# Analysis of the CEO Pay Ratio I Delia Geyer, Class of 2021

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## Introduction

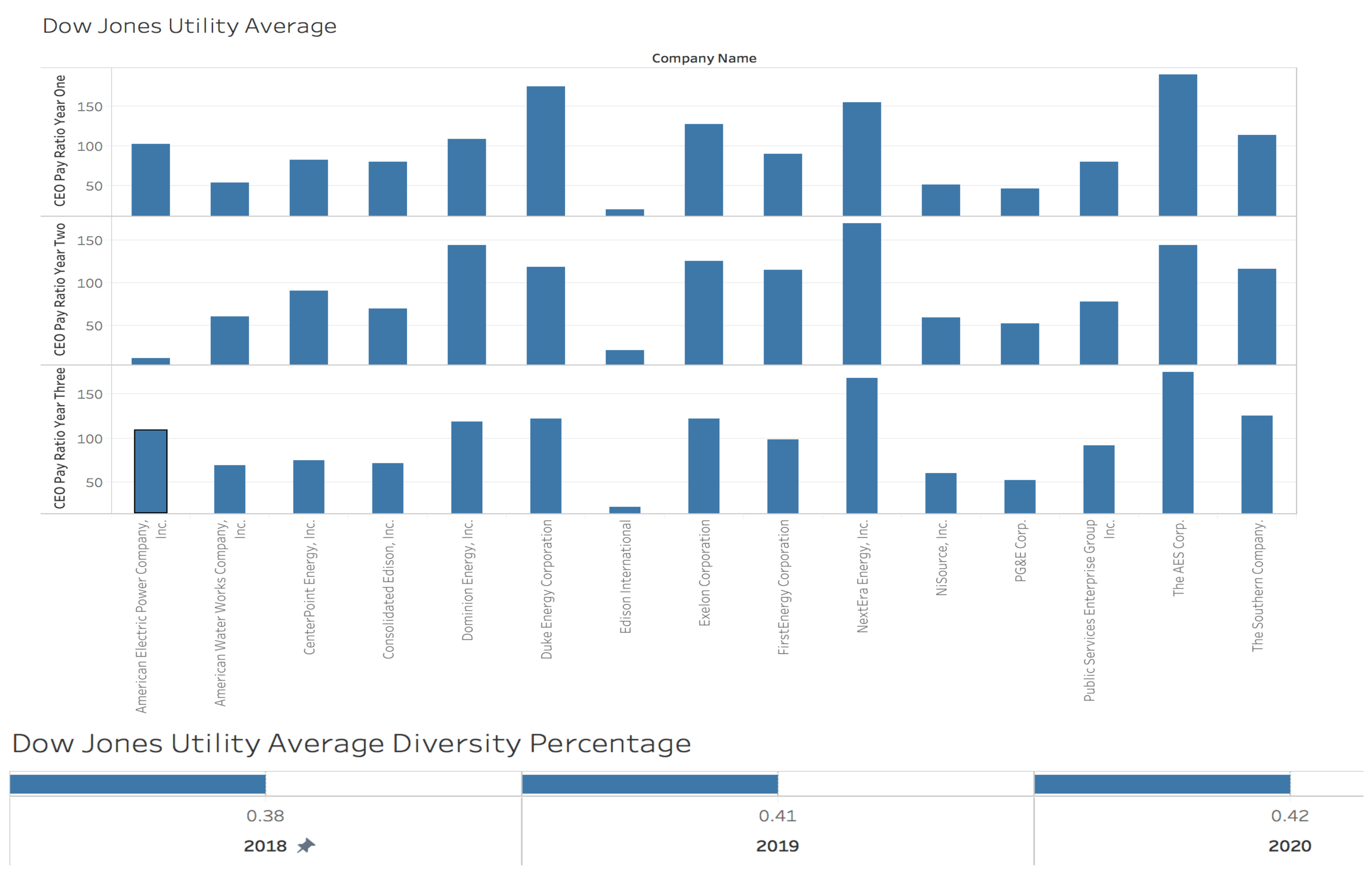
The Dodd Frank Act required the CEO pay ratio (the “Ratio”) to be disclosed by most publicly traded companies. The Ratio is the total compensation of the CEO compared to the salary of the median employee excluding the CEO. The law became effective in 2018, so there is only three years of data available, including data from 2017. A previous study conducted by Alex Tursi (Moravian College, 2020) found industry is the leading factor in determining the Ratio. In 2019, the SEC released two Compliance and Disclosure interpretations introducing disclosure requirements for Board members and Directors that identify with specific diversity characteristics including race, gender, and ethnicity. This study was expanded to include a third year of data (2019) and to investigate the impact board diversity has on the Ratio.

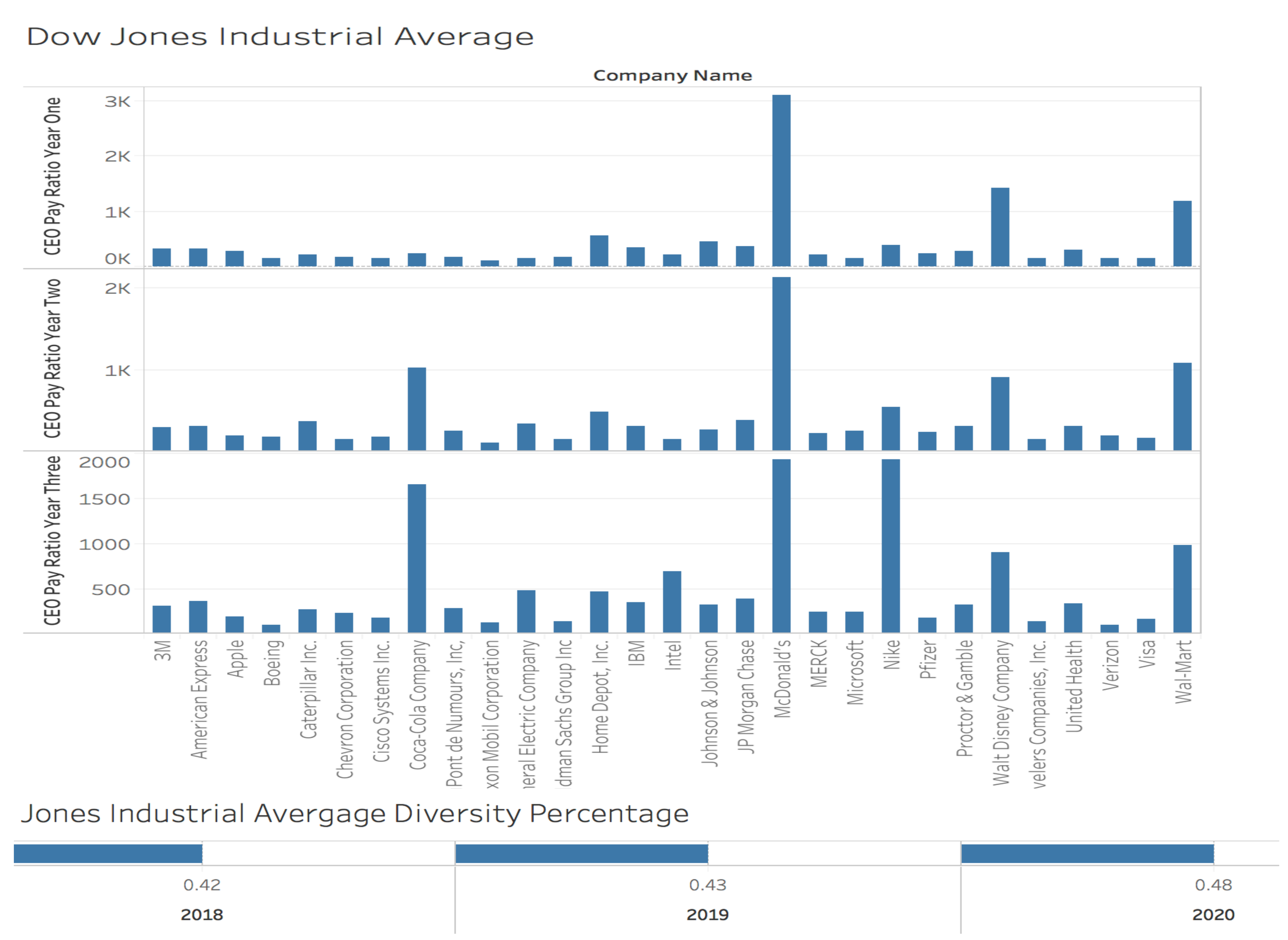
## Abstract

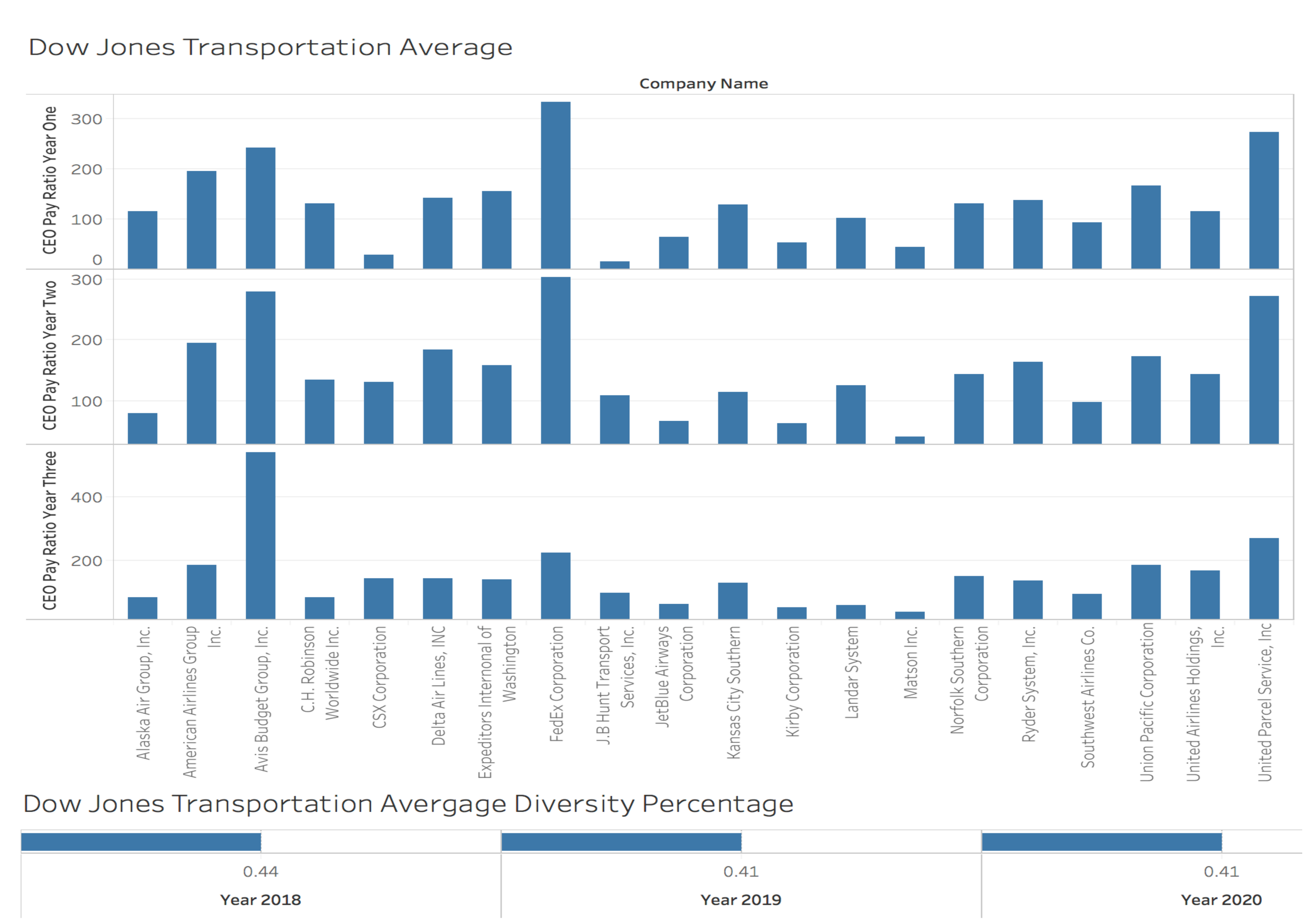
This study is a continuation of a research project completed by Alex Tursi last year, the CEO Pay Ratio . The hypothesis tested in the first paper sought to determine if a positive correlation existed between the two independent variables of market capitalization and revenue and the dependent variable of the Pay Ratio (“Ratio”). While the initial results showed industry to be the most important factor in determining the Ratio, data was limited to the first two years it was required to be disclosed in annual reports. In addition to continuing the first study, I looked at the social justice aspects of the Ratio by examining the potential impact the diversity percentage of the board of directors, its size, and the CEO-Chairman duality have on the Ratio. I collected data on the CEO pay ratio, market capitalization, revenue, diversity percentage of the Board of Directors, CEO-chairman duality, and size of the Board of Directors for the 65 companies composing the three Dow Jones Indices.

## Explanation of Charts

The three bar charts show the diversity percentage for each company out of 1 (.5=50%). The three charts are separated by index and companies are averaged together per each year. Year 2018 is on the left, 2019 in the middle, and 2020 on the right. Companies that are not included do not display their diversity percentage on their Proxy Statements. These charts show the difference in diversity percentages for each index from 2018 to 2020.




## Hypothesis

My first Hypothesis is that the market capitalization “market cap” and revenue of a company are positively correlated with the pay ratio. This is the continuation of the Tursi study into the third year.

**Pay_Ratio $B_0 + B_1$ (Revenue)$_i$ + $B_2$ (Market_Cap)+ $E_i$**

My second hypothesis is there is a negative correlation between a more diverse Board of Directors and the CEO pay ratio of the company.

**Pay_Ratio = $B_0 + B_1$ (Diversity_Percentage)$_i$ + $E_i$**

My other two secondary hypotheses are the size of the Board of Directors and the CEO pay ratio are positively correlated, and the CEO pay ratio will be higher if the CEO is also the chairman of the board.

**Pay_Ratio = $B_0 + B_1$ (Board_Size)$_i$ + $E_i$**

**Pay_Ratio = $B_0 + B_1$ (CEO_Chairman_Duality)$_i$ + $E_i$**

## Methodology

I collected data for the 65 companies constituting the Dow Jones Industrial, Transportation, and Utility indices. I collected three years of data for each company’s pay ratio, market capitalization, and revenue, and one year of data for the board diversity percentage, board size, and CEO-chairman duality. The data was retrieved from the SEC database, EDGAR. The CEO pay ratio, board diversity percentage, board size, and CEO-chairman duality were disclosed on the forms DEF-14A (Proxy Statements), and the market capitalization and revenue were collected from the 10-Ks (Annual Reports) of the companies. After collecting the data and entering it into an excel workbook, I uploaded the data into the program, R, a computer programming language used for statistics and graphics. The data was separated by year and index. I then ran regressions to analyze the data. Each regression had CEO Pay Ratio as the dependent variable. The independent variables were market capitalization, revenue, board diversity percentage, board size, and CEO-chairman duality. After running my regression analysis, I used Tableau to create charts to display the data.

## Findings

Preliminary findings showed that the intercept for market capitalization and revenue was statistically significant in determining the Ratio for all three indexes. This is different from the Tursi study which found that there was only significance between revenue and the Ratio within the Transportation Index, and no significance between the market cap and the Ratio in any index. An additional finding was that 86.2% of the 65 companies disclosed their diversity percentages in 2020, compared to 65% in 2019, and 31% in 2018. The diversity percentage disclosure is not required by the SEC.