**Does CEO Pay Ratio Matter?**

**Objectives**

Stagnant middle-class wages combined with steeply increasing incomes for high-earners have led to a debate about income inequality in the United States which has been growing for some years (*1*). A new Economic Policy Institute (EPI) analysis finds that CEO pay, which is on-average 399 times as much as that of a typical worker in 2021, has increased by as much as 1,460% since 1978 (*2*).

As mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act, the United States Securities and Exchange Commission (SEC) adopted a rule in 2015, effective the fiscal year beginning on or after January 1st of 2017, which required that companies must begin making annual pay ratio disclosures, describing the in-firm pay dispersion2 using the ratio of annual compensation of the company’s CEO to that of their median employee (CEO pay ratio)(*3*). Following SEC’s disclosure rule, San Francisco voters approved the Overpaid Executive Tax on November 3, 2020, which became effective on January 1, 2022 (*4*).

Though not all believe that the disclosure of pay ratio data is necessarily very informative, or helpful. “Having spent the subsequent five years trying to make sense of these disclosures, I think it’s time to call the rule a failed experiment and scrap it” (*5*). There is no statistically significant relation between the CEO pay ratio and performance (*6*). As stated by Pan et al., “Understanding equity markets’3 assessment of income inequality is important because equity markets allocate capital and send valuation signals4 to firms, informing and possibly shaping corporate policies that contribute to or mitigate income inequality” .

Firms were required to disclose CEO pay ratio in 2018, a first-time event that allows us to explore the short-term market reaction1, and firms’ historical average stock price is helpful in understanding investors’ perception and the outlook of firms. In this study, we specifically focus on whether firms disclosing higher CEO pay ratio experience significantly lower abnormal announcement returns5, and the relationship of CEO pay ratio with firms’ performance in the long-term. We will discuss these phenomena and work to develop the following hypotheses:

1. The market reaction is more negative for firms with a higher pay ratio relative to firms with a lower pay ratio, and
2. There is no significant relationship between CEO pay ratio and firms’ performance.

**Significance**

Understanding the extent of the impact of a CEO pay ratio disclosure is important for jurisdictions’ which may be considering implementing such a CEO tax. Policymakers need to understand the tradeoffs in implementing such a policy and the magnitude of the potential positive and negative effects.

**Data Sources**

The 2017 through 2021 CEO pay ratio data was obtained for the 2018 S&P 100 companies from the SEC Electronic Data Gathering, Analysis, and Retrieval database (EDGAR). The pay ratio data had to be recorded manually, as it came directly from Definition 14A proxy statements which companies had filed with the SEC (10-Ks)6. The book-to-market7, and market capitalization8 data are from CompuStat, and the stock price is from the Center for Research in Security Prices (CRSP).

Due to time constraints for this project and because we had to collect and record the data by hand, we chose S&P 100 firms as our sample. After removing the companies for which we could not find documents with 2018 filing dates, and companies with CEO pay ratios less than 100, we were left with 72 samples and 72 observations for use in model 1, and 72 samples and 416 observations for use in model 2.

**Methods**

We performed cross-sectional regressions relating firms’ cumulative abnormal returns to the announced pay ratios while controlling for equity market capitalization and book-to-market statistics. Below are some equations describing variables which were used in the analysis of the financial data (LN Pay Ratio, LN MktCap, CAR, and Avg prc are all described in Appendix I):

We expect to observe an overall negative relationship between CAR and the CEO pay ratio, as that would be consistent with the results of Pan et al.’s 2022 study which examined the same main variables (*1*).

**Results**

Because of the data limitation, we couldn’t get a significant regression result for model1; For model 2, the result is consistent with our expectation. Although the market reaction is negatively with the CEO pay ratio in a short time window after the first-time disclosure of the CEO pay ratio. But the CEO pay ratio wouldn’t have significant influence on the firms’ performance in the long-term period.

**Future Work**

As stated in the introduction, in November of 2020 the majority of San Francisco voters voted to instate the Overpaid Executive Tax, which became effective on the 1st of January, 2022 (*5*). We will exploit the new tax regulation enacted in San Francisco, which levies additional tax on gross receipts tax if the pay ratio of the highest-paid managerial over the median San Francisco-based employees is higher than 100.

To test these competing predictions, we employ a difference-in-difference (DiD) approach using a sample of San Francisco-based businesses in 2022-2023. For each firm, we would manually collect its proxy statement DEF 14A. We define treated and control groups as firms CEO pay ratio greater than and less than 100. Our primary sample comprises 672 (IPOs) treated firms based in San Francisco.

To measure a firm’s behavior change, we use compensations of CEO and workers, the turnover rate of CEO, relocation of firms, middle-and low-wage jobs hiring.

**Project team and individual contribution**

Qinghua: 50% manual collection of CEO pay ratio data, data collection of other variables except CEO pay ratio, data cleaning, merging, regression and visualization. Wrote all the parts of proposal and report, except citation. Github file uploading.

Zach: 50% manual collection of CEO pay ratio data, report citations, editing, formatting

Appendix I: Key Terms

1. Market Reaction: measured by cumulative abnormal returns, please refer to the proposed methods.

2. Relationship between In-Firm Pay Dispersion and Income Inequality: personal income includes salary, investment returns, self-employment, etc. One of the factors that could lead to overall income inequality is in-firm pay dispersion.

3. Equity Market: where companies issue stocks to raise capital and where investors trade stocks to invest.

4. Valuation Signals: in the context of this paper, the valuation signal means the equity market will assess firms’ CEO-to-median-employee pay ratio and give feedback through companies’ performance in the equity market. The process of assessment and feedback is the valuation signals, which may in-turn shape the firms’ policies.

5. Abnormal Returns: between event days -1 and +5 as the difference in basis points between a firm’s daily return and the value-weighted CRSP market return, with both returns excluding dividends.

6. Definition 14A Proxy Statements (10-Ks): a 10-K is a comprehensive report filed annually by a publicly-traded company about its financial performance, and is required by the SEC.

7. Book-to-Market Equity Ratio: the ratio of the company’s market capitalization to its book value, which is the amount left in the event that the company liquidates all of its assets and repays all of its liabilities.

8. Market Capitalization: the total value, in U.S. dollars, of a firm’s outstanding stock shares.

9. CAR [-1, +5]: cumulative abnormal return between event days -1 and +5, with an abnormal return representing the difference between a firm’s daily return and the value-weighted CRSP market return, with both returns excluding dividends. Day 0 in event time is identified as the earliest filing date in 2018 of either the preliminary or the definitive proxy statement.

10. LN Pay Ratio: the natural logarithm of the pay ratio, which was obtained by dividing annual CEO compensation by annual median employee compensation and rounding to the nearest whole number.

11. LN MktCap: the natural logarithm of the firm’s market capitalization.

References

1. Pan, Y., Pikulina, E. S., Siegel, S., & Wang, T. Y. (2022). Do Equity Markets Care about Income Inequality? Evidence from Pay Ratio Disclosure. *The Journal of Finance, 77*(2), 1371-1411.

2. Bivens, J., & Kandra, J. (2022, October 4).  *CEO pay has skyrocketed 1,460% since 1978*. Economic Policy Institute. https://www.epi.org/publication/ceo-pay-in-2021/

3. U.S. Securities and Exchange Commission. (2015, August 5). *SEC Adopts Rule for Pay Ratio Disclosure*. https://www.sec.gov/news/press-release/2015-160#:~:text=The%20Securities%20and%20Exchange%20Commission,median%20compensation%20of%20its%20employees.

4. The City and County of San Francisco. (2020). *Initiative Ordinance – Business and Tax Regulations Code – Tax on Businesses With Disproportionate Executive Pay*. https://sfelections.sfgov.org/sites/default/files/Documents/candidates/2020Nov/200629\_ExecutivePay\_LT.pdf

5. Leder, M. (2022, May 26). *The CEO Pay Ratio Rule Is a Failed Experiment*. The Washington Post. https://www.washingtonpost.com/business/the-ceo-pay-ratio-rule-is-a-failed-experiment/2022/05/26/cca9072e-dce3-11ec-bc35-a91d0a94923b\_story.html

6. Rouen, E. (2020). Rethinking measurement of pay disparity and its relation to firm performance. *Accounting Review, 95*, 343-378.