IMPACT OF COVID-19 ON FINANCIAL, RETAIL MARKETS AND U.S. ECONOMY

Executive summary

2020 was the most challenging year for many industries in a very long time. Trade and Business abruptly stopped when billions of people were told to stay at home. The U.S economy and financial and retail markets faced unexpected crises of uncertain proportions.The coronavirus (COVID-19) outbreak caused widespread concern and economic hardship for consumers, businesses and communities across the globe.We have analyzed the data to understand the volatility in the U.S Retail and Financial Markets turmoil by analyzing different financial metrics of industries and downfall of U.S Economy.

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Data Description:

Retail and Finance industries Data:

- The data has been bifurcated in two different spreadsheets - 1. Banks and 2. Funds & Trusts.Retail companies with the latest market capitalization of more than 50000 USD million.
- The dataset has 200 rows and 19 columns.
- Companies in the Retail and Finance domain with geographic location of the United States of America and the dataset is for the last 5 years[2016-2020] downloaded from capital IQ.
- Financial companies with the latest market capitalization of more than 100000 USD million.Financial industry includes banks,trusts and funds.
- Data includes financial and performance indicators of all the companies which are required to understand the financial health of the company.
- Some of the variables used for our analysis -
  Total Revenue,Net Income,Gross Profit,Net Income Margin,Total Liabilities,Total assets,Return on Equity,EPS,Total current Assets,Total current Liabilities
- List of Industries
  - ➢ **Retail**:Altria,Colgate,PepsiCo,MondelezInternational,Walmart,Costco wholesale, Philip Morris International, The Cocacola Company,Estee Lauder,P&G
  - ➢ **Banks**: American Express , Bank of America , City Group , Jp Morgan Chase,Morgan Stanley, Charles Schwab, Goldman Sachs, Wells Fargo
  - ➢ **Funds & Trusts**: All Vanguard funds & trusts , Washington Mutual, Berkshire Hathaway , The Growth Fund of America , Blackrock , Invesco QQQ,SPDR

COVID 19 Cases and Economic Indicators data set

- In addition to the above dataset, we have blended another data source which has US COVID-19 Cases by state per month for the year 2020 and Economic indicators in the year 2019-20. This dataset has 800 rows and 10 columns.
- Economic Indicators dataset has all the prime indicators to understand the economic condition of the Country.
- Some of the variables we used for analysis include-
  Unemployment rate- Proportion of people unemployed with respect to Total population
  Gross Domestic Product-Total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period
  Federal Debt- Measurement of how much the federal government owes its creditors.

Data Source

https://www.capitaliq.com/
S&P Capital IQ Platform | S&P Global Market Intelligence (spglobal.com)

Data cleaning/Data Pre-processing

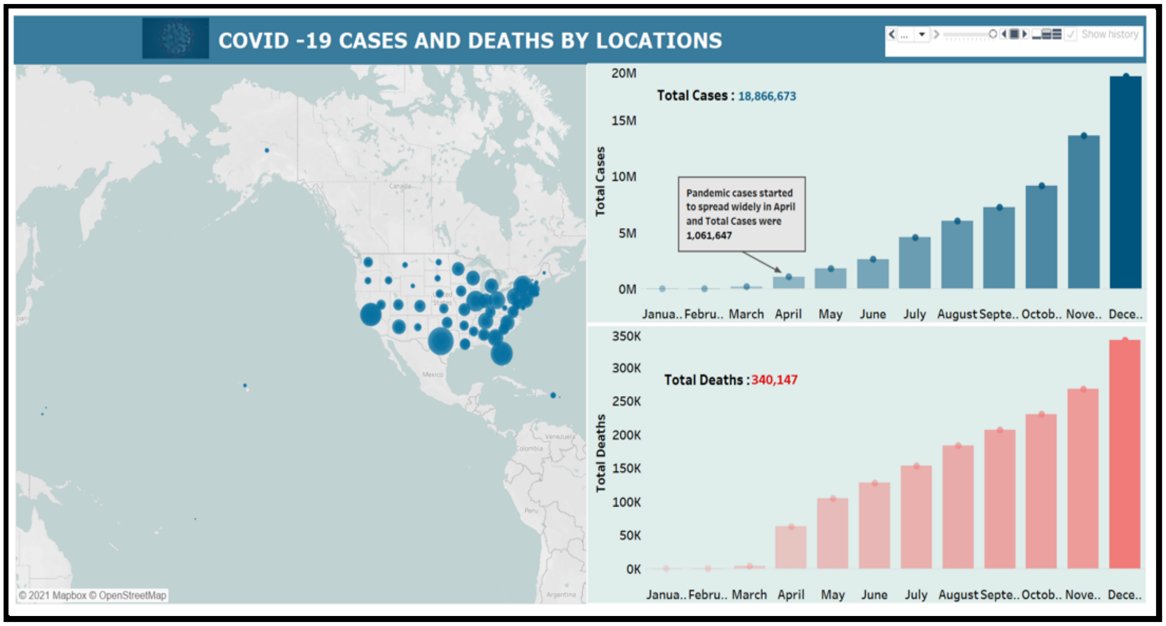
- There is no missing data and the data set is unified and definitive.So we have not used any data cleaning methods to deal with any missing data.
- However, we have limited our analysis to certain variables in the data by dimensionality reduction techniques
- Based on our financial domain knowledge,we have included variables which we have derived by performing certain calculations on actual variables.
  - ➢ **Net Income Margin = Total Revenue - Expense / Total Revenue**
  - ➢ **Return on Asset = Total Net Income / Total assets**
  - ➢ **D/E ratio = total Liabilities / Shareholders Equity**
  - ➢ **Current Ratio = Current Assets / Current Liabilities**
- Also we have added a Category to Unemployment variable in "Economic Indicators" dataset to analyse Unemployment across different races and different age groups.

General Introduction

Financial And Retail Markets Downfall :
Shoppers raided grocery store shelves in 2020, stocking up their pantries and dining increasingly at home as the COVID-19 pandemic spread.Food and discount retailers were COVID-19 winners in 2020 on the dramatic shift to at-home-related consumption that drove unprecedented grocery sales as well as strength in household. However financial market crashes unfold extreme volatility and slump in market capitalizations is rather due to the lockdown of populations and the shutdown of most manufacturing and service business.

Downfall of U.S economy :
The Coronavirus Disease 2019 (COVID-19) pandemic has had a significant effect on unemployment in every state, industry, and major demographic group in the United States. This report also provides information on which groups have experienced the largest increases in unemployment rates since the onset of the pandemic in 2020 and decline in economic activity overall, with every state experiencing a drop in Gross Domestic Product (GDP) from 2019 to 2020.

Below graph represents the overall picture of widespread of Covid-19 cases and deaths in U.S states from Jan 2020 to Dec 2020



<u>Insights and Findings:</u>

Hypothesis 1:

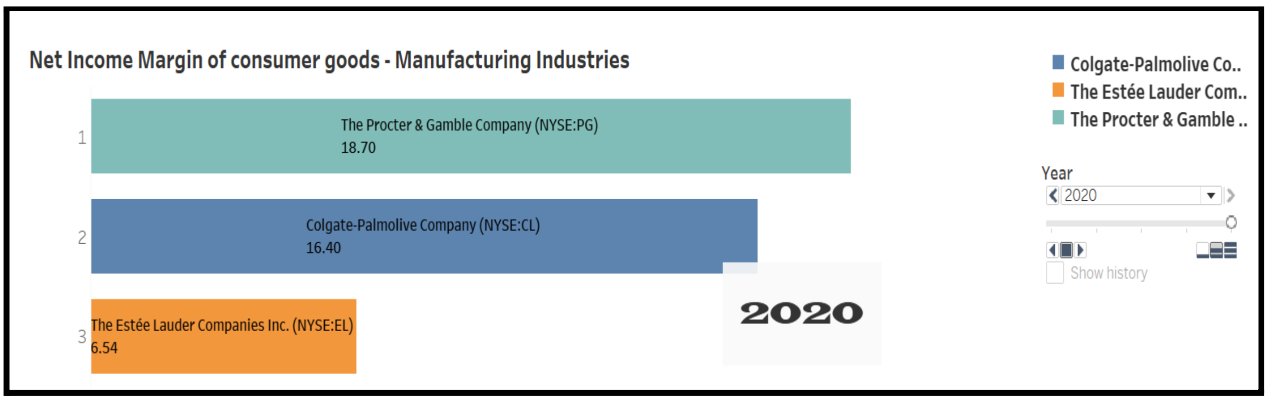
Companies regarding Consumer Goods, Retail, and Beverage & Tobacco had trouble with generating profits from its sales during the pandemic.

Analysis & Findings:

NET INCOME MARGIN OF RETAIL :

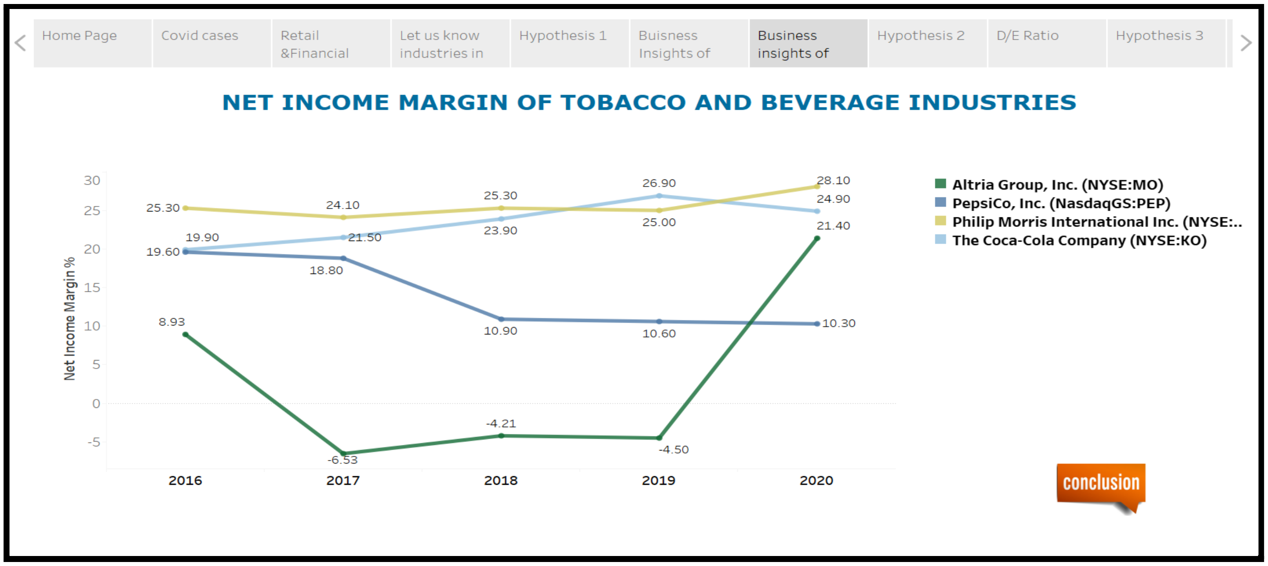
In retail, Both Walmart and Costco had an increase in its net income margin. These companies were able to operate efficiently during pandemic. Due to the increased groceries purchase online.

NET INCOME MARGIN OF CONSUMER GOODS: Tableau Bar Race



Among Procter & Gamble , Colgate - Palmolive Company , The Estee Lauder Companies. Procter & Gamble topped in 2019. Due to their increased sales in personal health products. These companies net income margin increased during the pandemic. The Estee Lauder Companies had more sales skin and hair care products during pandemic.

NET INCOME MARGIN OF TOBACCO AND BEVERAGE INDUSTRIES :



For Coca Cola, Net Income Margin increased from 2016 to 2019. But saw a huge decline in 2020. Pepsico Net Income Margin decreased from 2017 to 2020. Interestingly Altria & Philip Morris Net Income Margin increased in 2020. They benefited from a rise in at home tobacco use.

Interpretation:

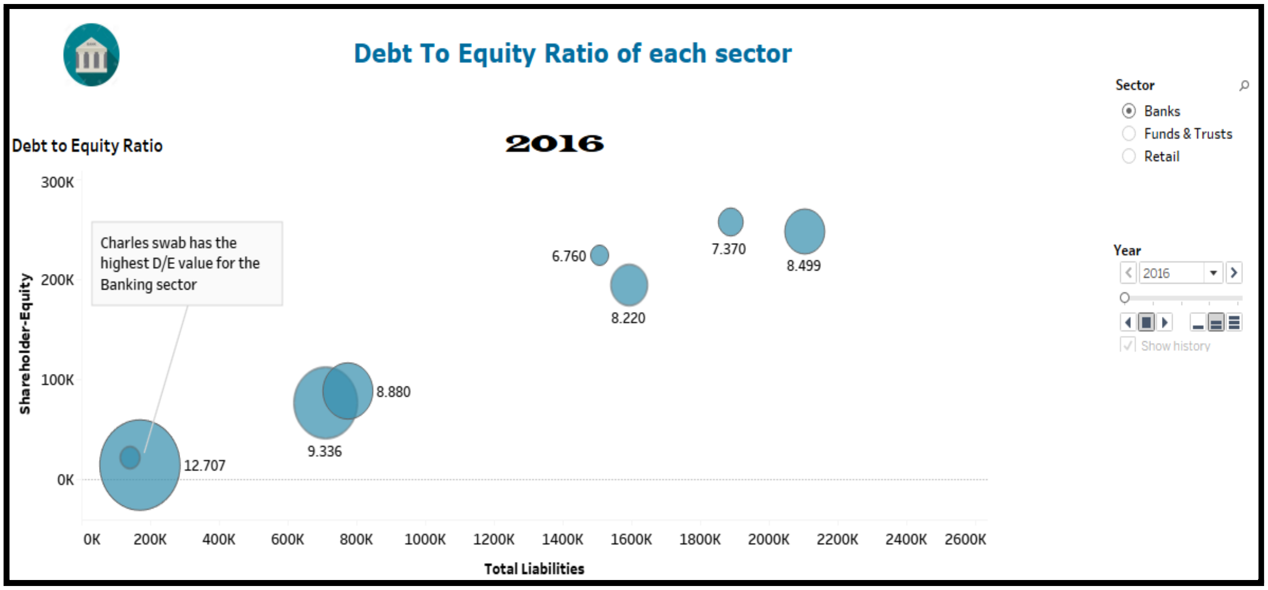
- Beverage industries saw a decline in its net income margin during the pandemic. Coca cola and Pepsico were not able to generate enough profits from its sales.
- Tobacco manufacturers Altria and Philip Morris had an increase in the net income margin during pandemic.
- Decline in Net Income Margin leads to negative cash flow and shrinking profit margin will result in lower wages for staff

Hypothesis 2:

Shareholders equity is likely to cover all outstanding debts in the event of Business downturn.

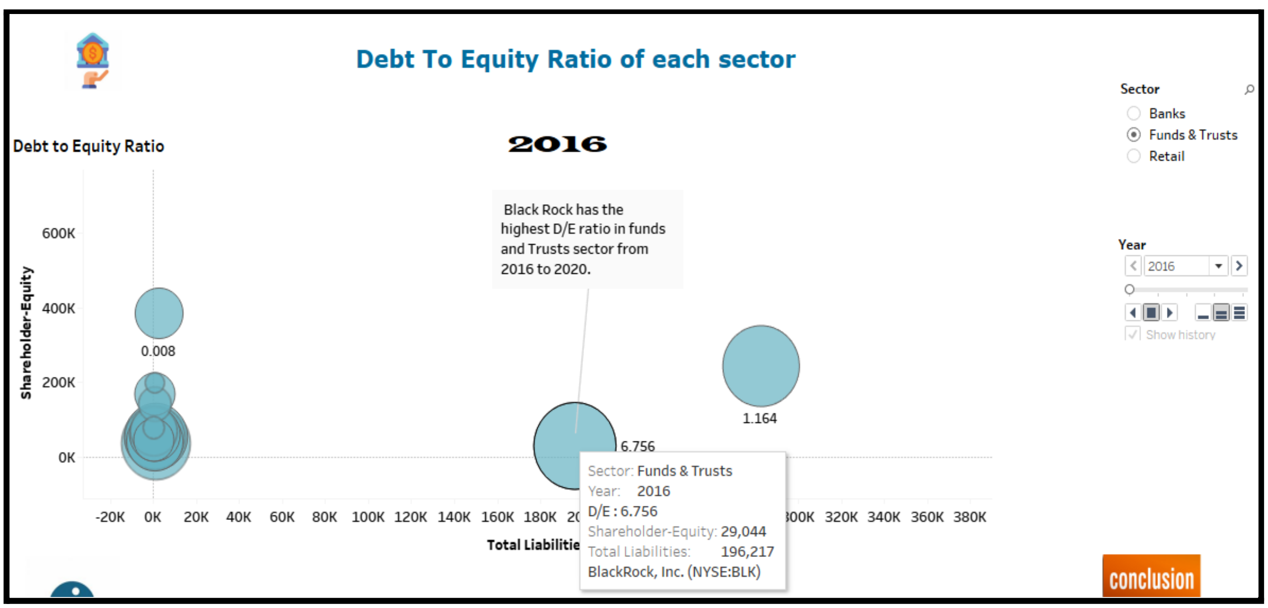
Analysis & Findings:

Banks:



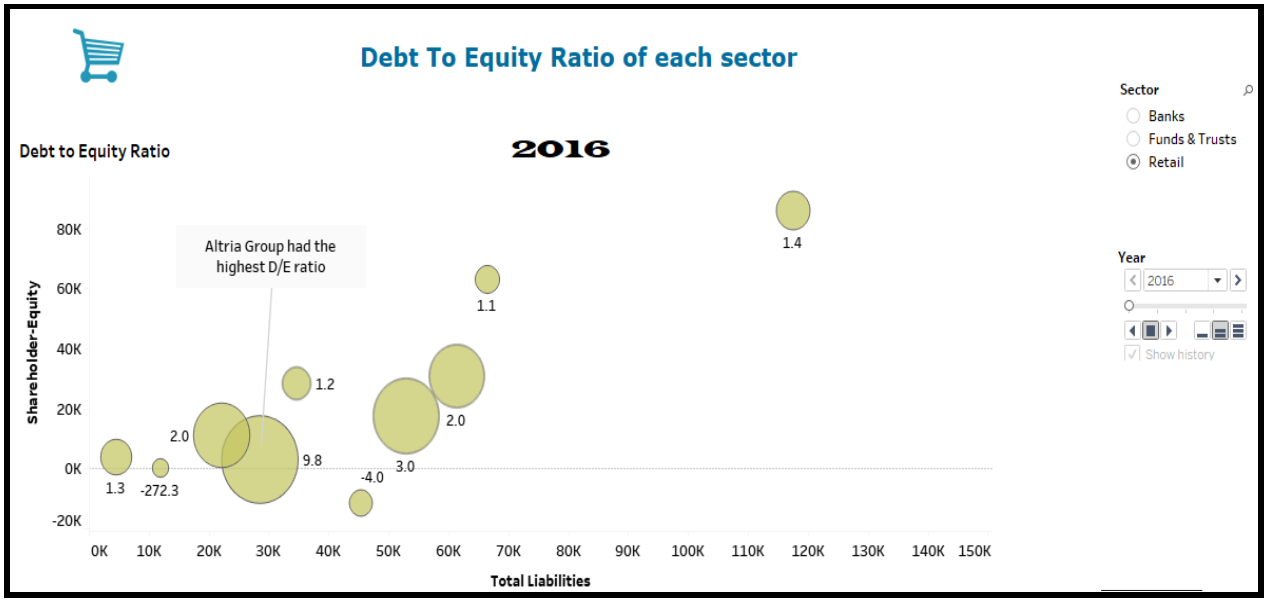
- When we look at the overall trend from 2016 to 2020 there was not much change in the relative positions of the banks. But when we look at each bank the D/E ratio increased significantly, this can be justified by looking at relative decrease in ROE.
- Amex had the lowest D/E value in 2016 (i.e., 6.79) when the ROE was 31.80, but coming to 2020 D/E increased to 7.59 instead decreasing the ROE to 13.60.

Funds & Trusts:



- Unlike banks the D/E value for most of the funds & trusts is not stable.
- Some trusts followed the usual pattern but there are many which showed opposite trends.
- This could be because not many people are interested in investing in trust during the pandemic.

Retail:



- We can observe the inverse relationship in the retail sector also.
- Altria Group had the highest D/E value in 2016 with significantly low ROE in the same year.
- In 2020, the D/E ratio for Altria Group went down with an exponential increase in ROE.

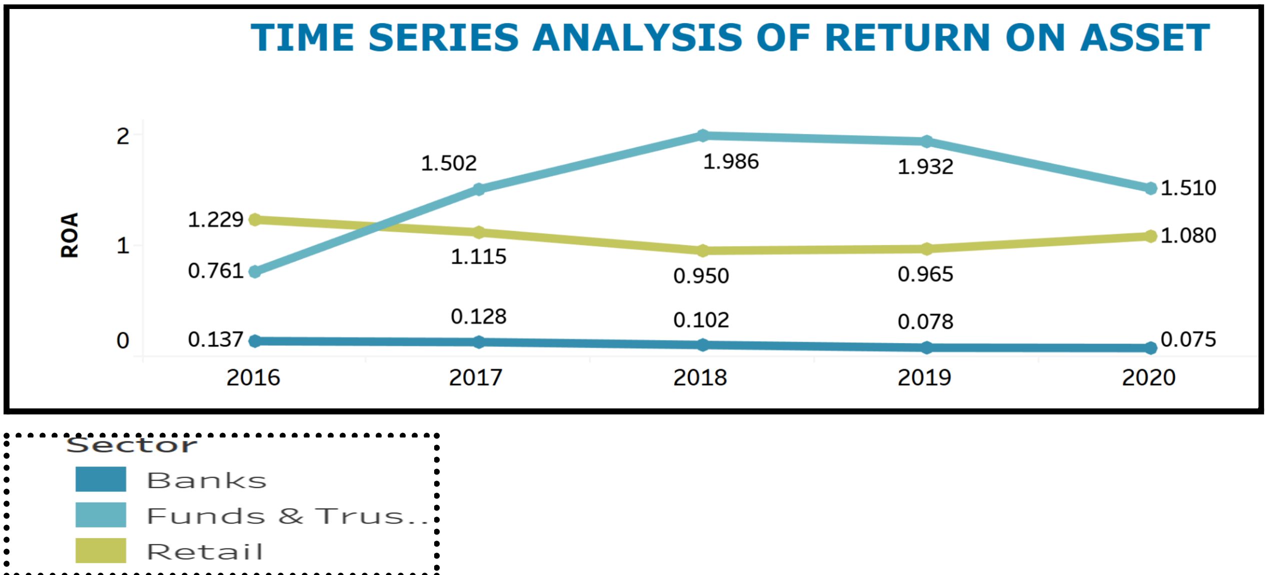
Interpretation:

- D/E value for most organizations irrespective of the sector saw a declining trend from 2016 to 2020.
- Thus, risk for shareholders equity being liable also declines.
  We can conclude that we were wrong assuming that covid was risky for shareholders.

Hypothesis 3 :

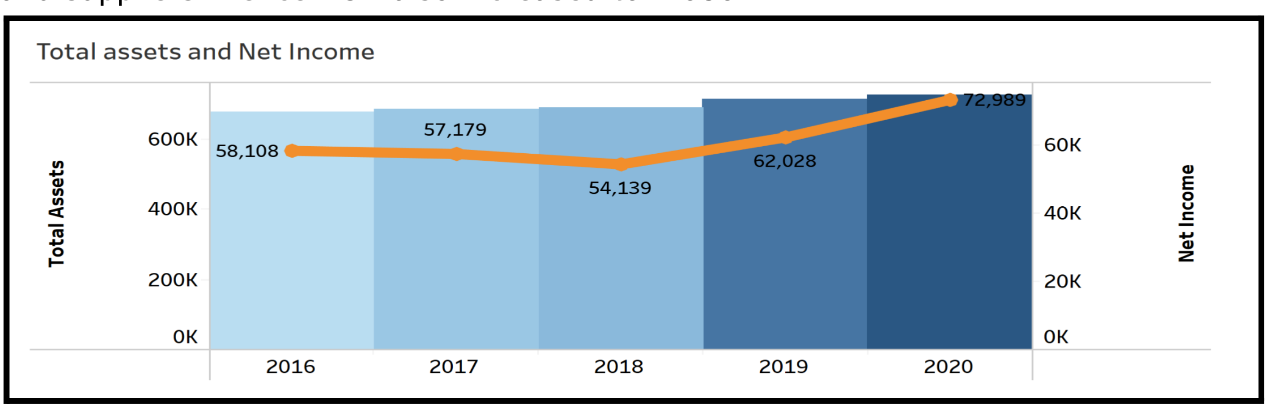
Retail Industry was more efficient in using its assets to generate profits than Finance industry.

Time Series Analysis of Return on Asset:

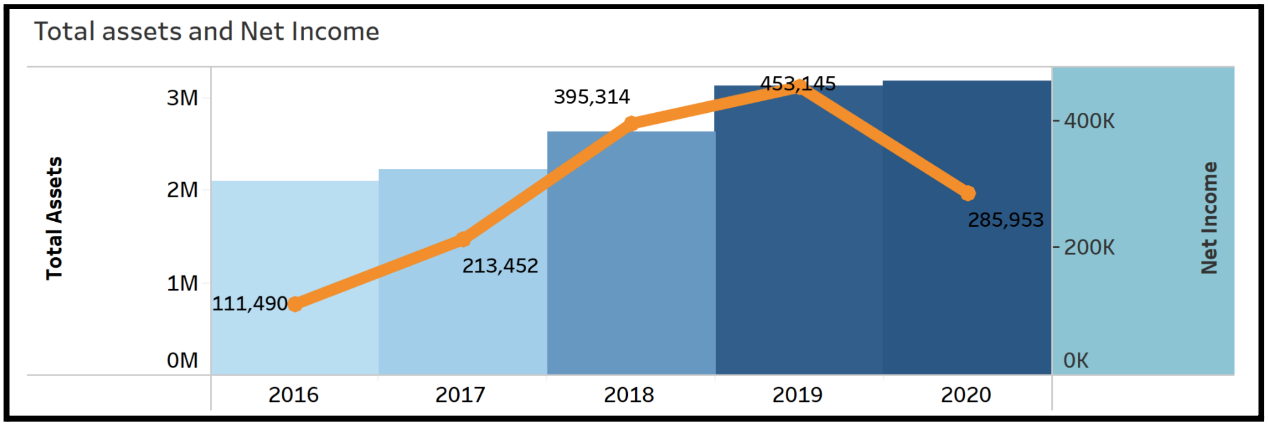


Return on asset is the profitability ratio that provides how much profit a company is able to generate from its assets.
Here we are comparing ROA of banks, funds and trust , retail from 2016 to 2020

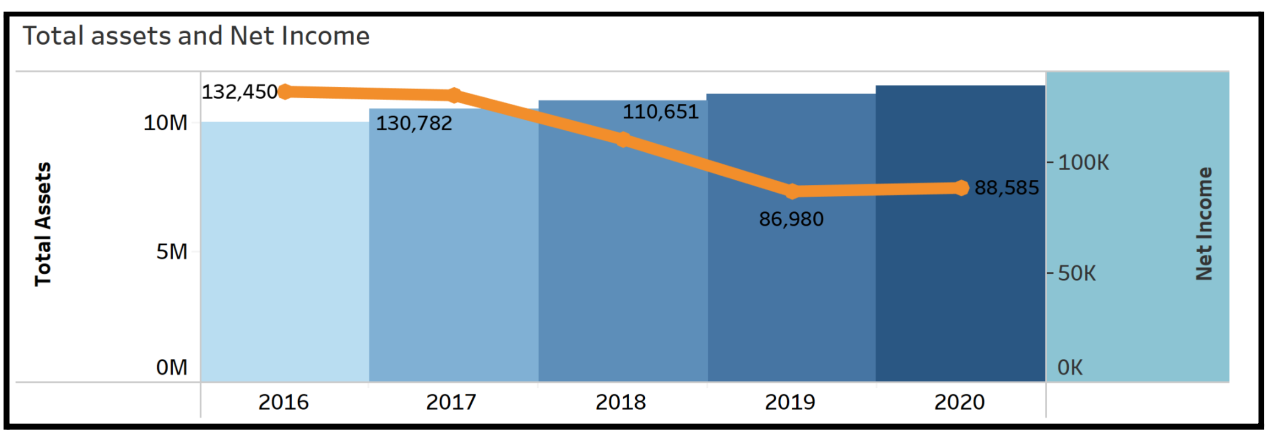
Retail industry: They did not have a very good net income during the course of years from 2016 to 2020. Due to the pandemic there was a drastic increase in the Net income because grocery stores remained open and consumers appeared to be stocking up on certain goods and suppliers. Hence ROA also increased to 1.080.



Funds and trusts: There was an exponential net income growth from 2016 to 2019 and there was an outbreak of covid. Hence ROA for funds and trusts declined to 1.510 due to pandemic because there was decrease in net income and increase in total assets.



Banks: We can see there is a global decrease in ROA and increase in total assets.



Interpretation:

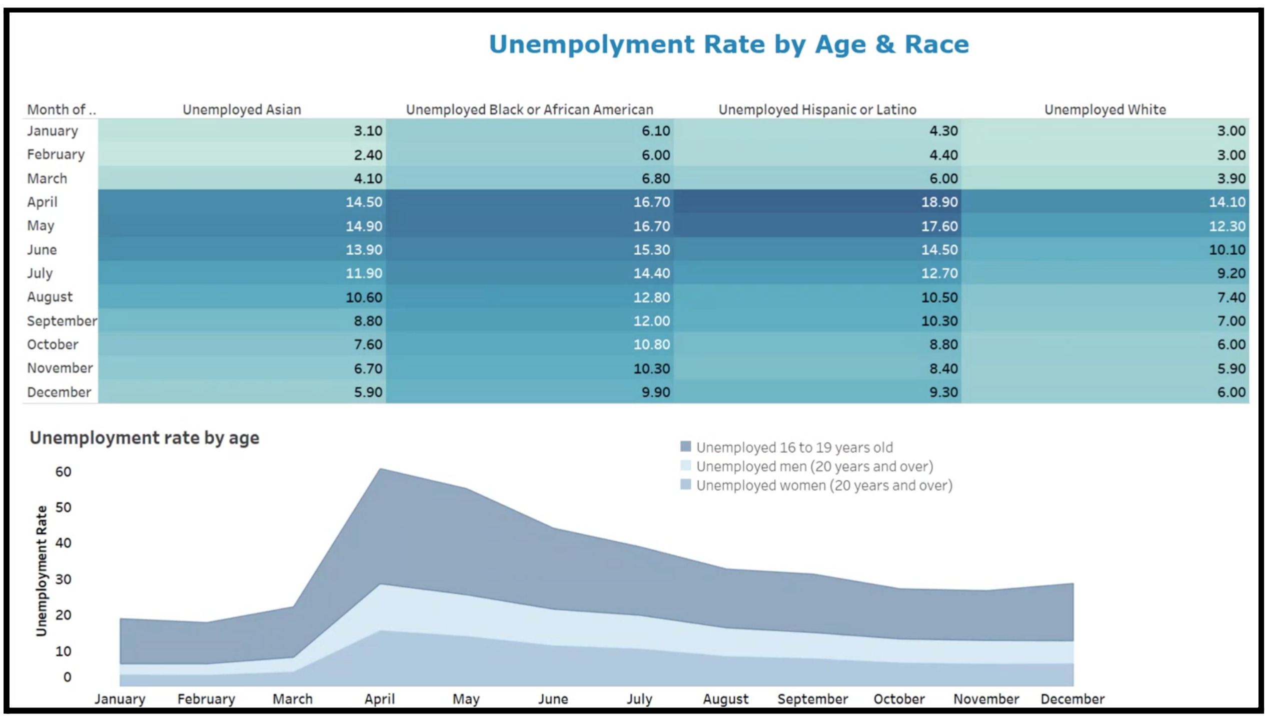
- Therefore this shows that the retail industry had a higher percentage growth rate in profits that are generated by the assets owned by a company.
- Also Investors can weigh ROA against the company's cost of capital to get a sense of realized returns on the company's growth plan.

Hypothesis 4:

In the United States, COVID-19 had a greater impact on unemployment concerning the minority of economic stability, than those considered in the majority.

Analysis & Findings:

Unemployment Rate by Age & Race:



Unempolyment Rate by Age & Race

Month of ..	Unemployed Asian	Unemployed Black or African American	Unemployed Hispanic or Latino	Unemployed White
January	3.10	6.10	4.30	3.00
February	2.40	6.00	4.40	3.00
March	4.10	6.80	6.00	3.90
April	14.50	16.70	18.90	14.10
May	14.90	16.70	17.60	12.30
June	13.90	15.30	14.50	10.10
July	11.90	14.40	12.70	9.20
August	10.60	12.80	10.50	7.40
September	8.80	12.00	10.30	7.00
October	7.60	10.80	8.80	6.00
November	6.70	10.30	8.40	5.90
December	5.90	9.90	9.30	6.00

- Starting in April to July of 2020, during the first lockdown of the pandemic, the highest rate in unemployment became prevalent across all groups.
- In addition, we notice that White Americans across the board had the lowest rate, and the three minority groups represented had lost more jobs.

- Overall, the data displays the same pattern most of the year, White Americans having the lowest rate on average in comparison. With only Asian Americans having a lower rate in the months of February and December.
- Looking at age, those who are considered ineligible for entry level jobs in careers requiring full time degrees, had the most trouble with departures in career than those over the age of 20.
- Even in the case of gender, we see that in women over the age of 20, which we saw had greater stability, still saw an increase in unemployment as contrasted to men.

Interpretation:

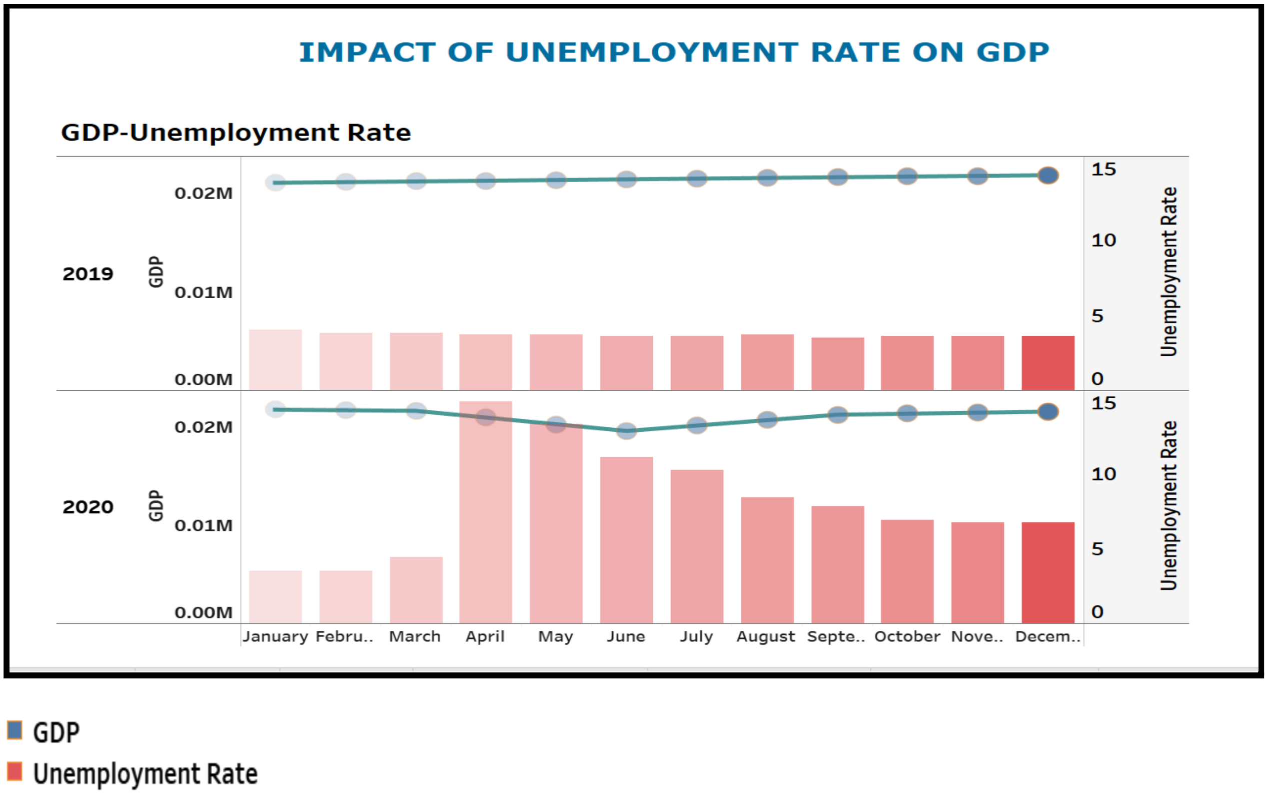
In conclusion and conjunction with our hypothesis, the data coincides with the statement that those who aren't adult white males had the most trouble with job security during the pandemic.

Hypothesis 5

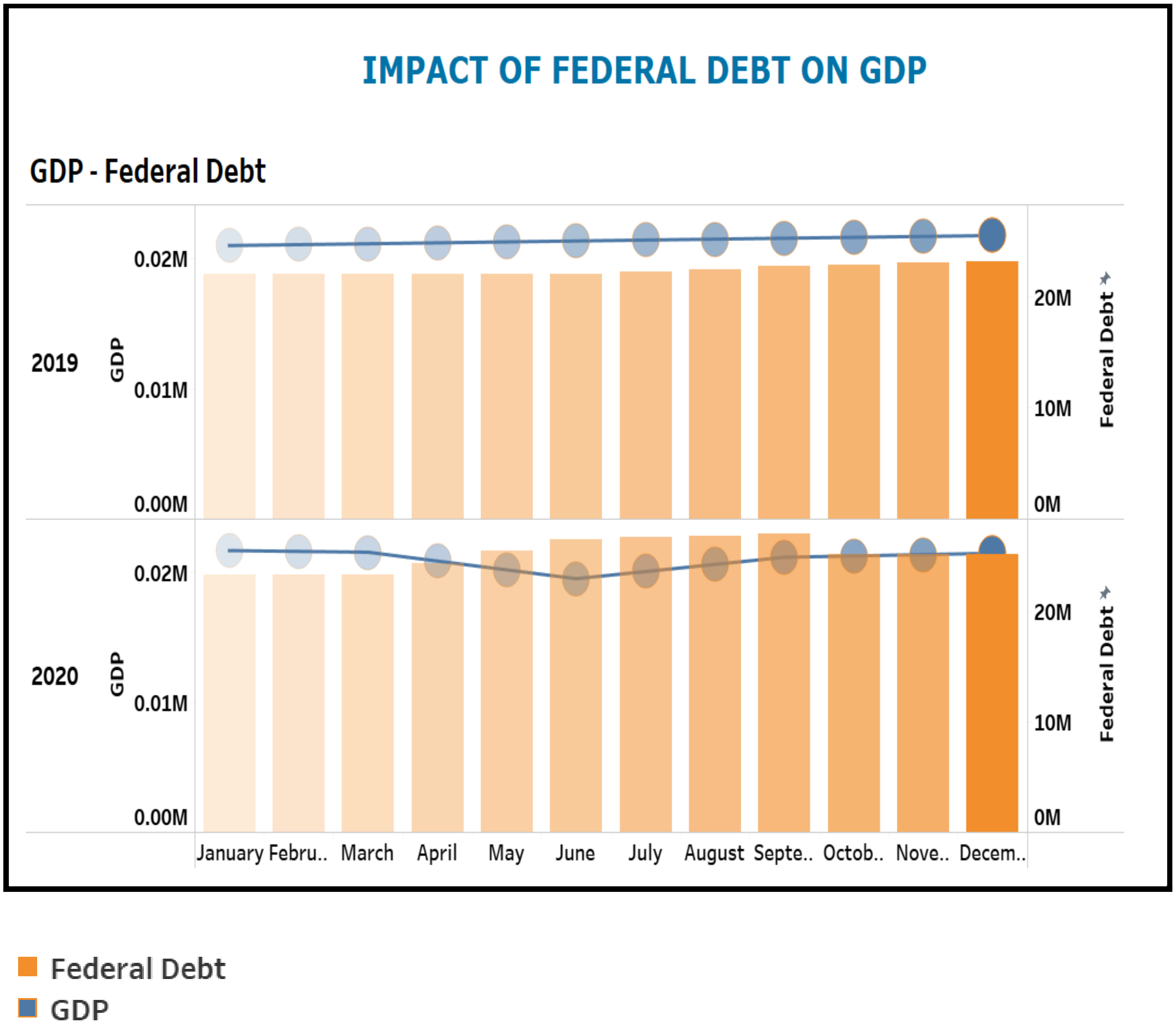
Higher unemployment led to lower GDP in 2020 due to Pandemic

We have considered this hypothesis based on Okun's law which states-
Unemployment falls by 1%, gross domestic product (GDP) rises by 3%

Analysis & Findings:



- As COVID-19 Pandemic had a devastating impact on the US Economy, we have used certain economic indicators such as GDP, Federal Debt and Unemployment Rate in the year 2020 for detailed analysis of the Economy.
- From the visualization above, we could compare economic situation in 2019 and 2020
- The change in GDP and Unemployment rate in 2019 was almost constant over all the months and GDP decreased whenever there is an increase in Unemployment rate which is as expected.
- However in 2020, there was a drastic increase in Unemployment rate since the end of March and sudden decrease in GDP in the month of April.
- Later, from the month of April, even though the unemployment started decreasing, the GDP continued to decrease instead of increasing for the next 3 months.
- We could further analyse the unexpected behavior in GDP during Pandemic by taking Federal Debt of the Country into consideration.



- Federal Debt is the public and intra governmental debt owned by the Federal government.
- The change in GDP and Federal Debt in 2019 was almost constant over all the months and GDP decreased whenever there is an increase in Federal Debt which is as expected.
- In 2020, there was a drastic increase in Federal Debt since the end of March and sudden decrease in GDP in the month of April.

<u>Interpretation:</u>

- Our hypothesis is proved wrong as GDP continued to decrease with decrease in Unemployment rate in April, May and June due to unpredictable situation in 2020 due to Pandemic.

- The increase in Federal Debt especially in the months of April, May, June and July accounted to further decrease in GDP.
- This is because the US government started financing those provisions to dampen the effects of economic downtown and the treasury department increased its borrowing which resulted in drastic increase in federal debt in April and hence GDP decreased despite gradual decrease in unemployment.

Conclusion:

As groceries and health/household products remained a necessity during pandemic, the retail and consumer-good industries sustained during this period. However,Beverage industries were not able to generate enough profits from its sales.Furthermore, Retail industries were more efficient using its assets to generate profits than financial sector as finance industries had a decline in their Total Revenue and Net Income

With unprecedented speed and scale, the COVID-19 pandemic has had a devastating impact on the economy, disrupting trade and investment, and eliminating the jobs of millions of workers!. Furthermore,it was extremely challenging for small scale industries and startups to cope up with the pandemic situation.

In 2021, the US has come a long way in overcoming the situation.However, it is still an important hour to be safe and contribute to normalize the situation. And the little thing we can do from our side is - **Get Vaccinated!**