
CEO vs Worker Pay in Top 3000 Companies [2023]

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Motives

- With the rising cost of living in the United States, compensation packages are important now more than ever and are often thought to be determined by
 - Industry
 - Company Size
 - Location
 - Job Title
 - Experience
 - However, it is common to think that large pay disparities between CEOs and employees in public companies are prevalent
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Motives

- **Why** does this matter?
 - Analysis of this data can allow us to evaluate the gap between executives and the average employee in their respective company
 - By making data like this public and visible, organizations can use these findings to address issues in both social and political settings

Questions

1. How much do CEO salaries vary across industries?
 2. Is there an industry with higher CEO salaries than others? Median worker pay?
 3. Can we determine industries that practice similar pay practices based on service provided and median worker pay?
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Data Set

- Data set from *The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)* but provided via [Kaggle by Widya Salim](#).
- The data includes 2175 unique values with company name, CEO name and salary, industry, company ticker, median worker pay, and pay ratio information.

unamed	ticker	company_name	median_worker_pay	pay_ratio	ceo_name	salary	industry
0	ADV	Advantage Solutions, Inc.	14328	721	Tanya Domier	10330444	Communication Services
1	AMC	AMC Entertainment Holdings, Inc.	9386	2015	Adam Aron	18909546	Communication Services
2	AMCX	AMC Networks Inc.	64652	108	Matthew Blank	6967220	Communication Services
3	ATEX	Anterix Inc.	300000	22	Robert Schwartz	6532403	Communication Services
4	ATNI	ATN International, Inc.	54116	62	Michael Prior	3379851	Communication Services
5	ATUS	Altice USA, Inc.	79575	482	Dexter Goei	38333508	Communication Services
6	ATVI	Activision Blizzard, Inc.	117207	7	Robert Kotick	826549	Communication Services
7	AUD	Audacy, Inc.	56639	44	David Field	2511305	Communication Services
8	BAND	Bandwidth Inc.	93073	36	David Morken	3384684	Communication Services
9	CABO	Cable One, Inc.	62778	69	Julia Laulis	4327815	Communication Services
10	CARG	Cargurus, Inc.	99390	193	Jason Trevisan	19211250	Communication Services
11	CARS	Cars.com, Inc.	77171	91	T. Vetter	6985255	Communication Services
12	CCO	Clear Channel Outdoor Holdings, Inc.	50547	123	Christopher Eccleshare	6234771	Communication Services
13	CCOI	Cogent Communications Holdings, Inc.	88542	130	David Schaeffer	11504458	Communication Services
14	CDLX	Cardlytics, Inc.	215408	31	Lynne Laube	6625395	Communication Services
15	CHTR	Charter Communications, Inc.	60007	698	Thomas Rutledge	41860263	Communication Services
16	CMCSA	Comcast Corporation	83840	405	Brian Roberts	33978581	Communication Services
17	CNK	Cinemark Holdings, Inc.	5584	1353	Mark Zoradi	7553272	Communication Services
18	CNSL	Consolidated Communications Holdings, Inc.	82844	56	C. Udell	4671543	Communication Services
19	DHX	DHI Group, Inc.	114090	24	Art Zeile	2702822	Communication Services
20	DIS	The Walt Disney Company	50430	644	Robert Chapek	32464293	Communication Services
21	DISCA	Warner Bros. Discovery, Inc.	82964	2972	David Zaslav	246573481	Communication Services
22	DISH	DISH Network Corporation	58161	50	W. Carlson	2895882	Communication Services
23	EA	Electronic Arts Inc.	115569	172	Andrew Wilson	19858539	Communication Services
24	EB	Eventbrite, Inc.	122072	53	Julia Hartz	6500718	Communication Services
25	EVC	Entravision Communications Corporation	38967	165	Walter Ulloa	6442220	Communication Services
26	EVER	EverQuote, Inc.	94637	15	Jayne Mendal	1418565	Communication Services
27	FOXA	Fox Corporation	91803	237	Lachlan Murdoch	21748681	Communication Services
28	FWONA	Liberty Media Corp.	162742	133	Gregory Maffei	21575769	Communication Services
29	FYBR	Frontier Communications Parent, Inc.	80800	213	Nick Jeffery	17209584	Communication Services
30	GCI	Gannett Co., Inc.	48419	160	Michael Reed	7741052	Communication Services
31	GOGO	Gogo Inc.	155005	22	Oakleigh Thorne	3345530	Communication Services

Exploratory Analysis

- Used Python via Visual Studio Code for the entire analysis section
 - Libraries used:
 - matplotlib
 - seaborn
 - numpy
 - mpl_toolkits from matplotlib
- Made additional column for CEO Salary; remade ratio column for accessibility
- Subplots to visualize relationships

```
import matplotlib.pyplot as plt
import seaborn as sb
import numpy as np
import pandas as pd
from mpl_toolkits.axes_grid1.inset_locator import inset_axes
import warnings
warnings.simplefilter('ignore')

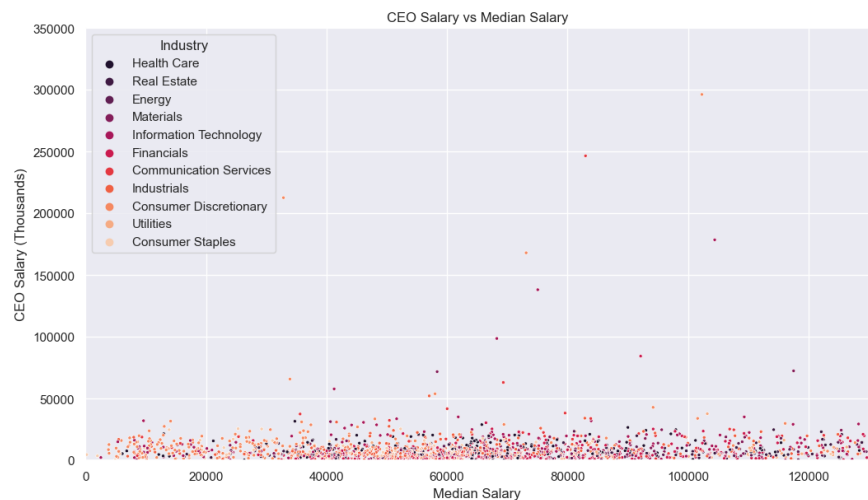
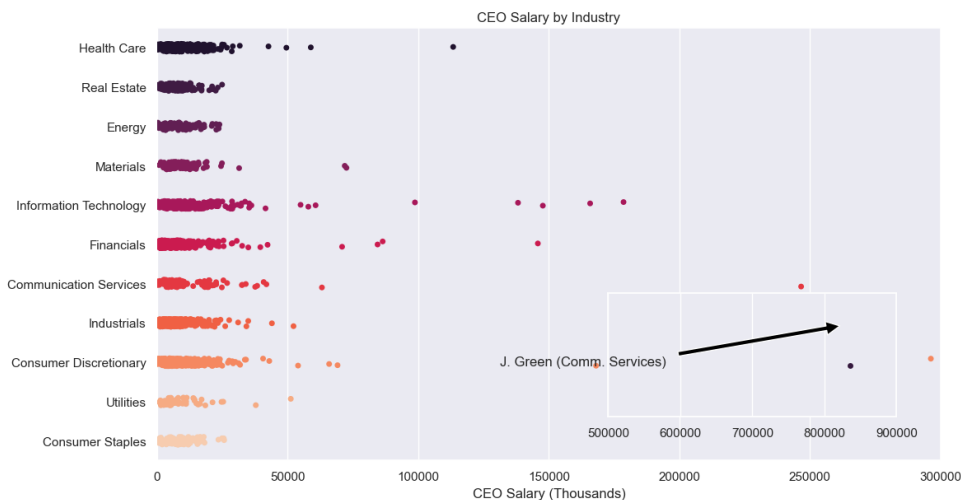
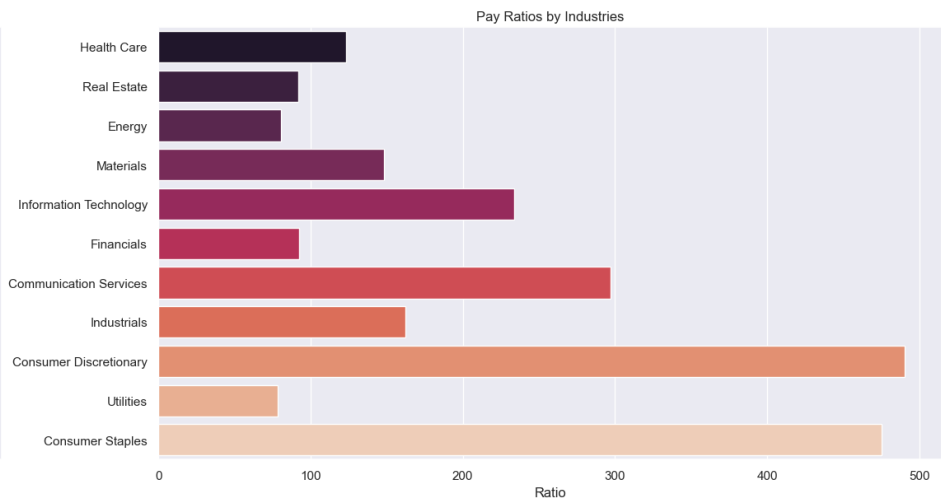
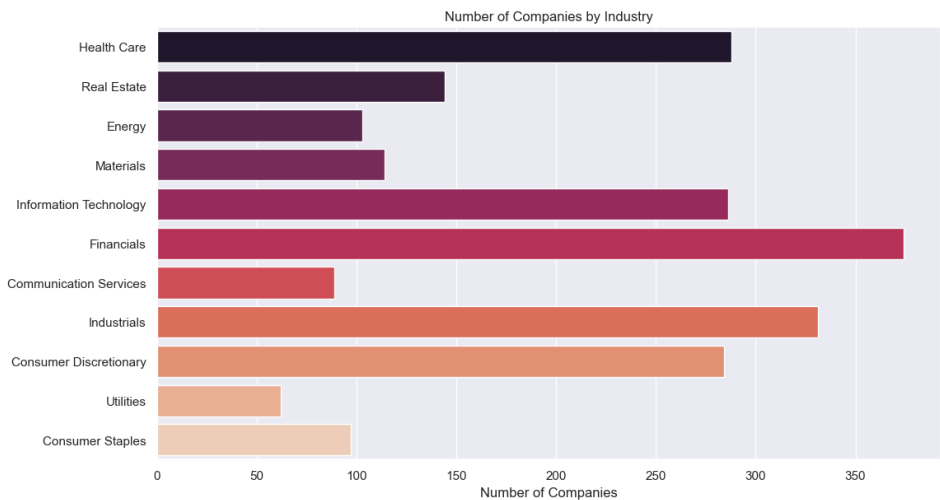
salary = pd.read_csv('ceo_data_pay_merged_r3000.csv')
salary = salary.rename(columns={
    'ticker': 'Ticker',
    'company_name': 'Company Name',
    'median_worker_pay': 'Median Salary',
    'pay_ratio': 'Ratio',
    'ceo_name' : 'CEO',
    'salary' : 'CEO Salary',
    'industry' : 'Industry'
})
```

```
salary.head()
```

...	Unnamed: 0	Ticker	Company Name	Median Salary	Ratio	CEO	CEO Salary	Industry	CEO Salary (Thousands)
0	1092	KOD	Kodiak Sciences, Inc.	1656424.0	68	Victor Perlroth	113371207.0	Health Care	113371.207
1	985	AVXL	Anavex Life Sciences Corp.	753041.0	13	Christopher Missling	9417057.0	Health Care	9417.057
2	987	AXSM	Axsome Therapeutics, Inc.	690964.0	12	Herriot Tabuteau	8054631.0	Health Care	8054.631
3	1984	BRT	BRT Apartments Corp.	649344.0	3	Jeffrey Gould	1991288.0	Real Estate	1991.288
4	1163	PRTA	Prothena Corp. Plc	521645.0	9	Gene Kinney	4918363.0	Health Care	4918.363

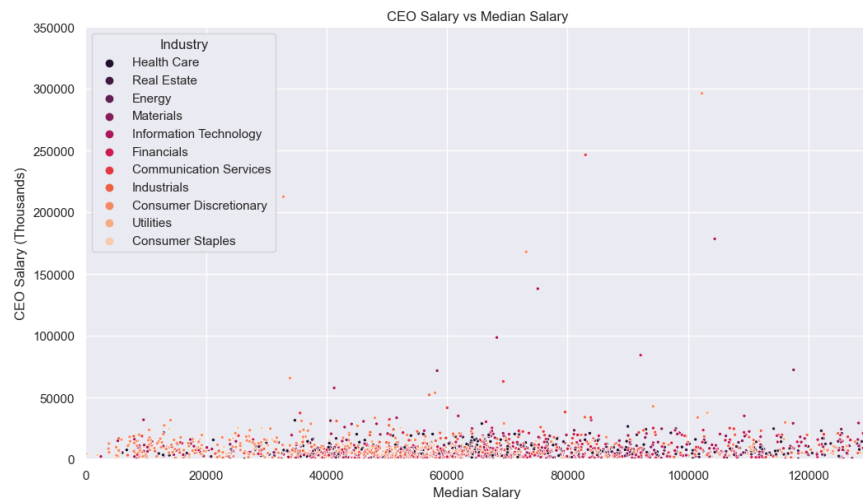
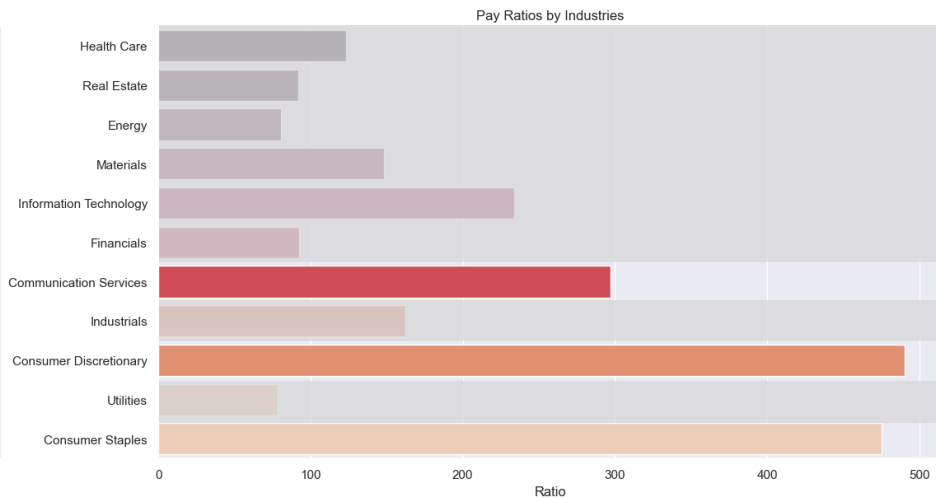
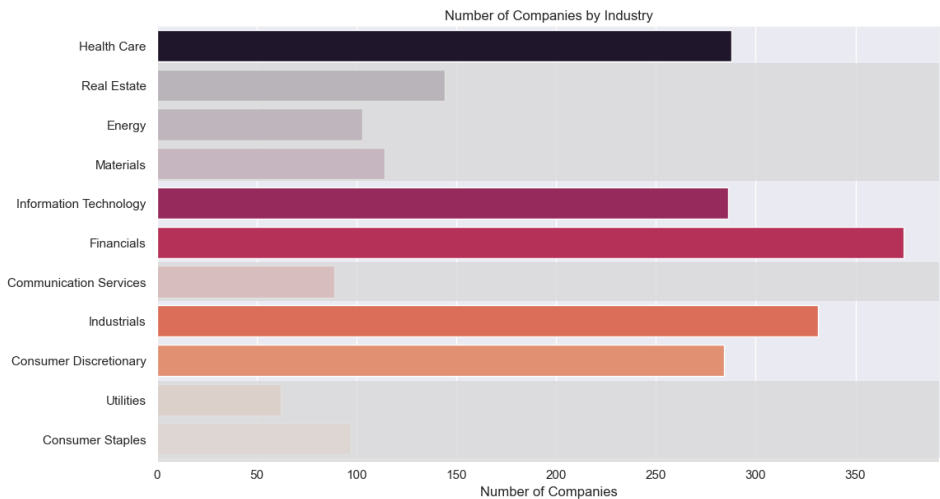
Findings

Exploratory Data Analysis

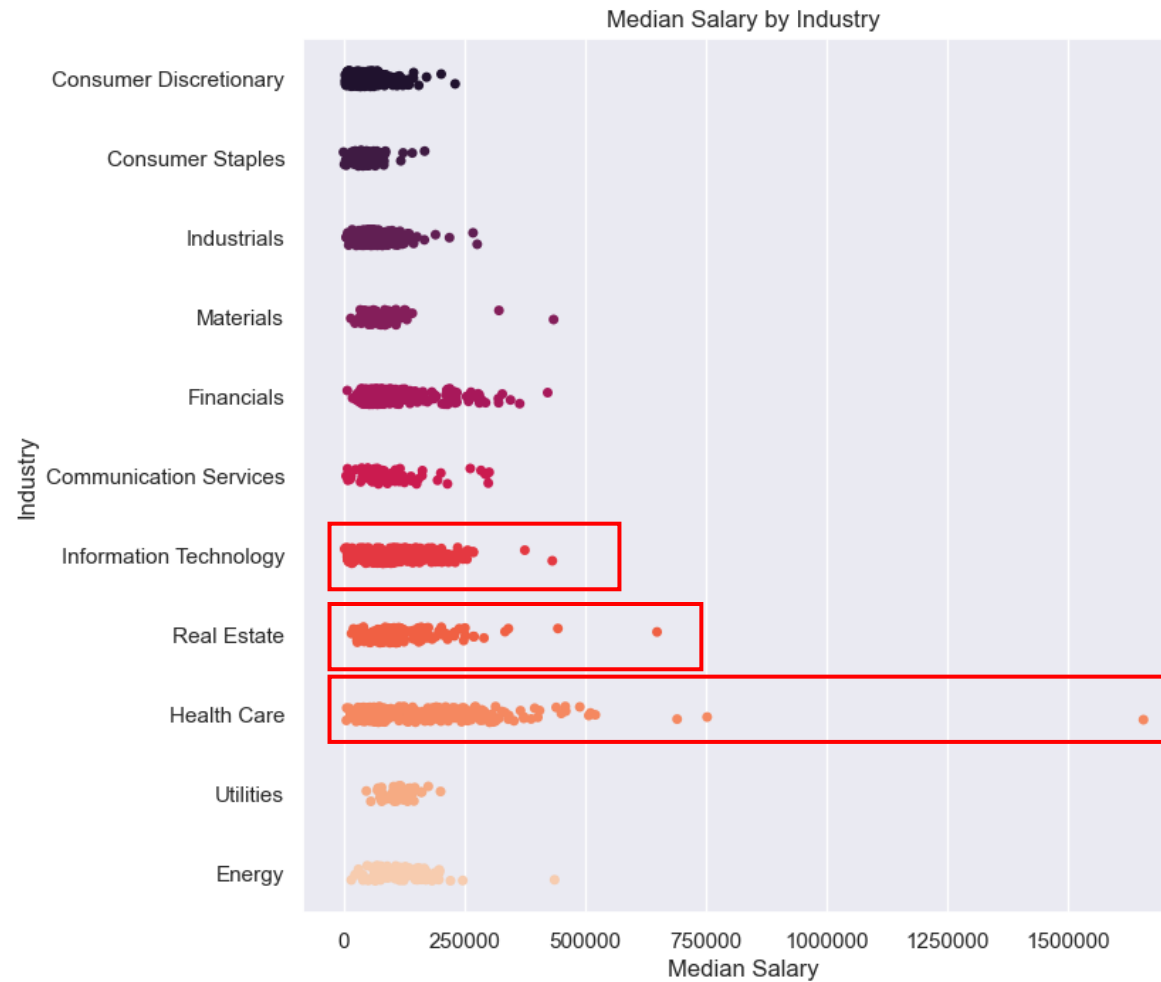


Findings

Exploratory Data Analysis



Findings

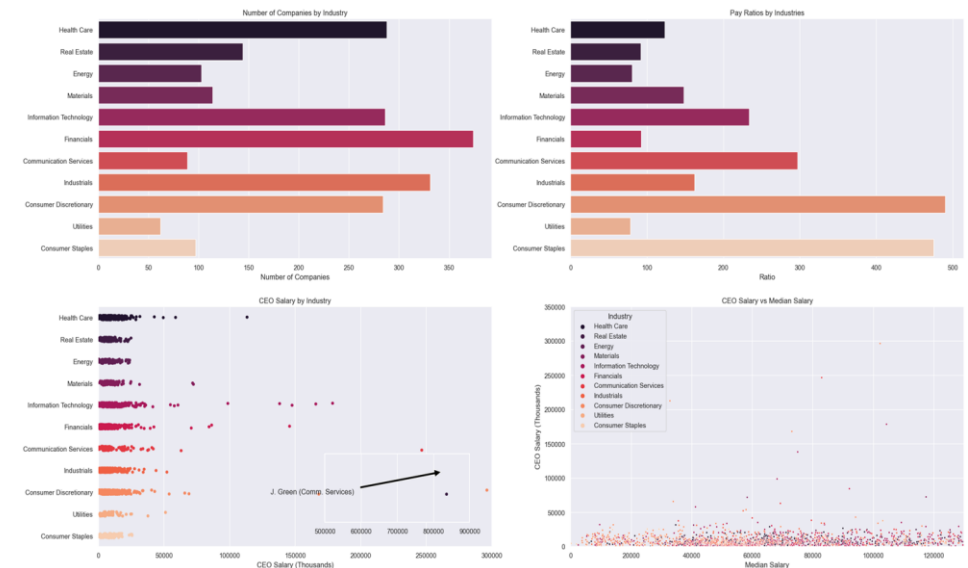


Findings

- Highest paid CEOs are in the '*Consumer Discretionary*', *IT*, and *Financials* industries
 - While the # of companies in these industries are high, CEOs in the Industrials industry are not paid as much
- Highest pay disparities are in the *Consumer Discretionary* and *Consumer Staples* industries
- No correlation between median worker salary and CEO Salary
- While CEO salaries are prevalent in three individual industries, this is not reflected by Median Worker Pay in the same industries.
 - Employees in *Health Care*, *Real Estate*, and *IT* tend to be the highest paid



Exploratory Data Analysis



Next Step

- While this was good practice for a mini project, this is by no means all the possibilities of this data.
 - Future work could include:
 - Additional data on state origination for each company and determine if there is any correlation between CEO/Worker pay ratios compared to their operating state and cost of living
 - Include data from previous 10-30 years to visualize pay change over time
 - Examine each industry individually and visualize leaders to notice patterns and differences between each major company
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Thanks for taking a look at my work!

As previously stated, this was a mini-project on not only an exhibition of skill, but a quick evaluation of a small dataset. The value that additional insight into these metrics could bring is priceless for those on the frontline of reform.

If you have any comments or suggestions on how to improve, please feel free to email me at renegarciajr5@gmail.com
