VISUALIZATION OF FINANCIAL INDICATORS FOR U.S STOCKS

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CIS 240 VISUALIZATION PROJECT

VISUALIZATION DATA DESCRIPTION

- Data background information:

Financial indicators of U.S stocks from the 10-K filings, built leveraging Financial Modeling Prep API and pandas data reader, found on Kaggle.com.

- Important data details:

1. There were some extreme outliers, most of which are mistyping errors.

2. Financial data from 2014-2018 fillings were available and only the 2018 financial data was chosen for analysis.

3. The author of the data was inspired to create this dataset to answer the question: "is it possible to have a machine learning model learn the differences between stocks that perform well and those that don't, and then leverage this knowledge in order to predict which stock will be worth buying? "

DATA CLEANING AND MANIPULATION

1. Analyzed data on CSV file and chose several columns or financial indicators that we wanted to use
2. Imported CSV file to CIS_project database and created the table "2018_financial_data"
3. Created a new table in SQL by extracting only the data we needed
4. Opened table saved as CSV on Tableau

```
1  DROP DATABASE CIS_project;
2  CREATE DATABASE CIS_project;
3  USE CIS_project;
4
5  SELECT * FROM 2018_financial_data;
6
7
8  CREATE TABLE A AS
9  SELECT Companies, Revenue, RevenueGrowth, GrossProfit, NetIncome, `Market Cap`,
0  EPS, DividendperShare, `Dividend Yield`, Totalassets, Totaldebt, Totalshareholdersequity, total_assets, Net Income,
1  ROE, `10Y Revenue Growth (per share)`, `3Y Revenue Growth (per share)`, `5Y Revenue Growth (per share)`
2  FROM 2018_financial_data;
```

OBJECTIVE

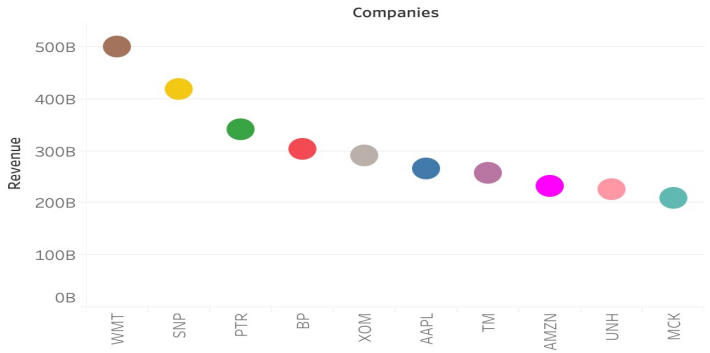
Investors want the stocks they buy to increase in value, meaning they want the company they invested in, to grow its market capitalization.

- We wanted to see visually how certain metrics or measures investors use to value a stock correlate to a stocks market capitalization
- We want to gain insight into the characteristics of different sectors and how they may affect a stocks valuation

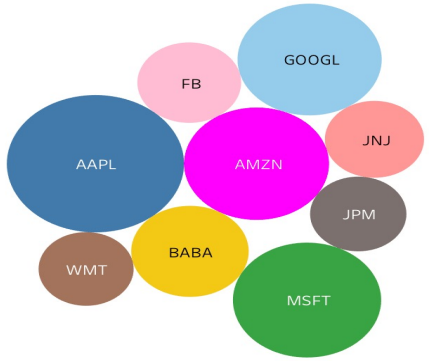
** Some companies were excluded due to missing data or errors in each visualization and if there was a problem with the data for a specific stock, the next largest stock by the parameter being used took place instead.

DASHBOARD

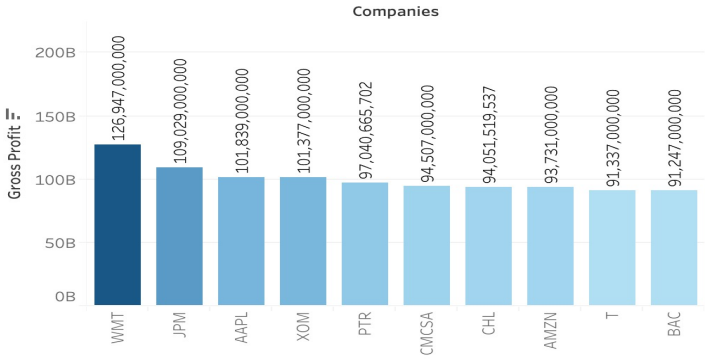
Top stocks by revenue



Top stocks by Market Cap



Top stocks by Gross Profit



Top stocks by Net Income

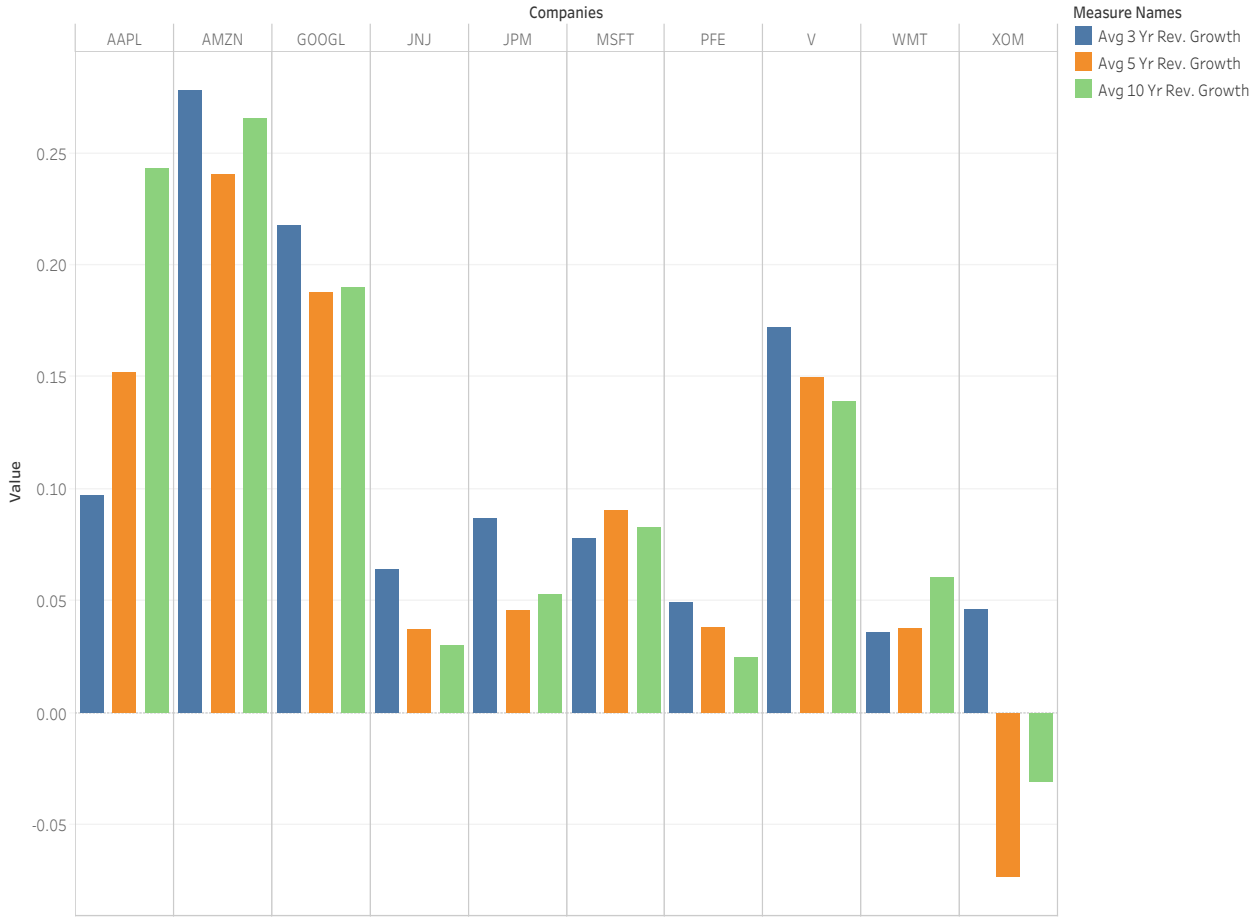
Comp..	
AAPL	59,531,000,000
GOOGL	30,736,000,000
JPM	30,709,000,000
BAC	28,147,000,000
WFC	22,393,000,000
FB	22,112,000,000
TM	21,815,043,211
INTC	21,053,000,000
XOM	20,840,000,000
T	19,370,000,000

Explanation:
Visualization of top stocks by revenue, market cap, gross profit, and net income, created by making parameters by each indicator in Tableau and combining them in a dashboard

Insights gained:
While there seem to be some correlation with how much a company makes, there seems to be many other factors that determine a company's worth.

VISUALIZATION 1

Revenue growth rate of 10 largest companies



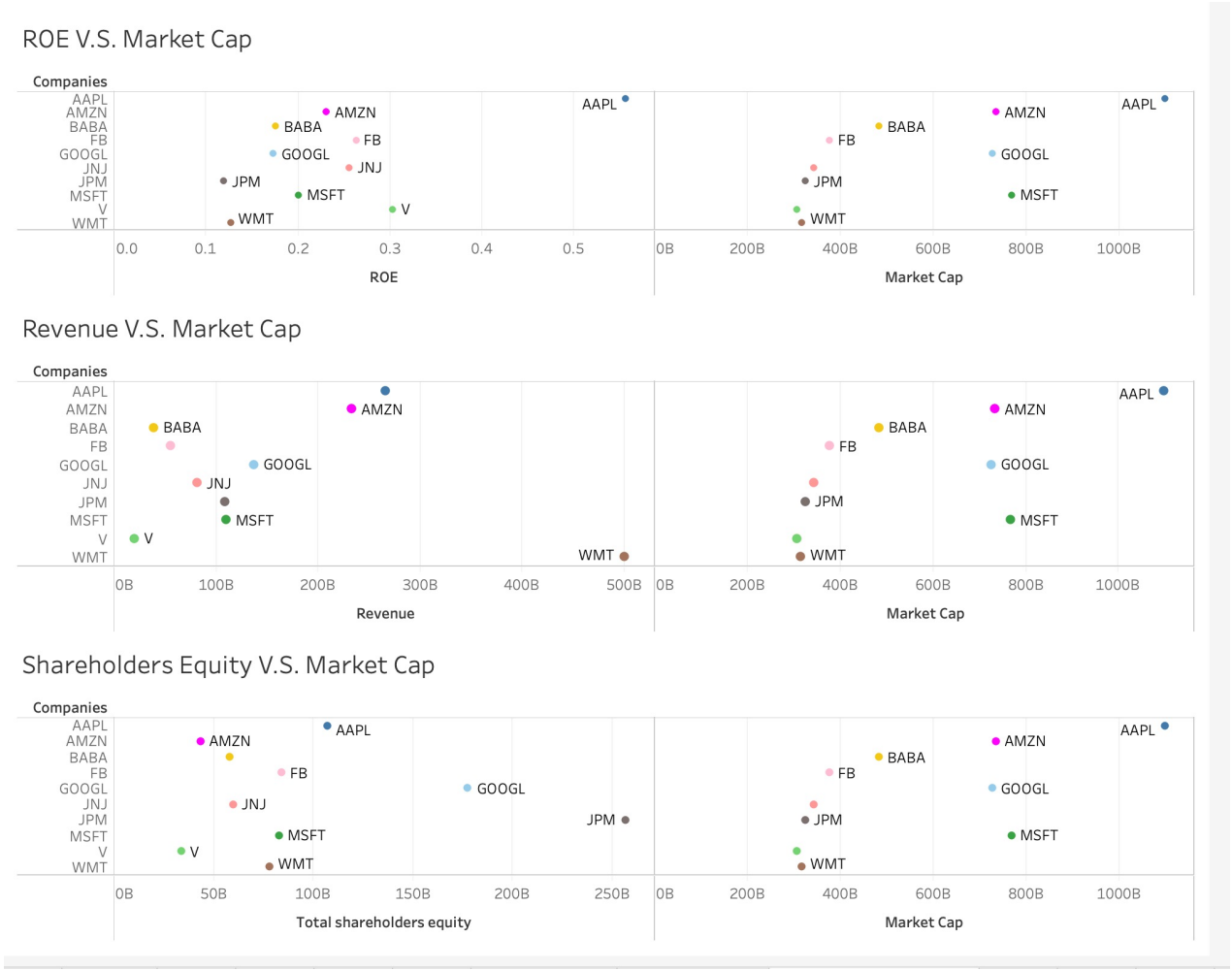
Explanation:

- How much the revenue of the 10 largest companies by market cap have grown on average by time frame (3y, 5y, 10y).

Insights gained

- As expected, the tech giants Amazon, Google, and Apple are growing at a rapid pace
- The largest oil and gas company Exon Mobile is showing a decline in revenue
- Companies that sell consumer staple goods like Walmart and Johnson and Johnson show a relatively stable revenue

VISUALIZATION 2

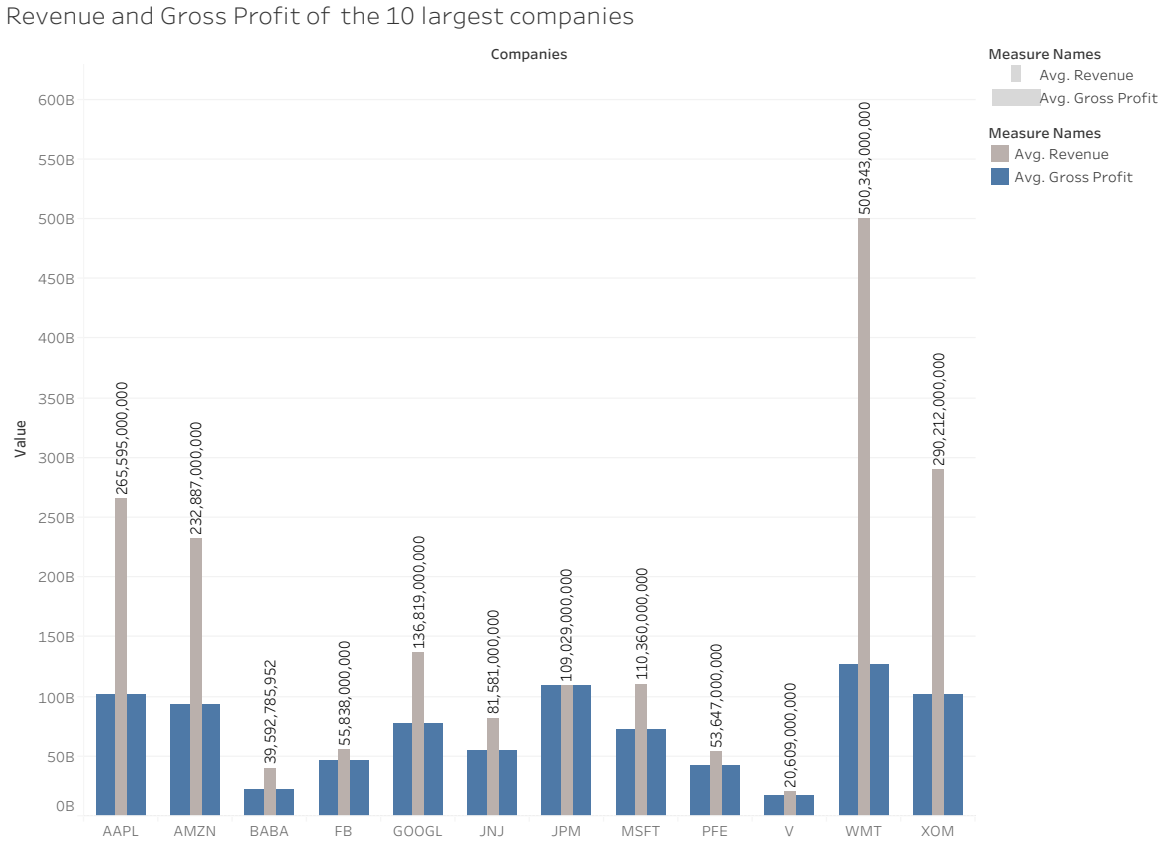


Explanation:
Visualizing the 10 largest companies by market cap to popular measures investors look at when investing.

Insight gained:

- There was no clear correlation between any of the measures and market capitalization
- Of the three measures, ROE seems to have the strongest correlation

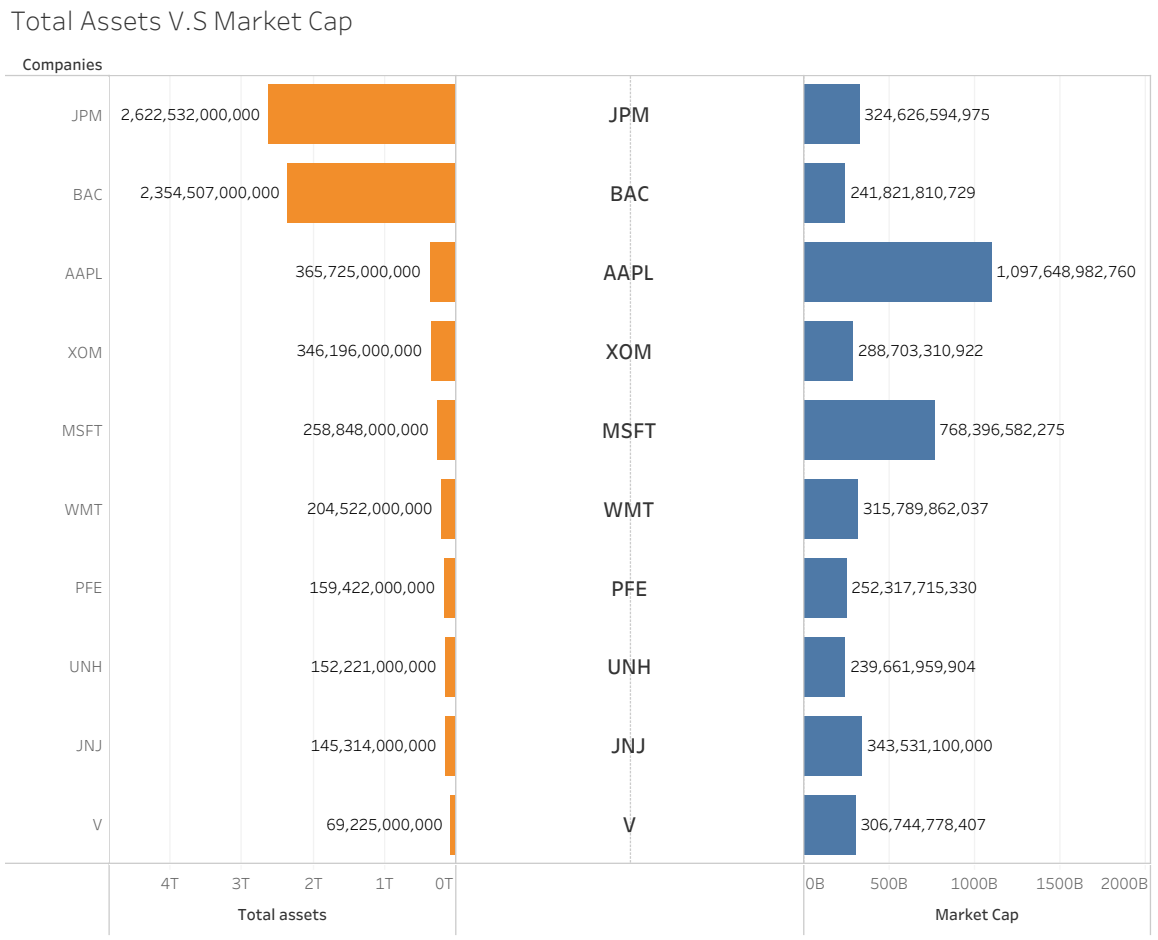
VISUALIZATION 3



Explanation:
Visualization to show how profitable a company is by comparing revenue with gross profit. (Revenue – Cost of Goods Sold)

Insight gained:
- Companies that do not sell tangible goods like JP Morgan ,Visa, and Facebook generally had higher gross profits. (In the case of JPM, Gross profit = Revenue since it is a bank)
- Ecommerce companies are shown to have better margins than brick and mortar retailers

VISUALIZATION 4



Explanation:
Visualization of total assets and market cap of the top 10 companies by market capitalization.

Insights gained:

- Again, there is no correlation between a company's asset and market capitalization
- Financial institutions usually hold the most assets (likely due to their large proportion of cash that is not subject to depreciation)

CONCLUSION AND NEXT STEP IDEAS

- Conclusion & Limitations:

- While some measures were more reliable than others in predicting the market capitalization of a stock, there was no single measure that predicted or affected the valuation of a stock.

- We could however see some clear differences in valuation by company sectors.

- Due to time and data constraints, we decided to analyze only the largest companies

- Next Step Ideas

- Compare how these measures effected the actual stock price over time

- How sector valuations have changed over time by including other common metrics like P/E ratio and P/B ratio, that were included in this dataset but could not be included in the visualization due to errors and missing values