FIN 557
Project Group 10
4/21/2024

Determining the Success of an IPO

Background

An initial public offering (IPO) marks a pivotal moment for a company as it transitions from private ownership to being publicly traded on the stock market. This process involves issuing shares of stock to the public for the first time, allowing investors to purchase ownership stakes in the company. IPOs are not only significant events in finance but also crucial milestones in business, representing opportunities for companies to raise substantial capital for growth and expansion.

Analyzing the success of an IPO is imperative, as it reflects not only the financial health of the company but also its market perception, management strategies, and potential for future growth. By investigating the determinants of a successful IPO, such as offering price, market conditions, and company fundamentals, we can gain valuable insights into the factors that contribute to a thriving debut on the public market.

Objective

This project aims to employ a mixed-method approach, integrating historical data from the WRDS IPO database with additional datasets, incorporating simulated and publicly available data. By amalgamating these sources, we seek to construct a robust dataset facilitating insights into the factors influencing IPO success and market reception.

To achieve a thorough understanding of determinants of IPO success, we have delineated our objective statement into three sub-problems. Major components of our report, including the *Evaluation* within our **Research Approach**, **Data Manipulation**, and **Analysis and Key Findings** will be broken into:

Sub-Problem 1: IPO share price relative to stock price 12-months later
Sub-Problem 2: IPO Price, money raised, and executive compensation trends
Sub-Problem 3: Total assets and net income of an industry before and after IPO

This exploration will shed light on the critical aspects that companies should consider when embarking on the journey of going public and offer valuable guidance for investors seeking to make informed decisions in the dynamic landscape of IPO investing.

Research Approach

Highlighting a fundamental perspective, our analysis will mostly prioritize observable factors rather than technical analysis. Additionally, we will concentrate on a *five-year period*, spanning from 2010 to 2015.

Time Frame

We selected the time frame of 2010 to 2015 for our analysis to mitigate potential outliers resulting from the 2007 recession. By starting in 2010, we aim to capture a period of economic recovery and stability following the recession, which could provide a clearer perspective on IPO trends. Additionally, we chose to end the analysis in 2015 to avoid potential distortions caused by significant events occurring afterward, such as the COVID-19 pandemic, which could affect IPO dynamics and outcomes. This time frame allows us to focus on a relatively stable period and minimize the influence of external factors that could skew our analysis.

Factors

Within this timeframe, our sub-problems will scrutinize three key factors: (1) *the company's location during the IPO,* encompassing region or state, (2) *the IPO year,* and **(**3) *the industry***.**
These three key variables we chose are crucial factors in determining IPO success for several reasons.

- Firstly, the location of the company during the IPO can impact factors such as market access, regulatory environment, and investor sentiment, all of which can influence the success of the offering.
- Secondly, the IPO year reflects broader economic conditions, market sentiment, and investor appetite for new offerings, which can significantly affect the reception and performance of IPOs.
- Finally, the industry in which a company operates plays a vital role, as certain industries may be more attractive to investors or more resilient during economic downturns, thereby influencing IPO outcomes.

By examining these three variables, we can gain valuable insights into how different aspects of a company's context contribute to its success in the IPO market.

Evaluation

Sub-Problem 1:

The primary metric for evaluating success will be analyzing *stock prices twelve months post-IPO***.** Using the stock price twelve months post-IPO as the primary metric for evaluating success it provides a tangible measure of the company's performance and investor confidence following its debut on the public market. A higher stock price indicates positive market reception and investor demand, reflecting overall success. Additionally, focusing on the twelve-month timeframe allows for a sufficient period to assess the company's post-IPO performance and account for any short-term fluctuations in stock price. This approach offers a comprehensive evaluation of the IPO's long-term impact and sustainability.

Analyzing stock price performance provides actionable insights for both companies and investors, informing strategic decision-making and investment strategies. Overall, using stock price performance as the primary metric enhances the project's ability to uncover meaningful insights into the determinants of IPO success and their implications for the IPO landscape.

Sub-Problem 2:

The primary focus will be on the *shift in executive pay levels before and after a company's IPO* to identify patterns. Increased salaries after an IPO may reflect the added value and responsibilities of executives in guiding company growth. No change or a decrease in salaries could indicate a less successful IPO or a shift in company management practices.

Focusing on salary trends after an IPO helps clarify the effects of a company going public on its payment strategies for top executives. This data is crucial for investors and company leaders because it shows if executive pay aligns with the company's performance. Understanding these compensation changes in relation to IPO outcomes offers insights for future planning regarding executive incentives and company strategy surrounding IPOs.

Sub-Problem 3:

The focus of the sub problem was to evaluate the *financial performance of companies before and after their IPO* across various industry sectors. Specifically, the analysis seeks to determine whether significant changes occur in the total assets and net income of these companies post-IPO. By merging and analyzing datasets that detail firm financials and IPO specifics, the study will identify patterns of financial growth or decline associated with the IPO event.

The datasets utilized in this analysis contain financial data from companies before and after their IPOs, as well as detailed IPO specifics such as IPO date, type, price, and shares issued. Ultimately, this analysis's outcomes

will provide insights into the fiscal impacts of going public and could serve as a guide for stakeholders in understanding the financial implications of IPOs within various sectors.

Data Source and Variable Selection

Our primary data source was WRDS, where we leveraged the following databases to conduct our analysis:

The Audit Analytics Initial Public Offerings (IPO) database**:**

Overview: Provides detailed information on companies that have gone public through initial public offerings. It includes comprehensive data on various aspects of IPOs, such as the offering date, offering price, number of shares issued, underwriters involved, and any related financial statements or disclosures. This database is a valuable resource for researchers, investors, and analysts interested in studying IPO trends, market activity, and the performance of newly public companies.

Variable Selection: Although this data set provides an extensive list of variables, we ultimately decided to with the following.

1. IPO_DATE: Date (month, day, and year) in which the IPO occurred.
2. NAME: Name of the company.
3. SIC_CODE_FKEY: Standard Industrial Classification code.
4. LOC_STATE_NAME: Name of the state the company is located in.
5. LOC_STATE_REGION: Name of the region the company is located in.
6. IPO_TICK: Ticker symbol associated with the company after going public
7. IPO_PRICE: Share price of the IPO.
8. IPO_SHARES: Number of shares listed during the IPO.

CRSP Monthly Stock database:

Overview: Offers a comprehensive dataset covering historical information on individual stocks traded on major U.S. exchanges. It includes data such as daily and monthly stock prices, total returns, trading volume, adjusted prices, market capitalization, delisting information, stock identifiers, and trading dates. This dataset is widely utilized by researchers, analysts, and investors for analyzing historical stock performance, conducting quantitative research, and building financial models.

Variable Selection: Although this data set provides an extensive list of variables, we ultimately decided to with the following:

1. DATE: Date (month, day, and year)
2. TICKER: Ticker symbol
3. PRC: Stock price of the company

With our carefully chosen from the IPO and CRSP databases, we can focus on key factors like IPO date, company location, industry, and share price to uncover insights into IPO trends and company performance. These datasets will provide us with valuable historical data to guide our analysis.

Compustat Executive Compensation - Annual Compensation

Overview:
The analysis examines the impact of IPO events on executive compensation across different industries. Utilizing the Audit Analytics Initial Public Offerings (IPO) database dataset, the research encompasses data points like the IPO date, the price of shares at the offering, and the number of shares issued. It also involves variables that categorize companies by industry and region, facilitating a detailed examination of post-IPO trends in executive remuneration relative to company performance and market activity.

Variable Selection:
For a focused investigation of executive compensation post-IPO, the selected variables are critical in highlighting the relationship between IPO performance and executive pay structure:

1. IPO_DATE: The date when the IPO took place.
2. SIC_CODE_FKEY: The Standard Industrial Classification code that categorizes the industry to which the company belongs, used for sector-specific analysis.
3. TICKER: The stock ticker symbol assigned to the company post-IPO.
4. Location (LOC_STATE_NAME, LOC_STATE_REGION): These variables allow for the assessment of regional influences on IPO success.
5. Financials (IPO_PRICE, IPO_SHARES): To calculate the total raised funds during the IPO and its potential effect on executive pay scales.
6. SIC_Division: The industry classification of the company, based on the Standard Industrial Classification (SIC) system.
7. Year: The specific year in which the IPO price is being analyzed.
8. Total Raised: The total amount of money raised by the IPO.
9. SALARY: The amount of salary paid to the executives.
10. SAL_PCT (Salary Percent Change Year-to-Year): The percentage change in an executive's salary from one year to the next.
11. TDC1: Total direct compensation for the executive, including salary, bonuses, and other direct pay.
12. TDC1_PCT (TDC1 Percent Change Year-to-Year): The year-over-year percentage change in total direct compensation.

Compustat - Fundamental Annual database:

Overview: For our analysis, we focus on the period from 2010 to 2015, selecting from the Compustat North America database, which includes comprehensive financial and market information for U.S. and Canadian companies. This database is particularly valuable as it offers detailed annual and quarterly financial data. Our study utilizes a subset of this extensive data to investigate the fiscal impacts associated with Initial Public Offerings (IPOs).

Variable Selection: We have carefully chosen the following key variables to focus our analysis on critical financial metrics that may influence the success of an IPO:

1. DATE: The specific date of the financial data record, providing a temporal context to each data point.
2. TICKER: The ticker symbol of the company, which helps in uniquely identifying the company in financial markets.
3. AT (Total Assets): This represents the total assets of a company, a crucial indicator of its financial scale and resource base.

4. NI (Net Income): This measures the profitability of the company after all expenses have been deducted from revenues.

These variables will be extracted from both the Compustat-fundamental annual database (firm data) and corresponding IPO data. By analyzing these parameters, we aim to uncover significant trends and fiscal impacts surrounding IPOs across different industries. This focused approach on total assets and net income, coupled with IPO details such as the IPO date, will facilitate a deeper understanding of industry-specific IPO trends.

Data Manipulation

Before delving into our analysis of our subproblems, we first examined the IPO dataset itself. Using straightforward syntax such as "proc contents," we quickly noticed numerous missing values in columns crucial to our analysis, such as IPO price (IPO_Price), SIC Code (SIC_CODE), and the number of IPO shares (IPO_SHARES). Consequently, we made the decision to drop observations with missing values to ensure the integrity of our analysis. Additionally, we observed that there were over 80 unique industry classifications. To simplify our analysis and enhance interpretability, we opted to condense these industries into 11 general industry classifications, accomplished using 'proc format:

```
'0100' - '0999' = 'A - Agriculture, Forestry, Fishing'
'1000' - '1499' = 'B - Mining'
'1500' - '1799' = 'C - Construction'
'2000' - '3999' = 'D - Manufacturing'
'4000' - '4999' = 'E - Transportation, Comm., Electric, Gas, Sanitary'
'5000' - '5199' = 'F - Wholesale Trade'
'5200' - '5999' = 'G - Retail Trade'
'6000' - '6799' = 'H - Finance, Insurance, Real Estate'
'7000' - '8999' = 'I - Services'
'9100' - '9729' = 'J - Public Administration'
'9900' - '9999' = 'Non-classifiable';
```

After sufficiently cleaning the IPO dataset, our next step was to examine the data itself before proceeding to manipulate it for our sub-problems. We used straightforward 'proc sql' queries to group the data based on various factors such as year, industry, region, or state, allowing us to get a general understanding of the dataset. Once we had this overview, we felt prepared to move forward with addressing our sub-problems using this IPO dataset.

Sub-Problem 1:

In addressing this sub-problem, it was crucial to consider examining the stock price not only precisely one year ahead but also in the exact month to capture the 12-month stock price dynamics following the IPO. We employed various manipulation techniques to merge the IPO dataset with the monthly stock data. Initially, we created temporary columns by extracting the year and month values from IPO_Date. Subsequently, using a combination of 'trim' and 'put' functions, we formed a column (IPO_TICKER_MONTH_YEAR) comprising the stock ticker, month, and year. This same process was applied to the monthly data, ensuring effective dataset merging and alignment of IPO information with corresponding stock prices.

For merging, a 'proc sql' query was utilized, employing a left join to merge the IPO dataset with the monthly stock data. Following successful merging, a review of the merged data revealed instances where some companies lacked stock prices (PRC) 12 months post-IPO. This could indicate delisting, bankruptcy, or transition

to private status. Additionally, negative prices were observed, though the underlying reasons were not clearly understood. Consequently, observations with these missing values were dropped to streamline the analysis. After renaming certain columns for clarity, a table was created using 'proc sql's 'create table' to facilitate further data manipulation.

Subsequently, the newly created table was leveraged to implement logic wherein if the stock price had increased after 12 months, the IPO was considered a success. A new column named "Success" was thus created, with logical operators assigning a value of 1 if the IPO price (IPO_Price) was greater than the stock price (PRC), and 0 otherwise. With the data now cleaned and structured, we have established the groundwork to address this sub-problem.

Sub-Problem 2:

- For further trend analysis, `proc sql` is used to calculate average IPO prices by industry and year, forming a structured output that highlights temporal and sectoral price variations.
- These trends are then visually represented using `proc sgplot`, offering graphical insights into the dynamic changes in IPO pricing over the years.
- The financial quantification extends with arithmetic operations within `proc sql` to compute the total funds raised by IPOs, considering the number of shares and their respective prices.
- The merging process involves aligning two datasets, executive compensation, and IPO details, where `proc sort` ensures that the data is correctly ordered before merging, and 'merge` statements integrate these datasets based on common keys.
- Post-merging, `proc transpose` plays a crucial role in reformatting the data for longitudinal analysis, arranging compensation data across different years into a single row per company. This transposed data allows for the calculation of compensation changes over the years relative to the IPO, a crucial metric for assessing the impact of public listings on executive pay scales.
- Finally, summarization tasks are carried out using `proc print`, which displays the top IPOs by funds raised and a geographical breakdown of IPO activities, yielding a comprehensive view of market behavior and executive compensation trends.

Sub-Problem 3:

The following manipulation were utilized to undergo our analysis of this sub-problem:

Data Access and Reduction:

- **Setting Library References**: Establishing a reference (**libname**) to the directory containing the datasets ensures efficient data access and management.
- **Data Cleaning**: Initial data reduction is performed by removing unnecessary attributes (like **BUSDESC**, **DATAFMT**, etc.) from the datasets. This step helps streamline the datasets for faster processing and more focused analysis.

Data Sorting:

- **Preparation for Merging**: Both the firm financial and IPO datasets are sorted by the Standard Industrial Classification (SIC) code and ticker symbol (TIC). Sorting is crucial for the subsequent merging process as it ensures that data from both sources aligns correctly for accurate comparisons.

Data Merging:

- **Combining Datasets**: Using the **merge** statement, the datasets are combined based on shared keys (SIC and TIC), ensuring that only matching records from both datasets are included in the final analysis. This step is critical for creating a comprehensive view of each company's financials relative to their IPO details.

Data Filtering:

- **Selective Inclusion**: Filtering is applied to retain only those records where the IPO date is available, which is essential for the analysis of pre- and post-IPO financials.

Data Segmentation and Transformation:

- **Segmentation by IPO Date**: Financial records are segmented by their respective IPO dates to differentiate between financial metrics recorded before and after the IPO event. This segmentation is fundamental for assessing the impact of IPOs on financial health.
- **Calculating Differences**: Conditional logic is employed to calculate differences in total assets and net income before and after the IPO, tailored to the specific timeline of each IPO.

Creating New Variables:

- **Industry Categorization**: Using **proc format**, industry-specific categories are assigned to each record based on SIC codes. This categorization facilitates industry-wise analysis and comparisons.
- **Computing Financial Changes**: New variables representing changes in total assets and net income are generated, providing direct metrics to assess the impact of the IPO.

Visualization:

Graphical Representation:

- The proc sgplot is used extensively to create visual representations of the data:

- Line plots compare the total assets and net income before and after the IPO across different industries.

- Bar charts display the changes in these financial metrics to visually summarize the impact of the IPO.

Analysis and Key Findings

Sub-Problem 1: IPO Share Price Relative to Stock Price 12-Months Later

Analysis:

IPO Success by Year:

The analysis of IPO success by year reveals varying levels of IPO activity throughout 2010 to 2015. The year 2014 witnessed the highest number of IPOs, while 2012 had the lowest. This indicates fluctuations in market conditions or regulatory environments influencing companies' decisions to go public. The year 2014 was also named an IPO Boom year as a staggering amount of $85 billion in total was raised during this year by the IPOs.

IPO Success by Industry:

Manufacturing (D) had the highest number of successful IPOs, while Agriculture, Forestry, and Fishing (A) had the least. This suggests differing investor perceptions and confidence levels across industries, potentially influenced by growth prospects or market dynamics.

IPO Success by Region and State:

The US West region recorded the highest number of successful IPOs, with California leading among states. This highlights regional disparities in IPO activity and underscores California's significance as a hub for entrepreneurial ventures and capital market activity.

Interaction of Year and Industry:

Combining the year factor with industries allows us to uncover niche patterns. In 2014, the year with the highest number of IPOs, Manufacturing (D), Finance Insurance Real Est. (H), and Services (1) sectors had the highest number of IPOs. This suggests that these sectors may have experienced specific market trends or regulatory changes that favored IPO activity during that time. In 2014, characterized by high IPO activity, Manufacturing (D), Finance Insurance Real Est. (H), and Services (I) sectors witnessed the highest number of IPOs. This suggests sector-specific dynamics or market conditions driving IPO activity during peak years.

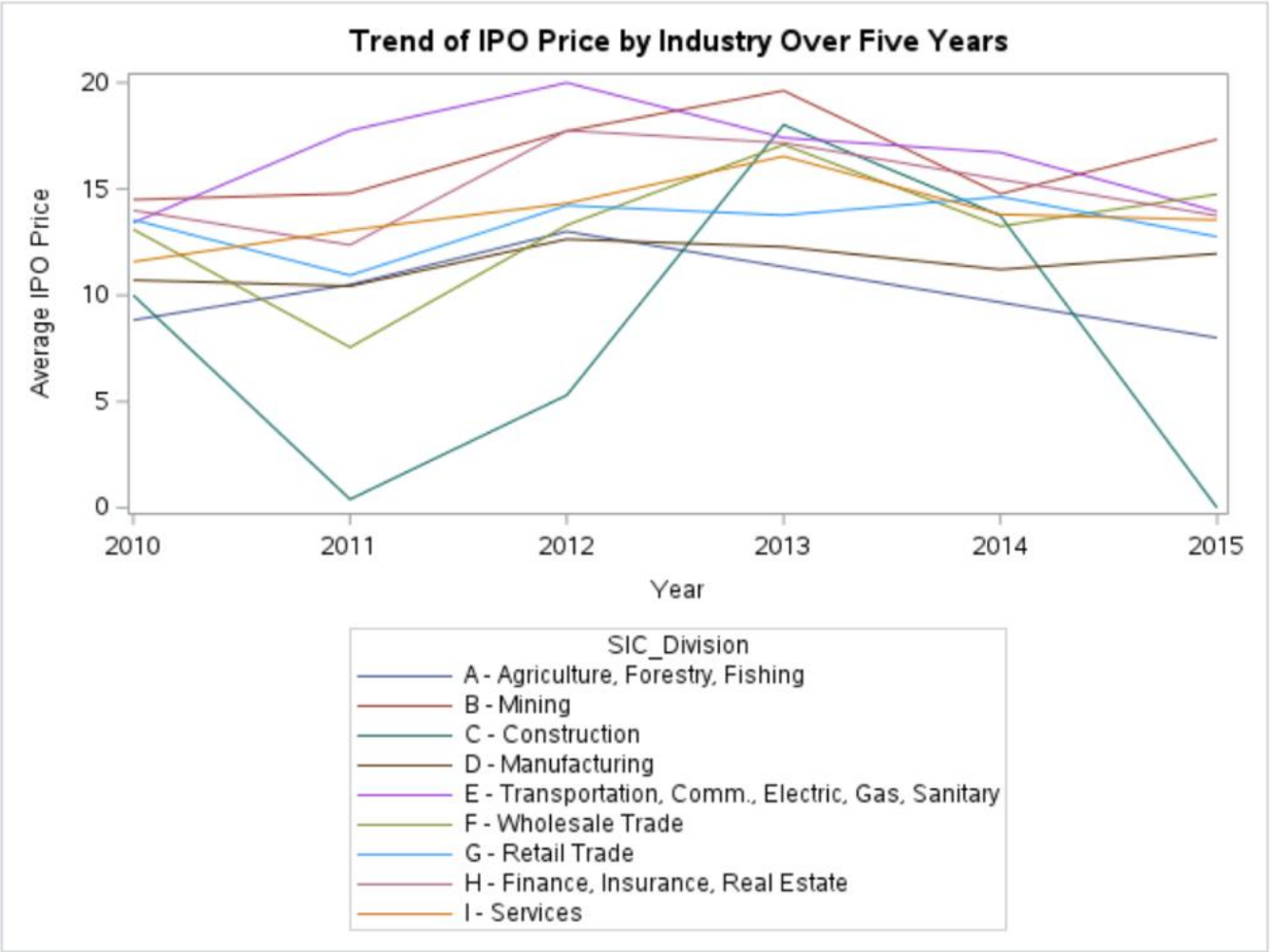
Key Findings:

- IPO activity fluctuated over the analyzed period, with 2014 standing out as a peak year for IPOs.
- Manufacturing emerged as the leading industry in terms of IPO activity, while Agriculture, Forestry, and Fishing lagged.
- Regional disparities highlight the importance of geographic factors in shaping capital market dynamics, with California leading in IPO activity.
- Sector-specific trends reveal distinct patterns of IPO activity over time, with certain industries experiencing higher levels of market activity during peak years.

Sub-Problem 2: IPO Price Trends by Industry:

The Transportation, Communication, Electric, Gas, and Sanitary sectors (E) showed a notable increase, suggesting strong investor interest and positive market trends in these areas, potentially linked to innovation or regulatory developments. The Finance, Insurance, and Real Estate sectors (H) also displayed an increase towards the latter part of the period, which might reflect a resurgence in these industries, due to economic recovery or favorable market conditions.

The retail trade sector (G) experienced a considerable decline in IPO pricing, indicating potential market challenges, competitive pressures, or a shift in consumer trends affecting this industry. The services sector (I) similarly witnessed a general decline, which could be attributed to market oversaturation, increased competition, or evolving service delivery models.



Top IPOs by Total Amount Raised:

The data indicates that companies in the Services and Finance, Insurance, Real Estate sectors dominate the list of the top 15 IPOs by total funds raised. The standout is Alibaba Group Holding Ltd., which raised significantly more capital than others, indicating a strong investor interest and a potentially large market share.

Top 15 IPOs by Total Amount Raised

Obs	NAME	IPO_DATE	SIC_Division	Total_Raised
1	Alibaba Group Holding Ltd	2014-09-18	I - Services	21767.48
2	Meta Platforms, Inc.	2012-05-18	I - Services	16005.60
3	General Motors Co	2010-11-17	D - Manufacturing	15774.00
4	Allegion plc	2013-12-02	I - Services	4128.00
5	HCA Healthcare, Inc.	2011-03-09	I - Services	3786.00
6	Santander Mexico Financial Group, S.A.B. de C.V.	2012-09-26	H - Finance, Insurance, Real Estate	3580.92
7	Virtu Financial, Inc.	2015-04-16	H - Finance, Insurance, Real Estate	3141.13
8	CITIZENS FINANCIAL GROUP INC/RI	2014-09-24	H - Finance, Insurance, Real Estate	3010.00
9	Synchrony Financial	2014-07-31	H - Finance, Insurance, Real Estate	2875.00
10	KINDER MORGAN, INC.	2011-02-10	E - Transportation, Comm., Electric, Gas, Sanitary	2864.10
11	PLAINS GP HOLDINGS LP	2013-10-15	E - Transportation, Comm., Electric, Gas, Sanitary	2816.00
12	FIRST DATA CORP	2015-10-15	I - Services	2560.00
13	United States Brent Oil Fund, LP	2010-06-02	H - Finance, Insurance, Real Estate	2548.50
14	Ally Financial Inc.	2014-04-10	H - Finance, Insurance, Real Estate	2375.00
15	Hilton Worldwide Holdings Inc.	2013-12-11	I - Services	2352.81

IPO Activity by Geographical Area:

California emerges as the leading state in both the number of IPOs and the total funds raised, reflecting its status as a financial and innovation center. Texas and New York also show high levels of activity and funds raised, pointing to their robust financial markets.

IPO Activity by Geographical Area

Obs	LOC_STATE_NAME	Number_of_IPOs	Total_Raised	Average_IPO_Size
1	CALIFORNIA	244	$50,050,576,149.00	$205,125,312.09
2	TEXAS	155	$41,248,451,590.70	$266,119,042.52
3	NEW YORK	98	$30,518,553,387.60	$311,413,810.08
4	HONG KONG	8	$22,281,745,000.00	$2,785,218,125.00
5	MICHIGAN	12	$18,969,776,215.00	$1,580,814,684.58
6	NEW JERSEY	46	$9,555,223,553.00	$207,722,251.15
7	CHINA	86	$9,540,333,124.00	$110,934,106.09
8	PENNSYLVANIA	51	$8,833,068,406.00	$173,197,419.73
9	COLORADO	33	$7,843,326,509.00	$237,676,560.88
10	MASSACHUSETTS	73	$7,007,350,842.50	$95,991,107.43
11	UNITED KINGDOM	21	$6,973,336,472.00	$332,063,641.52
12	ILLINOIS	31	$6,565,182,159.50	$211,780,069.66
13	CONNECTICUT	17	$6,222,929,725.00	$366,054,689.71
14	TENNESSEE	16	$6,065,436,435.00	$379,089,777.19
15	NORTH CAROLINA	28	$5,964,094,673.00	$213,003,381.18

Executive Compensation Post-IPO:

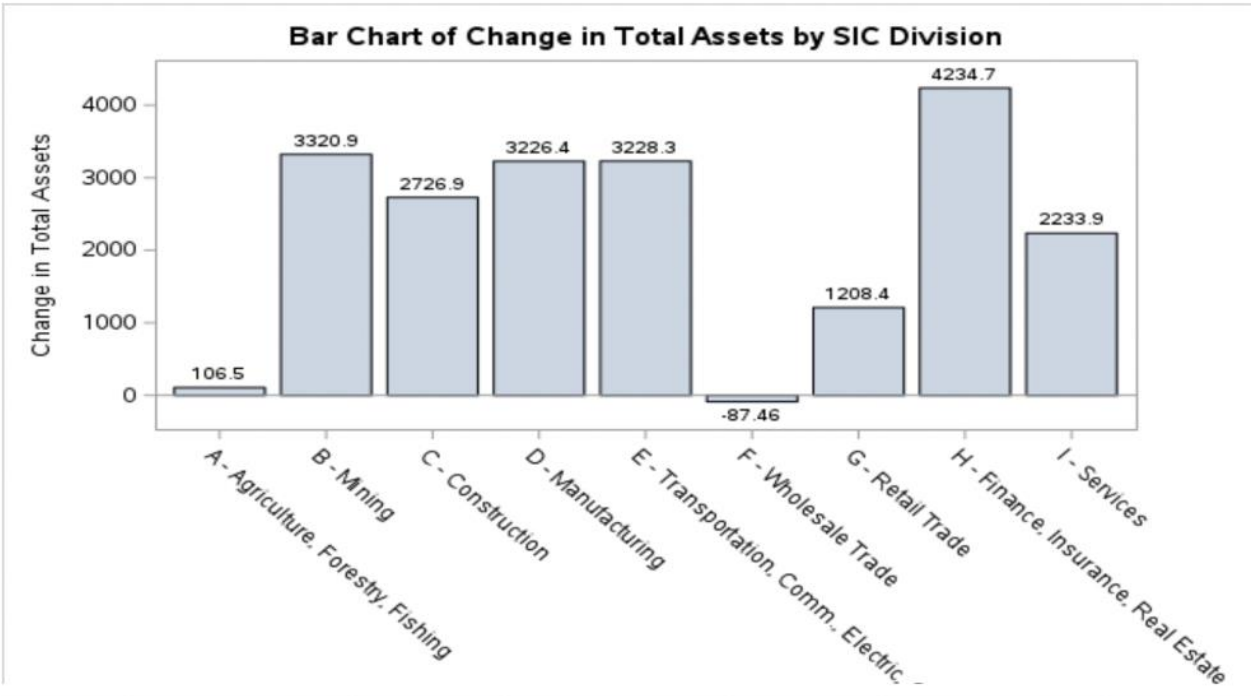
The average percentage increase in executive compensation post-IPO varies notably by industry. For a standard comparison, we calculated increase in absolute as well as percentage increase in compensation three years post the IPO for each company, In the Manufacturing, Communication and Utilities sector, there is a noteworthy increase in executive compensation following the IPO, with the average increase being approximately 500%. The Services sector shows a varied but generally positive trend in executive compensation increases, with the average increase being around 240% post-IPO. The Finance, Insurance, and Real Estate sector exhibits an average compensation increase of about 160% following an IPO.

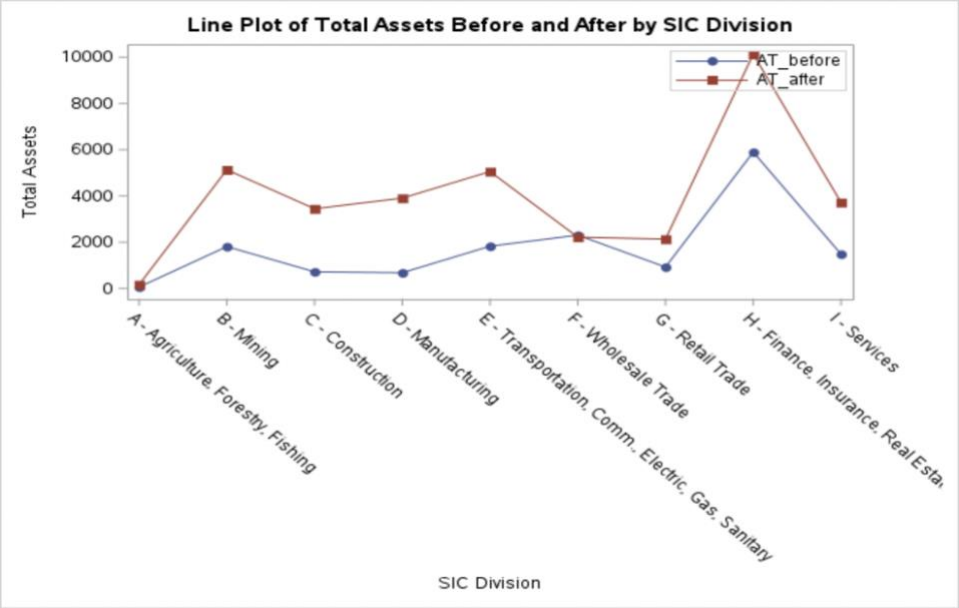
	SIC_Division	Avg_Comp_Increase_Pct
1	B - Mining	2.199245561
2	C - Construction	1.8746579637
3	D - Manufacturing	5.1063836354
4	E - Transportation, Comm., Electric, Gas, Sanitary	5.1456603307
5	F - Wholesale Trade	0.7091289665
6	G - Retail Trade	1.0077485024
7	H - Finance, Insurance, Real Estate	1.6089521181
8	I - Services	2.428580969

Sub-Problem 3: Total Assets and Net Income of an Industry Before and After IPO

Total Assets Analysis:

Most industries exhibited increased total assets post-IPO, indicating capital influx following public listings. However, the Wholesale Trade sector experienced a decrease, suggesting either industry-specific challenges or strategic reallocation of funds.





Total Assets Before and After by SIC Division**:**

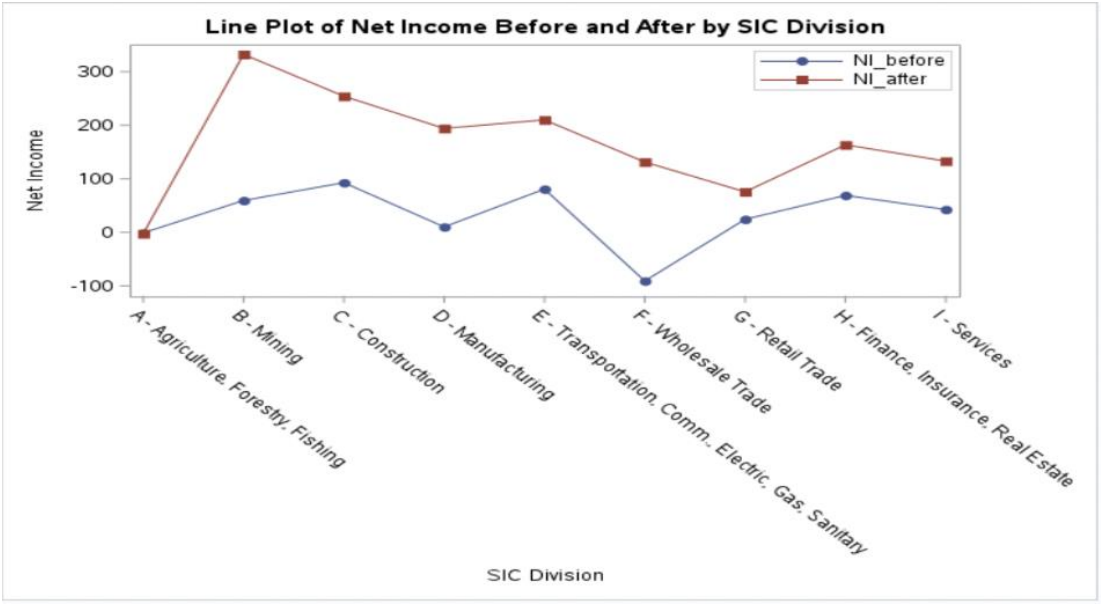
- The line plot indicates an overall trend of increased Total Assets across most industries after the IPO. However, there's a visible dip in the Total Assets for companies in the Wholesale Trade sector following the IPO.
- Notably, the Finance, Insurance, & Real Estate sector shows a substantial increase in Total Assets post-IPO, suggesting a significant capital inflow due to the IPO.

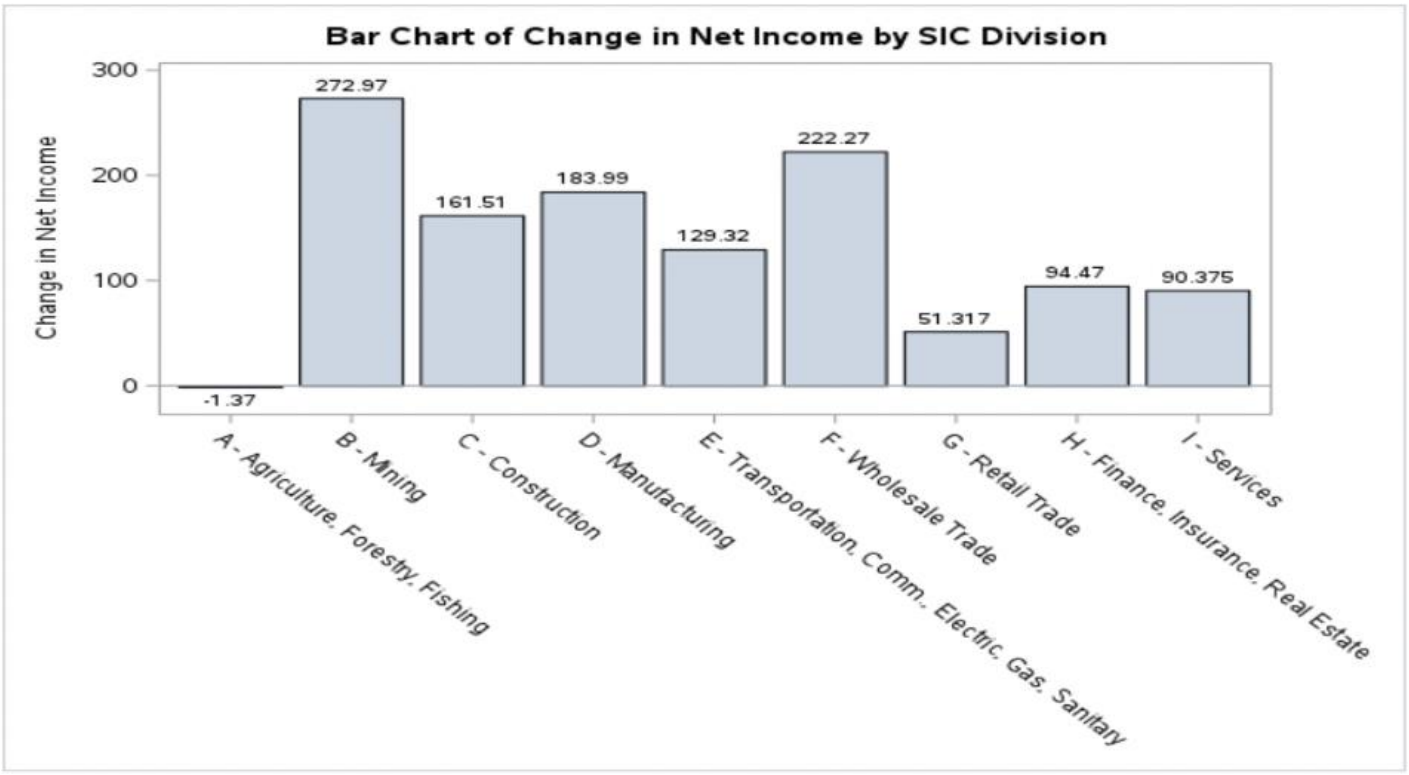
Change in Total Assets by SIC Division**:**

- The bar chart complements the line plot by quantifying the changes. The Mining and Finance sectors exhibit the highest growth in Total Assets, with increases of approximately 3321 and 4235 respectively.
- On the other end, the Wholesale Trade sector shows a decrease, which might indicate either a consolidation phase post-IPO or diversion of funds towards other financial streams.

Net Income Analysis:

Net income trends varied across sectors, with some experiencing growth (e.g., Mining, Manufacturing) and others showing declines (e.g., Agriculture, Forestry, & Fishing, Wholesale Trade) post-IPO. These variations highlight sector-specific impacts and potential investments or operational costs affecting profitability.





Net Income Before and After by SIC Division:

- The plot reveals a mixed effect of IPOs on Net Income across sectors. While some sectors like Mining and Manufacturing show a rise in Net Income, others such as Agriculture, Forestry, & Fishing and Wholesale Trade show a decrease.
- It is important to note that the sectors with a reduction in Net Income might have had significant investments or operational costs post-IPO, which could have temporarily affected profitability.

Change in Net Income by SIC Division:

- This visualization presents clear metrics on the change in Net Income. The Mining sector stands out with the most significant positive change, whereas the Agriculture, Forestry, & Fishing sector has a marginal decline.
- The trends in Net Income changes suggest that while IPOs generally contribute to capital growth, their impact on profit varies and may not be immediately realized across all sectors.

Key Findings:

- Capital Influx Post-IPO: The data shows that IPOs are generally successful in raising capital, as seen in the increased Total Assets for most sectors.
- Sector-Specific Impact: The influence of IPOs on financial metrics varies by industry, with some like Mining and Finance demonstrating both asset and income growth, while others like Wholesale Trade experience a decrease in assets.
- Immediate vs. Long-Term Impact: While the influx of capital from an IPO can be immediate, the benefits in terms of Net Income may take longer to materialize, as the firm invests in growth and development.
- Inter-sector Variability: The contrasting effects across different industries emphasize the importance of considering sector-specific factors when evaluating the impact of an IPO.

- IPOs generally led to increased total assets across most industries, reflecting capital growth and investment opportunities.
- Net income trends post-IPO varied by sector, indicating diverse impacts on profitability and potential operational adjustments following public listings.

Conclusion

In conclusion, our project aimed to assess the success of Initial Public Offerings (IPOs) by analyzing various factors such as IPO share price performance, executive compensation trends, and the financial performance of companies before and after their IPOs across different industries. We utilized a mixed-method approach, integrating historical data from the WRDS IPO database with additional datasets, including simulated and publicly available data. This allowed us to construct a comprehensive dataset, enabling us to gain valuable insights into the determinants of IPO success and market reception.

Our analysis revealed several key findings:

1. Manufacturing emerged as the leading sector for successful IPOs, while Agriculture, Forestry, and Fishing experienced the lowest activity, indicating varying investor perceptions across industries, potentially influenced by growth prospects and market dynamics. The US West region, with California leading among states, recorded the highest number of successful IPOs, underscoring regional disparities and California's significance as an entrepreneurial hub and capital market center.
2. The executive compensation analysis highlights significant sector-based disparities in the average percentage increase in executive compensation following an IPO. Notably, the Manufacturing sector experiences a substantial average increase in executive compensation of approximately 500%, which may reflect the industry's potential for rapid growth and expansion post-IPO or a pre-IPO underpayment relative to industry standards. The Services sector, while showing a positive trend, exhibits more variability with an average increase of about 240%. This could be due to the heterogeneous nature of the sector, which encompasses a wide range of businesses with varying scales and profitability. The Finance, Insurance, and Real Estate sector shows a more moderate but still significant increase of around 160%, possibly indicative of the industry's regulatory environment and mature market conditions that might constrain rapid salary escalations.
3. Most industries experienced an increase in total assets post-IPO, with the Finance, Insurance, and Real Estate sector showing the most substantial growth. However, there was a noticeable decline in total assets for companies in the Wholesale Trade sector following the IPO. Similarly, while IPOs generally led to capital growth, the impact on net income varied across sectors.

In addition to the findings presented, we can further enhance the report by implementing additional data manipulation techniques and incorporating relevant studies to support our analysis:

- To further deep dive, we can analyze how executive compensation trends evolve over a longer period post-IPO, such as over five to ten years, to understand the long-term impacts of going public on executive pay structures.
- Investigating the correlation between changes in executive compensation and company performance metrics post-IPO, such as revenue growth, profit margins, and market share could help determine if increases in compensation are aligned with improvements in company performance.

- A comparative analysis of executive compensation trends between companies that have gone public and those that have remained private. This could highlight the unique impacts of IPOs on compensation and broader corporate governance.
- We can enhance the analysis by adding a new column to the initial dataset, indicating the age of each company at the time of the IPO. By categorizing companies based on their ages into three groups: Growing, Mature, and Moderately Old, we can gain further insights into how the age of a company influences its IPO success.
- Relevant studies that have explored similar themes can be incorporated. These studies can provide additional context and validation to the research, strengthening the credibility of the conclusions.