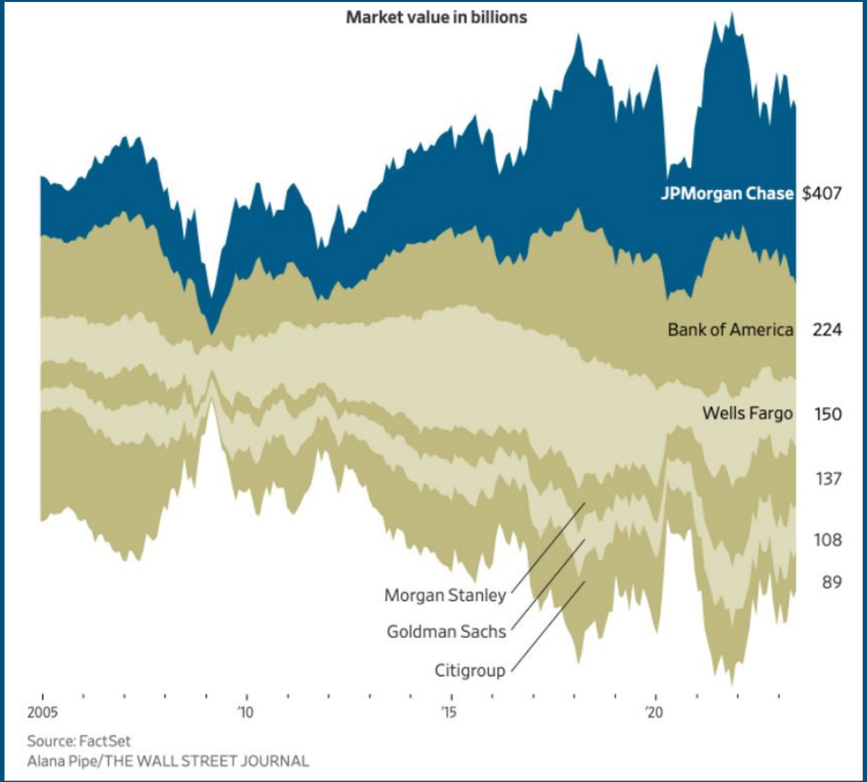
US Consumer Confidence
V.s.
US Bank Performance

Project Members (List by Surname)
Ye G.
Nosheen H.
Florence Chen X.
Briauna Y.

Background

- In 2023, the market share of JPMorgan Chase, the first-place bank, surpasses that of Bank of America, the second-place bank, by around double.
- What's JPMorgan Chase's performance compared to other banks?
- Why do people prefer JPMorgan Chase over other banks?

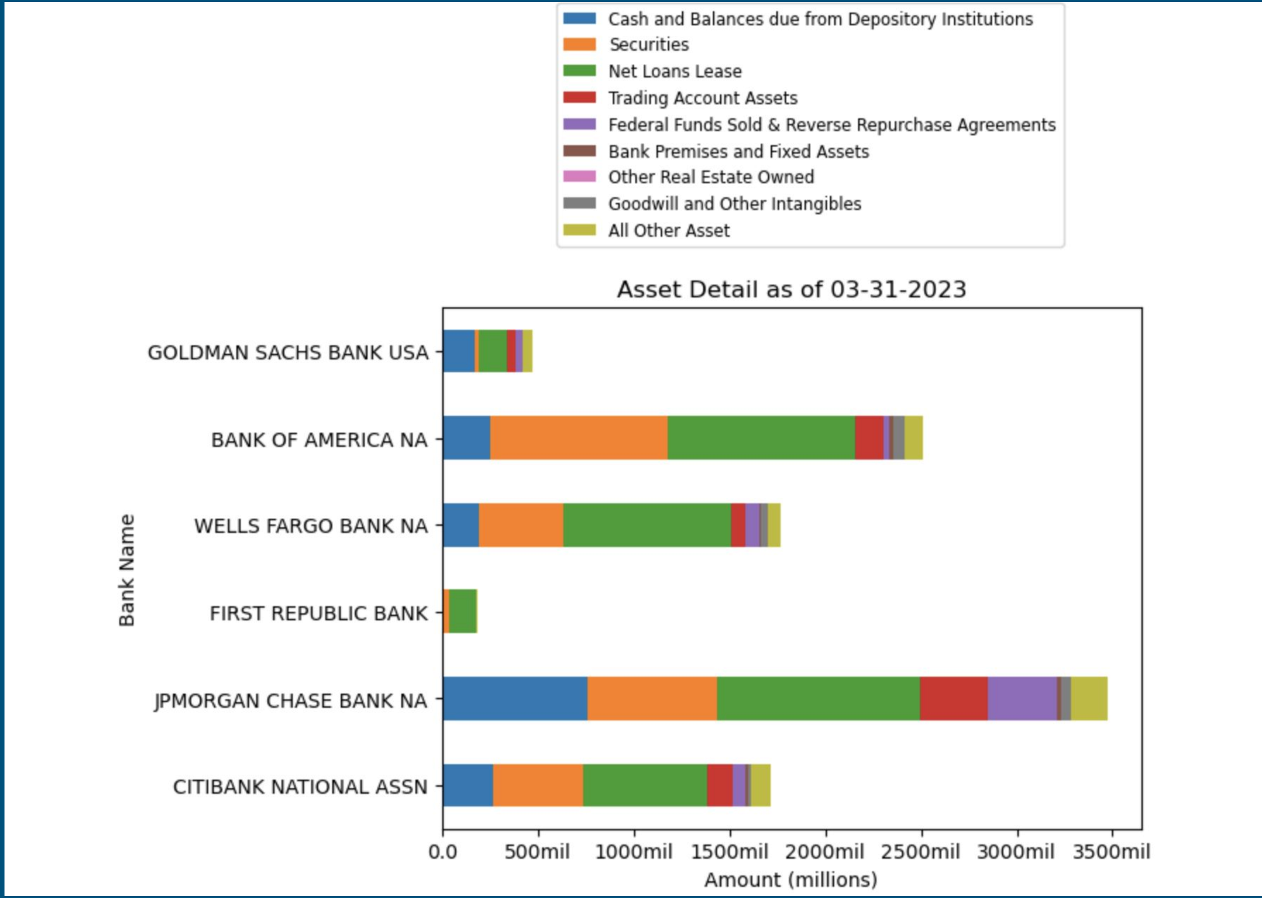


Executive Summary

- **The Problem**
  - Investigate how does US consumer confidence contribute to US bank's performance.
- **Data and Methods Used**
  - Bank Performance (Time Series Analysis & Analysis of Variance)
    1. Bank's Balance Sheet
       - Net Loan and Leases
       - Total Domestic Deposit Amount
    2. Performance ratio
    3. Bank stock price
  - Consumer Confidence (Correlation Analysis)
    1. Consumer Sentiment Index v.s. Net Loan and Leases
    2. Consumer Sentiment Index v.s. Total Domestic Deposit Amount
- **Data Source**
  - Federal Deposit Insurance Corporation
  - Yahoo Finance
  - The University of Michigan's Survey of Consumers

Executive Summary

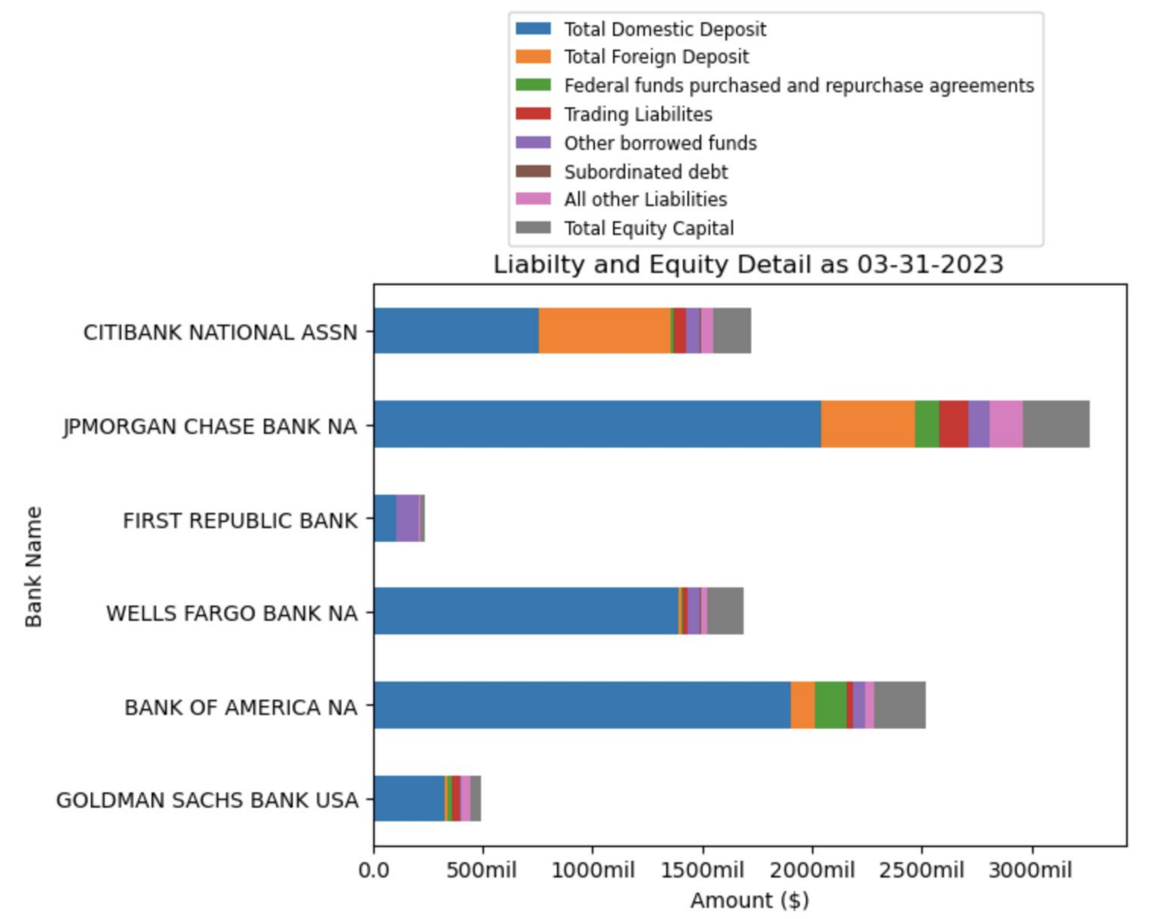
- **Key Findings**
  - The top 5 largest banks have diversified asset and have investor equity as capital rather than just debt/liabilities. The failed bank, First Republic Bank's asset was mainly from loans and leases. Investors and consumers have more confidence in banks that have diversified assets/investments and capital leverage.
  - JP Morgan Chase displays growth in their bank due to a higher return on assets ratio than their starting point from when they fell in 2020.
  - JP Morgan Chase showcased a higher level of stability and consistency compared to other banks. While not as low-risk as Goldman Sachs, JP Morgan Chase's performance indicates effective loan portfolio management and a balanced approach to asset allocation which leads to a consistent consumer confidence
  - There is a negative correlation between consumer sentiment index and total domestic deposit amount for all banks mentioned in this project.
  - The challenging economic conditions seem to have favored the growth and expansion of these larger banks, enabling them to capture a larger market share and attract a greater number of consumers.
  - There are significant differences in bank performance (i.e. bank stock prices) across the consumer confidence groups (low/moderate/high)



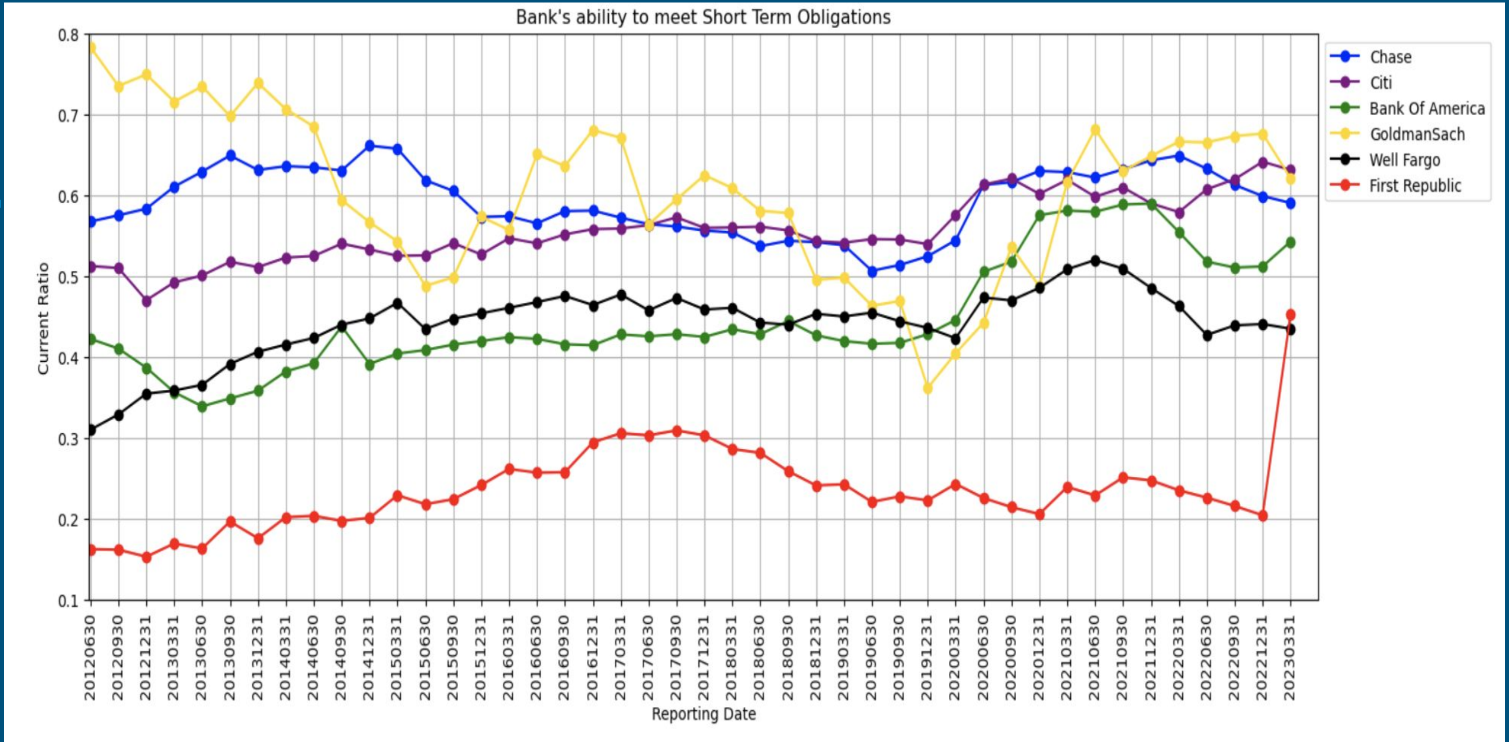
JPMorgan: largest bank and most liquidity.

- 3.2 billion in asset
- Significant amount of excess funds/reserve lent out
- Size and ability to be liquid is reason for bail out of First Republic Bank

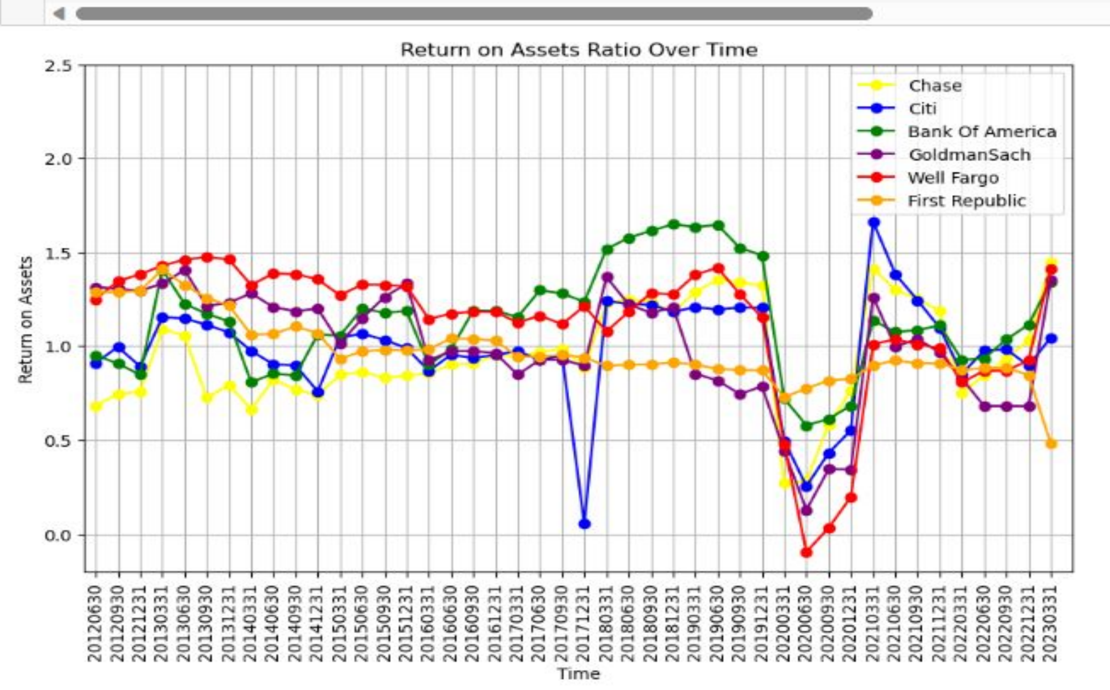
All 5 largest banks have diversified assets, however, first republic's main asset is loans and leases.



- Deposit is the largest liability for all banks.
- Majority of deposit are from US.
- JPMC has largest equity/capital $309 mil vs. $232 mil BOA (2nd largest bank) - equity is another source of fund to bank operations/ not relying on debt



First republic’s ability to meet short term obligations is consistently lower. JPMC compared to peer banks has generally been higher.



Return on Assets

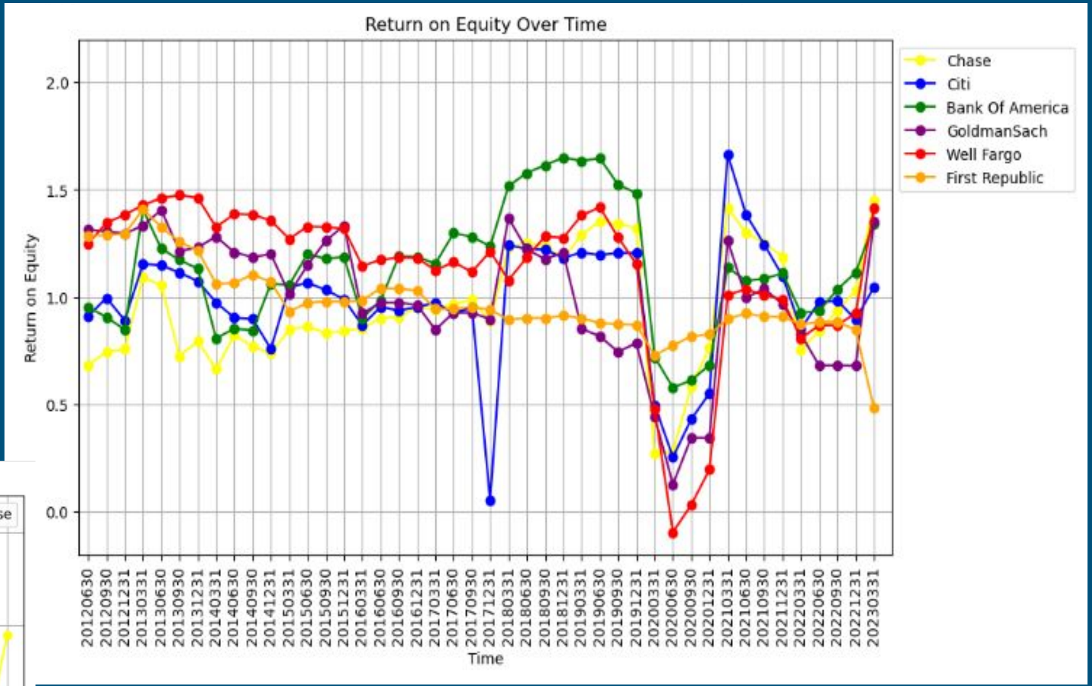
CHASE went from

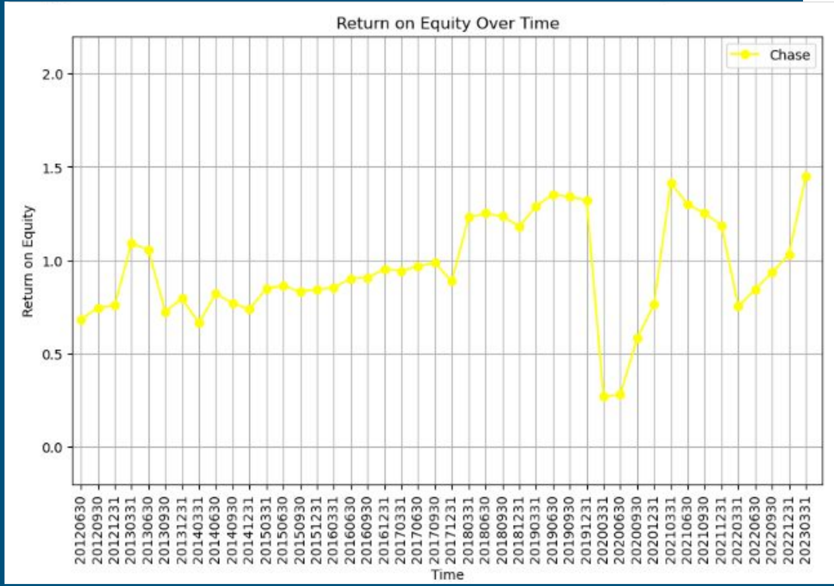
lowest ROA to the 3rd highest ROA.

Chase is a growing bank with smart leadership because Chase learned what's valuable in 2013. Which may have helped them bounce back through 2020 and 2022 due to its steady increase from 2014 - 2017.

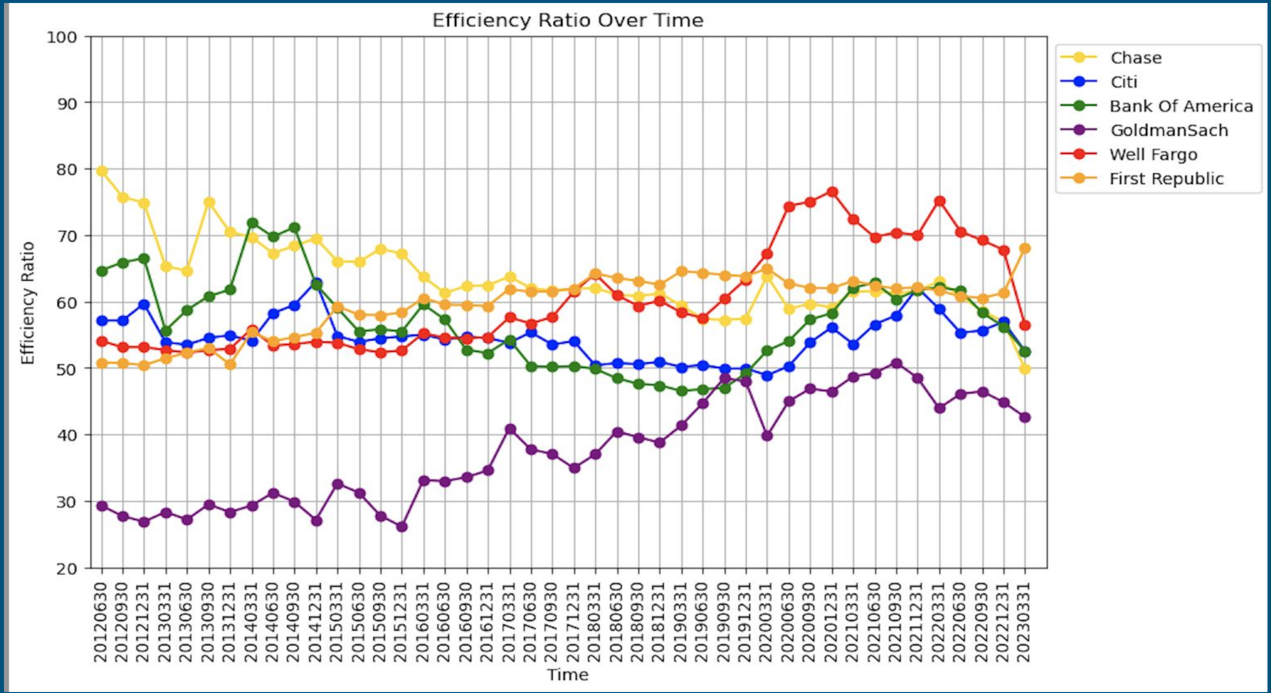
ROE

The return on shareholder investment and capital investment





JP Morgan Chase improved their return on equity roughly by 1% in 2013 then again by 1.2% in 2021. consumers can depend on Chase a little better than most because over time they can tell Chase will do what's best to bring back a return on equity regardless of what disrupts it.



Efficiency ratio = Operating Expense/Income

Chase - Improved efficiency

Citi bank - efficient

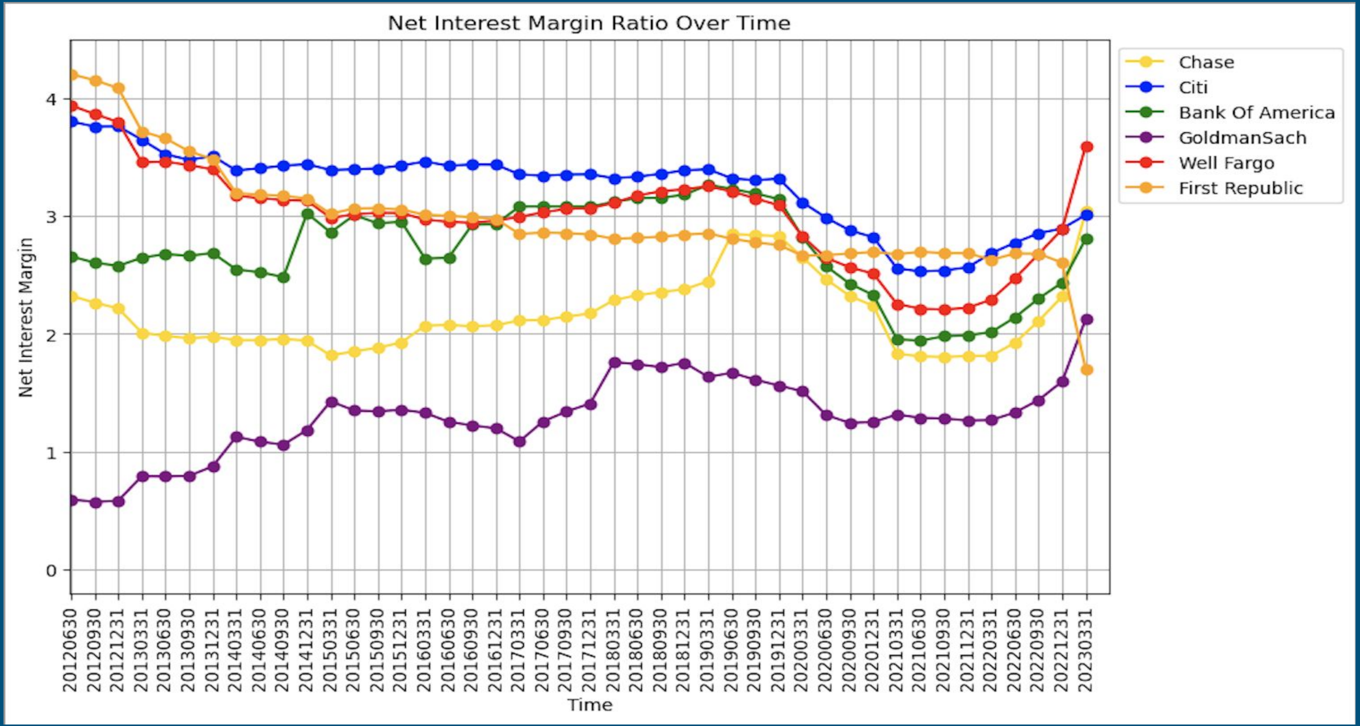
Goldman Sachs - Most efficient

Wells fargo - Least Efficient during 2019 to 2022

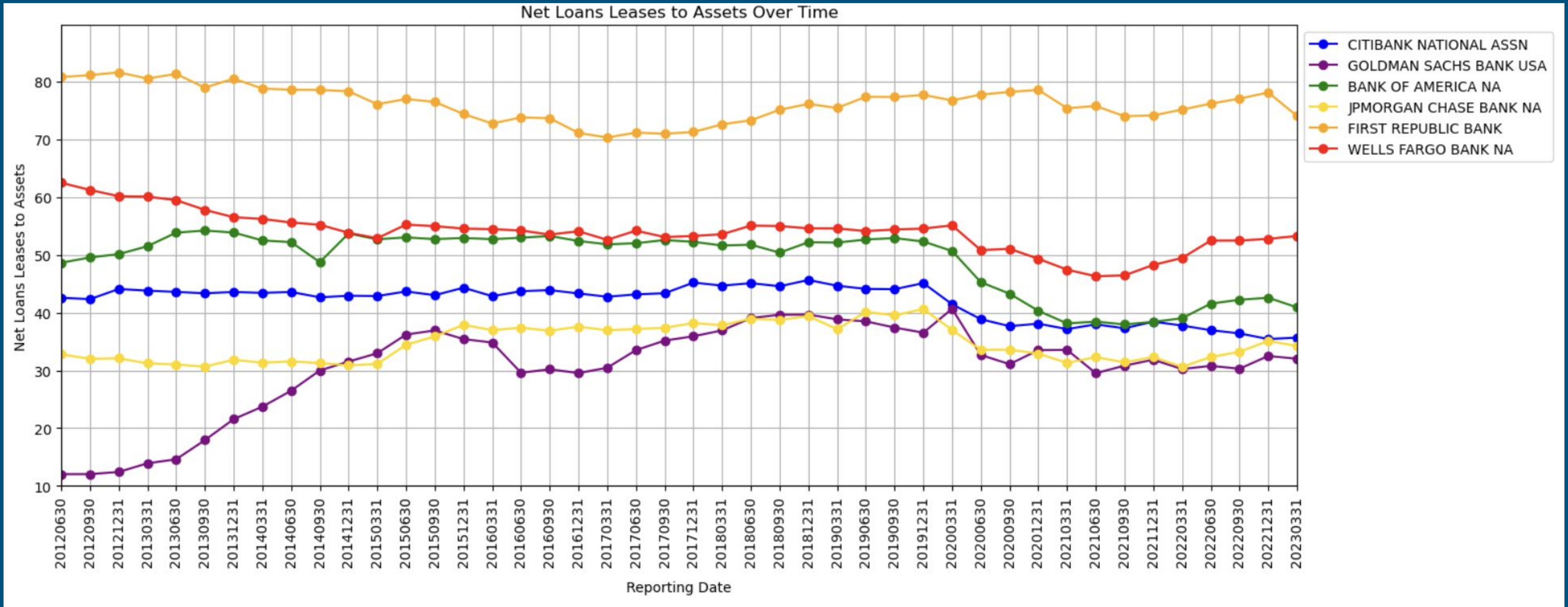
BoA - Improved in efficiency

First Republic - less efficient; most inefficient 2023

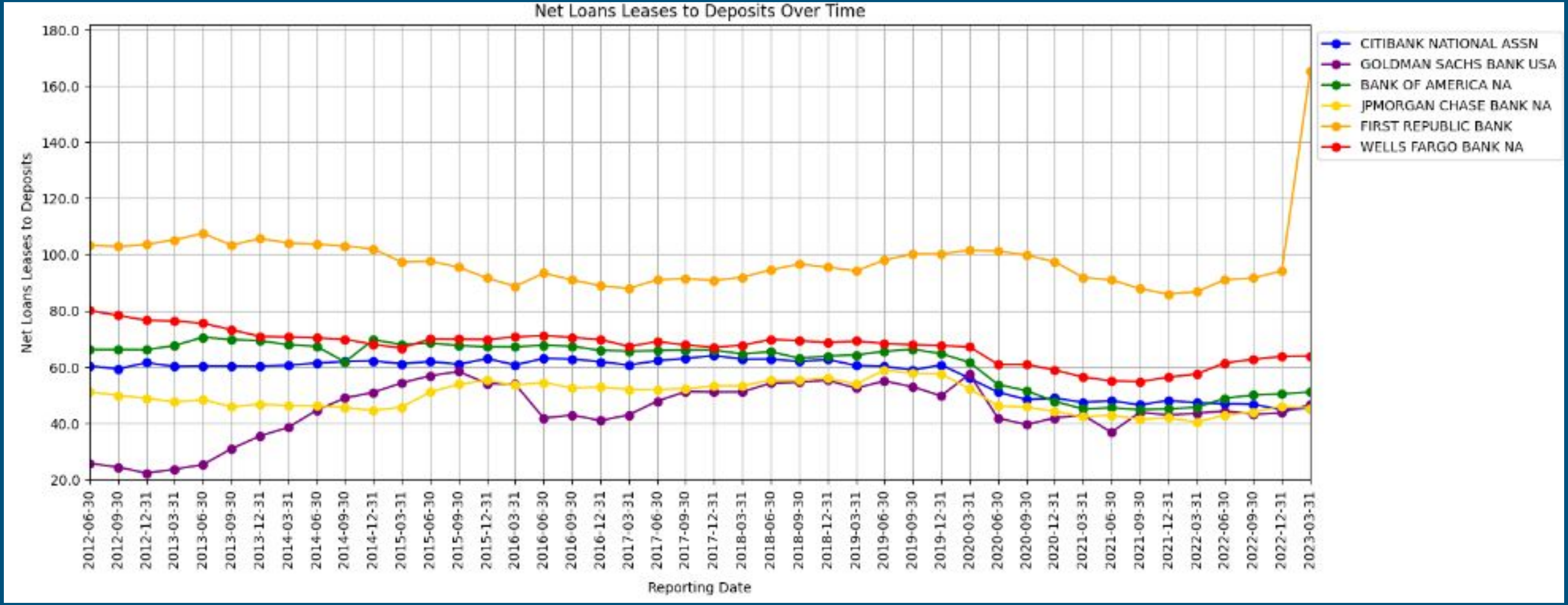
Net Interest Margin



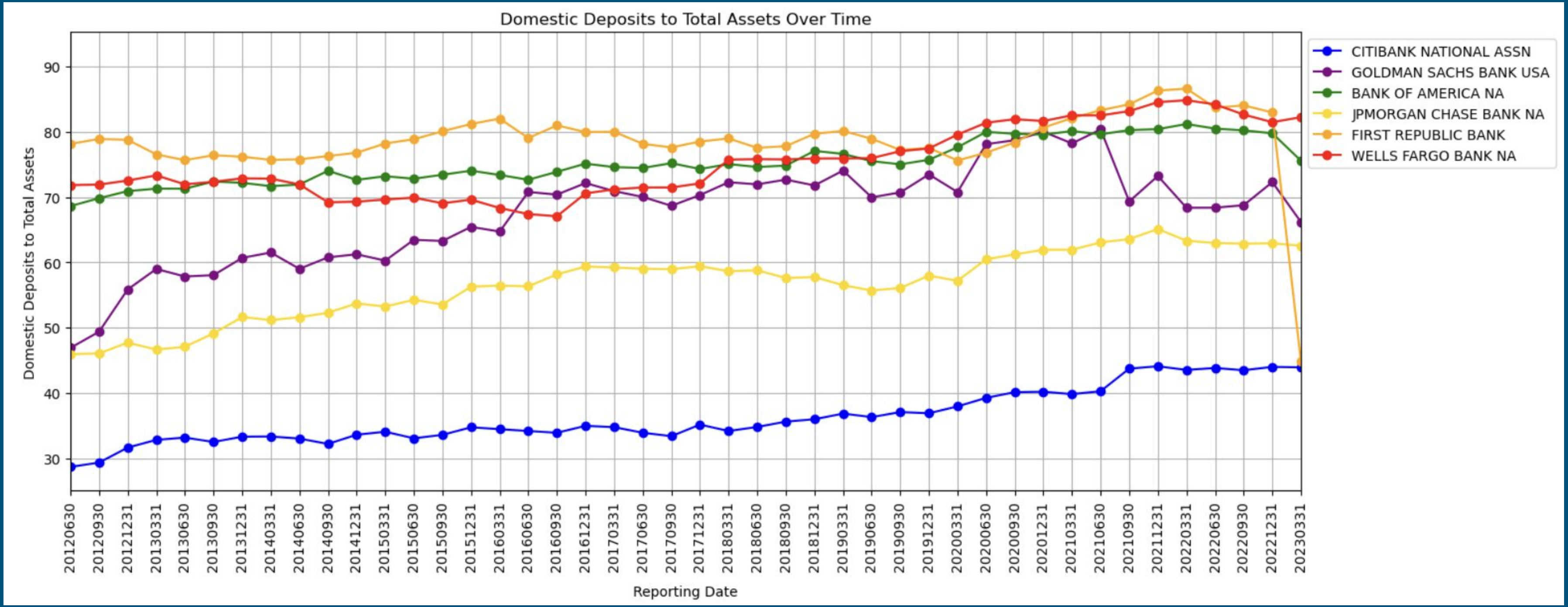
NIM = Interest income received by bank minus interest expense paid to bank's lenders. The higher the NIM the more profitable. Chase's NIM is 3% for quarter ending 03/31/2023. First Republic's NIM is about 1.75% - lowest of the 6 banks.



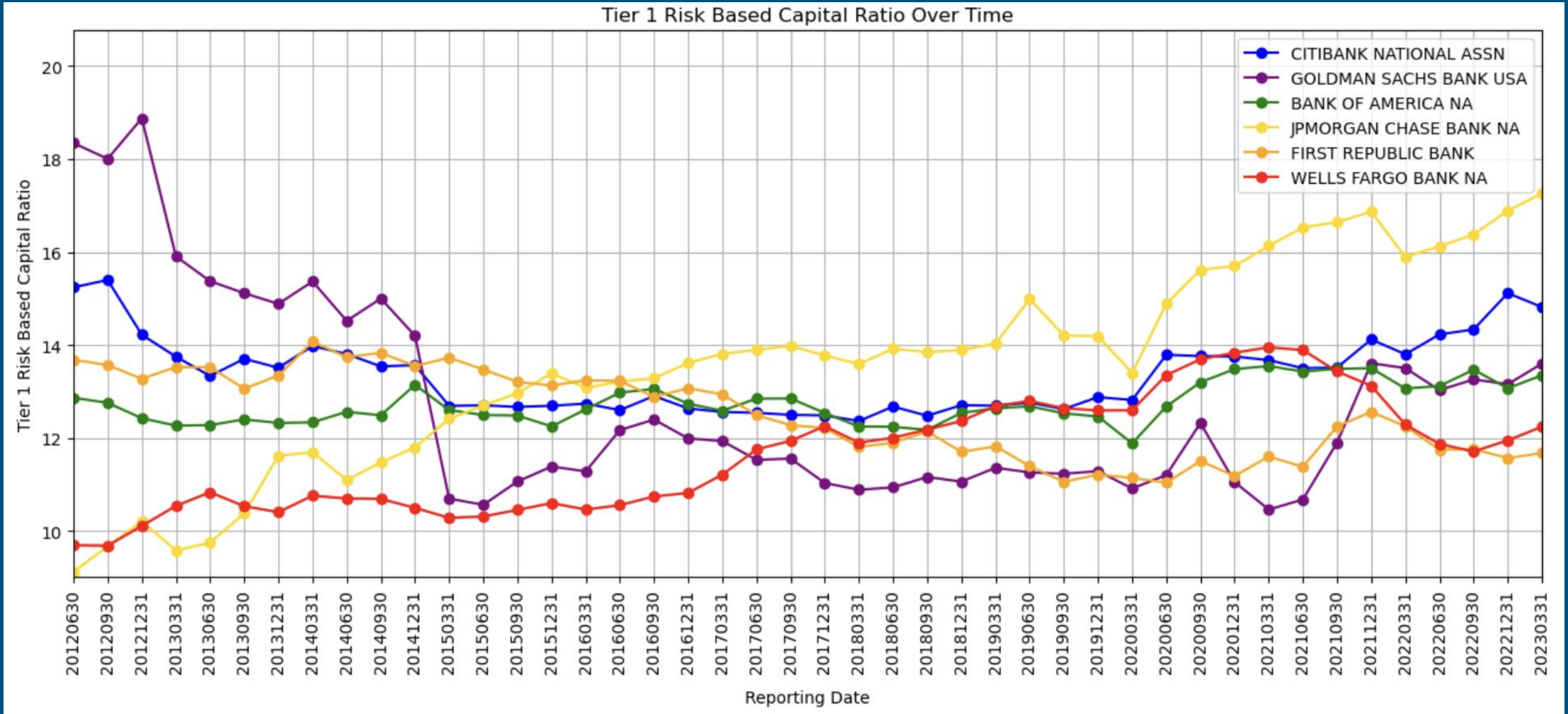
- Net loans and leases to assets indicates the extent to which a bank's assets are tied up in lending activities relative to its total assets.
- First Republic Bank's net loans and leases ratio consistently falls within the range of 70% to 80%, indicating a significantly weaker performance compared to the steady and stable range of 30% to 40% observed in Chase Bank.
- This substantial difference of 133%.



- First Republic Bank emerges as the bank with the highest risk, with the risk reaching its peak in the last quarter of the 2022-2023 financial year
- JP Morgan Chase has effectively managed its loan portfolio in relation to its deposit base, mitigating potential risks associated with lending activities.



- First Republic Bank, decline in the ratio from 83% to 45% during the last quarter, specifically from December 31, 2022, to March 31, 2023, amounting to a remarkable difference of -45.78%.
- JP Morgan Chase, on the other hand, displayed a relatively stable and consistent range of values for Domestic Deposits to Total Assets, primarily fluctuating between 45% to 65%. This suggests that JP Morgan Chase maintained a moderate level of domestic deposits in relation to their total asset



- In 2020 all banks had taken a plunge due to COVID19, even with this plunge Chase made significant progress and emerged as the frontrunner among the competitor banks, achieving a remarkable Tier 1 Risk Based Capital Ratio of 17.0. Through proper risk management practices chase shows a 25.9259% increase while others such as first republic bank shows 8.18182% increase.

Correlation Analysis

- **Consumer confidence**
  - Refers to the degree of optimism or pessimism that individuals have about the overall state of the economy
  - Use Consumer Sentiment Index (CSI) to represent the consumer confidence for this project
  - CSI is used to ascertain how aggressive consumers may be in their spending
- **Indicators of bank performance:**
  - Net Loans Leases: how much does consumer want to spend
  - Total Domestic Deposit: how much does consumer want to save
- **Result**
  - A weak correlation between CSI and Net Loans Leases
  - A negative correlation between CSI and Total Domestic Deposit

Bank	CSI v.s. Net Loans Leases (r-value)	CSI v.s. Total Domestic Deposit (r-value)
JPMorgan	-0.35	-0.55
Bank of America	-0.13	-0.53
Wells Fargo	0.37	-0.19
Goldman Sachs	-0.50	-0.63
Citi Bank	-0.02	-0.62
First Republic	-0.55	-0.52

Correlation Analysis

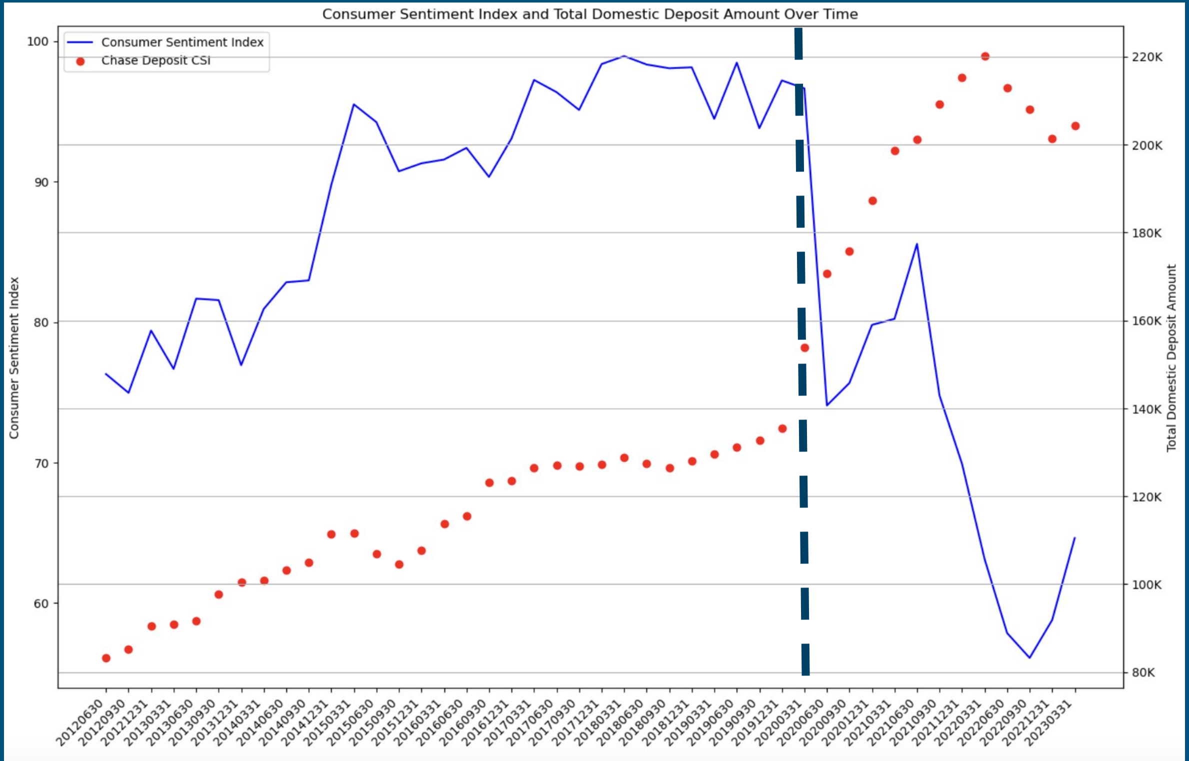
Using 2020 Q1 as cut-off timeline:

Before 2020 Q1:

- A positive correlation between CSI and total domestic deposit amount over time

After 2020 Q1:

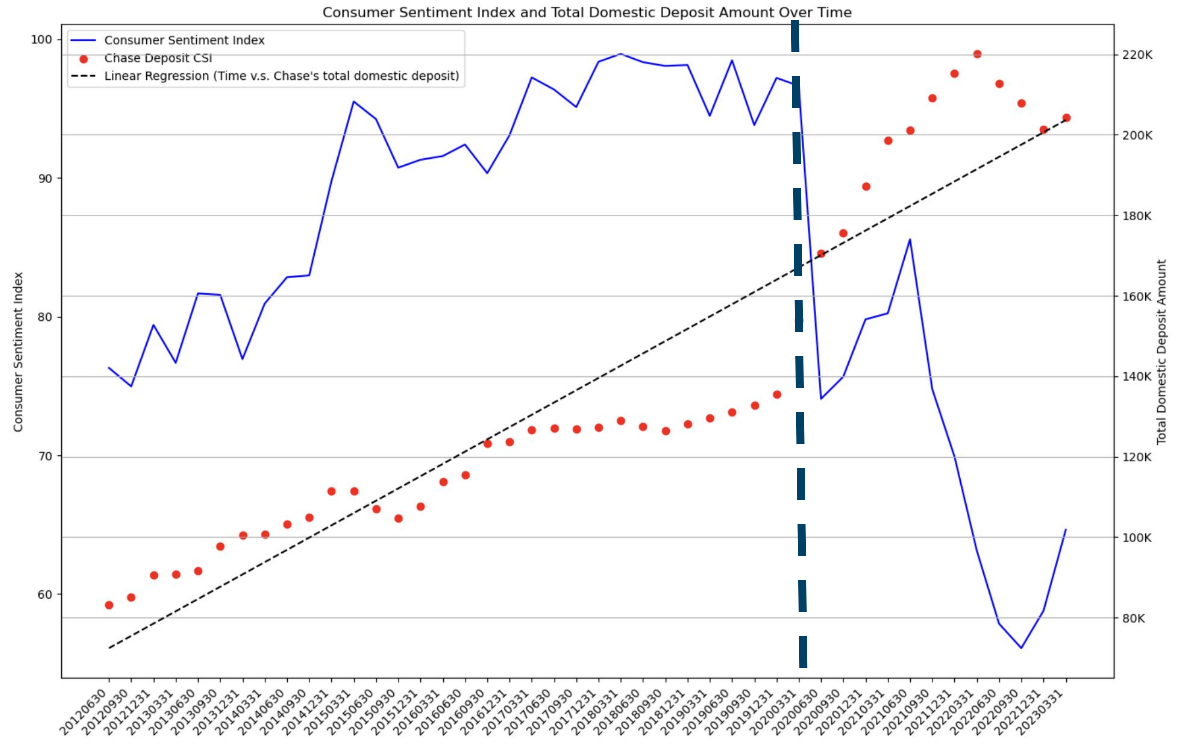
- A negative correlation between CSI and total domestic deposit amount over time
- CSI index for 2022 Q3 slide to 56.1(the lowest in the past ten years)



Correlation Analysis (Linear Regression)

- JPMorgan Chase experienced the highest growth rate in total deposit amount over time compared to all the other banks mentioned in this project.
- The ongoing financial turmoil has provided an advantageous opportunity for larger banks to expand their business even more rapidly.

Bank	Slope Coefficient
JPMorgan	30.5K
Bank of America	24.6K
Wells Fargo	14.5K
Goldman Sachs	6.8K
Citi Bank	8.5K
First Republic	3.3K



Analysis of Variance (ANOVA)

- ***Null and Alternative Hypothesis***

  H0: $\mu1 = \mu2 = \mu3$ (where $\mu1$, $\mu2$, $\mu3$ represent the means of bank performance for low, moderate, and high consumer confidence groups, respectively)

  HA: At least one mean is different from the others.

- **Consumer Confidence Group**
  - Low CSI (<85)
  - Moderate CSI (85-95)
  - High CSI (95-105)
- ***Result:***

  For all five tested banks, the null hypothesis is rejected and there are significant differences in bank performance(i.e. bank stock prices) across the consumer confidence groups.

Significance level: 5%

Degree of Freedom: df1 = 2, df2 = 120

F Critical Value = 3.072

Bank	F-statistic	P-value
JPMorgan	**7.336**	**0.000983**
Bank of America	**8.496**	**0.000353**
Wells Fargo	**23.295**	**2.763e-09**
Goldman Sachs	**10.154**	**8.381e-05**
Citi Bank	**15.348**	**1.147e-06**

Recommendations for Further Study

- Multi regression
  - Interest Rate
  - Inflation rate
- Different indicators of bank performance
  - Income statement
  - Off-balance sheet items
- Different indicators of consumer confidence
  - Unemployment rate
  - Income growth
  - Saving rate