher ROA, indicating a connection between a firm's goals for profitability and leadership diversity. Further research would evaluate the impact of additional female members required on boards with five or more members, which was required by the end of 2021. A study of compensation data for the years 2021 onward would allow for an analysis of the potential increase in female executive roles due to the mandated increase in board representation greater than one female member.

The results found in reaction to the female board requirement and executive pay were more mixed. While the data found in Table 2 offered a confirmatory result regarding female executive representation, the pay gap identified was not linked strongly to a particular factor. There was a strong connection found between a higher pay gap for the firms that did not have female board members in 2018, but further research could analyze the factors for the pay difference between male and female executives. There is an indication that the firms with more female representation on the board of directors and executive board have a less pronounced pay gap. This is relative to the study by Carter et al. (2017), who found reduced pay for the firms sampled that had greater female representation. As stated, there was not a specific factor identified that swayed the results significantly regarding the cause of the gender pay gap. The size of the firm played a factor in pay gap differences due to the higher amount of compensation for those executives, but the other factors tested for correlations did not indicate much of a strong relationship. A few significant factors were identified for ROA and firm size, indicating some

relevance for larger firms with greater profits having wider gaps in diversity initiatives for leadership roles. Further research could evaluate this impact and narrow the effects of female pay on additional indicators of financial performance. The gender pay gap is one of much relevance, and a further study could be accomplished in future years to see how firms will react to the additional requirements of SB 826 that were required by the end of 2021.

As previously mentioned, this study was most reflective of the initial portion of California SB 826, which required at least one female to be on the board of directors by the end of 2019. However, requirements for additional female representation were due by the end of 2021, which would have substantially increased female board membership. An additional analysis of California firms after 2021 would provide more insights into the impact of the bill.

Conclusion

California Senate Bill 826 was the first requirement in the United States for public companies to have at least one female on the board of directors. Prior literature has emphasized the impact of females on the board and how there is an increased incentive for women to take on higher leadership roles in the workplace. With increased female representation in the workplace, previous studies have found a connection between higher board representation by females and the potential for increased female representation in executive roles. Moreover, some studies have found that the pay gap between male and female executives has been reduced due to greater female representation in corporations. This study sought to find patterns in female executive representation and compensation at California public firms before and after the announcement of SB 826 in 2018. Data was collected from 2015 to 2020 to analyze trends in female leadership.

The first research prediction, which looked at female representation, was confirmed. A significant trend was found throughout California public firms that determined there was an

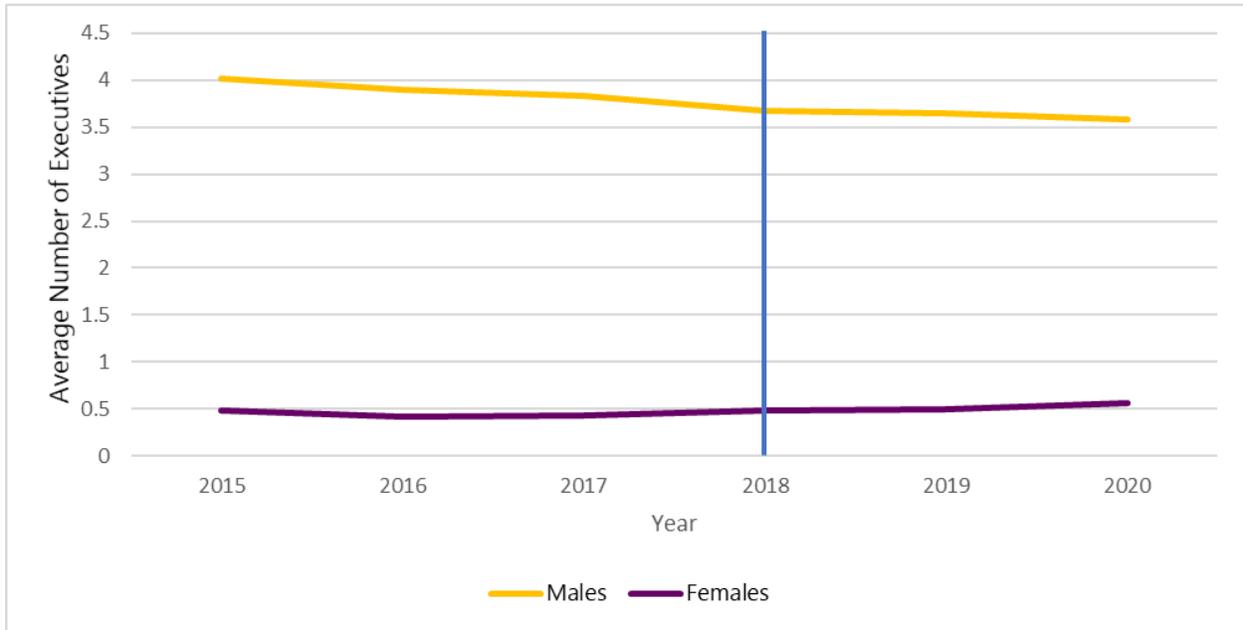
increase in female executive representation after 2018 when female membership on the board was required. This was especially true at firms that did not have females on the board in 2018, and they experienced more rapid growth in female executives from 2018 to 2020. The second research prediction which sought to analyze SB 826 and the gender pay gap, was partially confirmed. A significant correlation was found between the pay gap and firms that did not have females on the board in 2018, indicating these firms had a larger pay gap between male and female executives. The results to determine additional causes of the gender pay gap were mixed, as there was no strong correlation identified for additional items that factor into pay differences. As SB 826 has staggered requirements for additional female board members, additional research may provide greater results into the impact on female leadership in future years.

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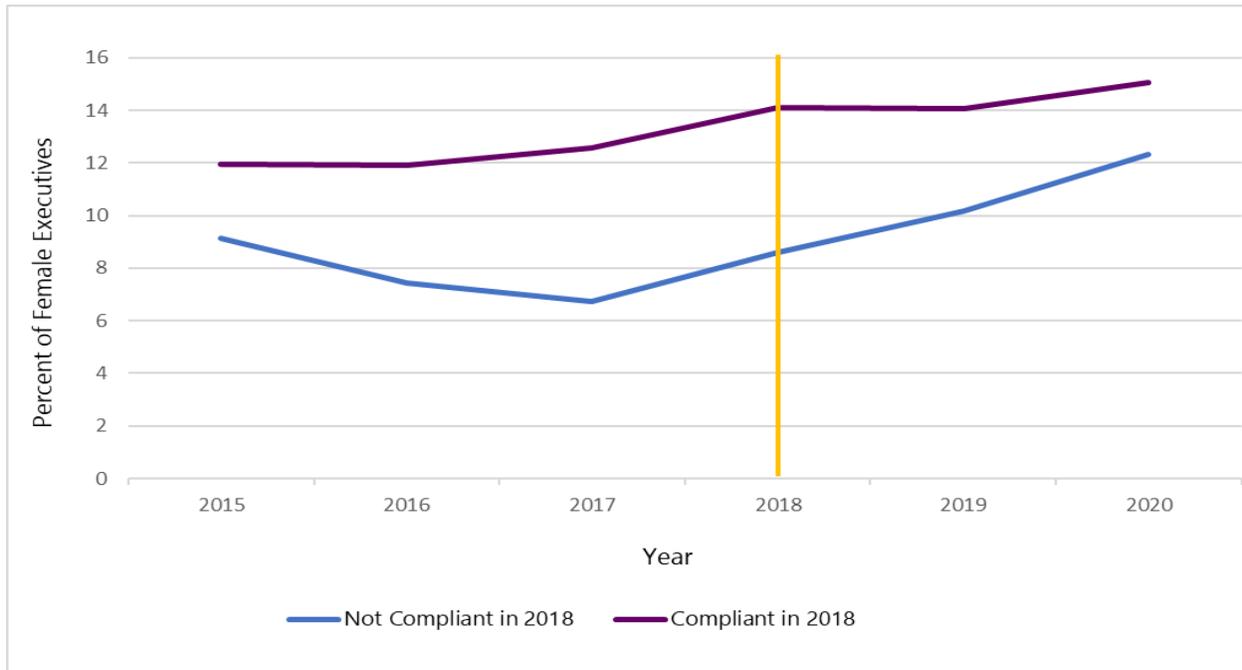
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Figure 1 – Average Number of Female Executives for All CA Companies by Gender



The x-variable spans the years used for the study before and after the announcement of SB 826 in 2018. The y-variable indicates the average number of executives for all firm-years. The yellow line indicates the average number of males per company, where the purple line indicates the average number of females. The blue line identifies 2018 upon the announcement of California SB 826. A noticeable change is found after 2018 between the reduction in the average of male executives in response to a slight increase in the average number of female executives. A more identifiable change occurred after 2019, the due date in which a female was required to be on the board of directors.

Figure 2 – Percent of CA Companies with Female Executives Based on Board Compliance



The x-variable spans the years used for the study before and after the announcement of SB 826 in 2018. The y-variable indicates the average percentage of female executives for all firm-years. The blue line indicates the average percentage of females in executive roles at companies that did not have a female board member in 2018, upon the announcement of SB 826. The purple line indicates the average percentage of female at companies that already had at least one woman on the board in 2018. The blue line identifies 2018 upon the announcement of California SB 826. A noticeable difference is found in the growth rate in the percentage of female executives for those firms not yet compliant with SB 826. A significant gap was identified in 2018 for firms based on their compliance status. Firms who were already in compliance experienced a slight growth in female executive representation after 2019, when SB 826 officially took place for its female board requirement. The growth rate for firms that were not in compliance in 2018 was three times more than the growth rate for those firms already in compliance. By 2020, there was only a 2% difference in female executive representation for both categories, versus a 5% difference in 2018.

Table 1: Impact of Female Board Members on Female Executive Count and PayEffect of Female Board Members

	(1) Number of Female Executives	(2) Female Executive Pay
(a) Number of Female Board Members	0.221*** (14.87)	80319.649** (2.07)
(b) Number of Board Members	-0.015* (-1.65)	52504.600** (2.03)
(c) Return on Assets	-0.084*** (-2.92)	-4.96e+04 (-0.72)
(d) Firm Size	0.013 (1.52)	-6.89e+04*** (-2.97)
(e) Market-to-Book Value	0.011** (2.11)	37166.270** (2.37)
(f) Average Firm Total Pay		0.407*** (27.84)
Year FEs	No	No
Firm FEs	No	No
Obs.	2833	1238
Adj R2	0.11	0.40

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- (1) Variable for the average number of female executives per company for all firm-years.
- (2) Variable for the average value of pay for identified female executives for all firm-years.
- (a) Variable for the average number of female board members for all firm-years.
- (b) Variable for the average number of board members per company for all firm-years.
- (c) The return on assets calculation, determined as net income divided by total assets.
- (d) The size of the firm, coded as a value between 1 and 4, with 1 being the smallest of firms, and 4 being the biggest of firms for all firm-years, based on firm revenue.
- (e) The market-to-book value for each firm, calculated as market capitalization divided by book value.
- (f) Variable for the average total pay for female executives for all firm-years.

This table analyzes the effects of female board membership on female executive representation and compensation. Column 1 relates to female representation on the executive board, using the average numerical value for all firm-years. Relationships were strongly found regarding female representation on the board with increase executive roles taken by females. The female executive count shared a strong negative correlation with return on assets, indicating an inverse relationship between female executives and an identifier of profitability. Smaller significance indicators were found with female representation and the number of board members, along with the market-to-book value. Looking at female executive pay in Column 2, significant relationships were found between the level of pay and firm size, with a significant negative correlation identified. A strong correlation was found between an increase in female pay and the average total pay for all executives. Moderate correlations were found for female pay and the following variables: female board members, total board members, and market-to-book value.

Table 2: SB 826 on Non-Compliant Firms in 2018 and Impact on the Gender Pay Gap

CA Board Mandate

	(1)	(2)	(3)	(4)
	Number of Female Executives	Percentage of Female Executives	Gender Pay Gap	Gender Pay Gap (excluding CEOs)
(a) Firms Not Compliant in 2018	-0.048 (-1.14)	0.310 (0.31)	-3.052*** (-2.74)	-0.797** (-1.99)
(b) Return on Assets		-1.025 (-1.61)	-0.393 (-0.91)	-0.744** (-2.03)
(c) Firm Size		0.474 (0.83)	1.218** (2.26)	0.621*** (2.85)
(d) Market-to-Book Value		0.196 (1.57)	0.034 (0.26)	0.050 (1.02)
Year FEs	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes
Obs.	2987	2832	1176	1054
Adj R2	0.65	0.67	-0.06	0.02

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- (1) The number of female executives at each company for each firm-year.
- (2) The percentage of females in executive positions at each company for each firm-year.
- (3) The pay gap between male and female executives, identified as the numerical difference of female pay subtracted from male pay for each firm-year.
- (4) The pay gap between male and female executives, excluding those identified as chief executive officer, identified as the numerical difference of average female pay subtracted from average male pay.
- (a) The group of firms identified as treated firms, those who did not have a female on the board of directors upon the announcement of SB 826, compiled with averages.
- (b) The return on assets calculation, determined as net income divided by total assets.
- (c) The size of the firm, coded as a value between 1 and 4, with 1 being the smallest of firms, and 4 being the biggest of firms for all firm-years, based on firm revenue.
- (d) The market-to-book value for each firm, calculated as market capitalization divided by book value.

This table analyzed the factors going into executive pay and the impact on females in reaction to SB 826. A focus was made on the firms that did not have females on the board of directors upon the announcement of SB 826, identified as Variable (a). A significant negative correlation was found between the firms that were not compliant in 2018 and the gender pay gap, (Column 3), which notes the significance between decreased female representation and an increase in the compensation gap between males and females. Another significant relationship was identified in Column 4, with a significant positive correlation identified between the gender pay gap, excluding CEOs, and the size of the firm, coded by a number between 1 and 4 depending on annual revenues. A moderate correlation was found in Column 3 between firm size and the gender pay gap, but it differed from Column 4, where a stronger relationship was found when CEOs were excluded in the average pay by gender calculation. In Column 4, a moderate correlation was found for a firm's return on assets and the pay gap for non-CEO positions, along with the firms that were not compliant in 2018. The gender pay gap is significantly present for those firms not in compliance in 2018, but there are not any strong financial factors linked to additional causes of the gap before SB 826.