FIT5147: DVP Part -1
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COMPARATIVE STUDY OF BANKING INDUSTRIES OF AUSTRALIA AND INDIA

INTRODUCTION

This scope of this current project is to examine the performances of Banking Industries in Australia and India and draw a comparison between them by taking the top 5 banks of each country. In an era of globalization and interconnected financial markets, understanding the dynamics and performance of banking industries across different countries is paramount. With this in mind, this data visualization project aims to conduct a comparative study of the banking industries of Australia and India. By leveraging data analytics and visualization techniques, we seek to uncover insights into key aspects such as market structure, financial performance, regulatory frameworks, and technological advancements within these two economies.

The main aim of the project is to understand the following-

1. What is the current situation and position of the Banking Industry in Australia and India?
   a. How do both of these industries compare to each other?

2. How are Australian and Indian Banks performing in the stock market and how stable of an investment it would be to buy their shares?
   a. How investing in the banking industry may or may not be advisable.
   b. How are the stocks performing generally?
      We can observe the return distribution to understand this.
   c. How risky is it to invest?
      We can do this by understanding the risk of shares by examining volatility

3. How bank performances may affect interest rates?

MOTIVATION

The main motivation for me is to provide users a user friendly and easy to use interface that gives them a broad understanding of the banking industries in both countries and how they are performing. I, myself am a former Business student who specialised in Finance and has work experience in the Banking sector which made me want to delve into the topic here.

Title: Comparative Study of Banking Industries of Australia and India

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Sheet 1

IDEAS

- Country Maps
- Donut Chart
- Pie Chart
- Line graph
- Histogram
- Box Plots
- Scatter Plots
- Stacked Bar Chart
- Box Plot
- Violin Plot
- Waterfall Chart

FILTER

- Donut Chart
- Scatter Plots
- Stacked Bar Graphs
- Line Graphs
- Box Plots
- Violin Plot

CATEGORIZE

Comparisons
- ↳ Pie Chart
- ↳ Donut Chart
- ↳ Stacked Bar Graph

Trends
- ↳ Line Graphs
- ↳ Histogram

Distribution
- ↳ Box Plot
- ↳ Violin Graph

Relationships
- ↳ Scatter plot

Question

? Do these visualisations capture the performance of banks and depict the same accurately to the user?

COMBINE AND REFINE

- ▶ Figure 1: Biggest Banks by Market Capitalisation
  - ▶ Australian Banks
  - ▶ Indian Banks

- ▶ Figure 2: Bank Performance by financial measure
  - ↳ User to select revenue, profit etc.
  - ▶ Australian Banks
  - ▶ Indian Banks

- ▶ Figure 3: Stock Performance by country
  - ▶ Monthly
  - ▶ Yearly

- ▶ Figure 4: Distribution of returns by country
  - ▶ Monthly
  - ▶ Yearly

- ▶ Figure 5: Relationship between Interest rate
  - ▶ Australia
  - ▶ India

INTRODUCTION
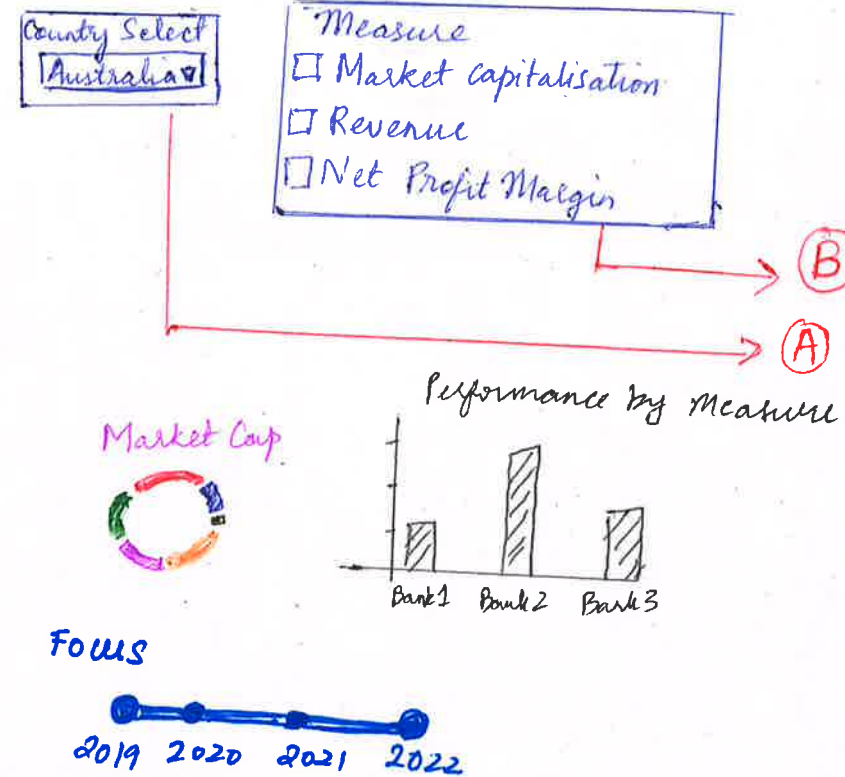
This project aims to provide users an interactive and easy understanding of the stock performances of top banks in Australia and India.

Layout.

Country Select
Australia ▽

Measure
☐ Market capitalisation
☐ Revenue
☐ Net Profit Margin

→ Ⓑ
→ Ⓐ

Market Cap.

Performance by Measure

Bank 1 Bank 2 Bank 3

Focus

2019 2020 2021 2022

○ User slides to year required to understand Performance in that particular year.

Operations

Ⓐ User chooses country

Ⓑ User chooses the measure to depict performance

Slider for user to choose desired year overview

PROs

> User interactive
> Comprehensive overview of Banking Industry.
> Shows the overall market capitalisation and other measurables for banks by country

CONs

- More visualisations like country map for location of branches would be appealing but no data source of same found.

OUTPUT:

- Donut chart / Pie chart
- Bar chart
- Stacked bar chart
- Histogram.

Question
↳ What is the general picture of the Banking Industry in each country?

The interface is fairly user-friendly and intuitive consisting of the following:

↳ Drop down menu
The user can select which which country to see top banks of.

↳ Check boxes
User can select from options to measure success factors of various banks

↳ Slider
User can slide to year they want to see

This will give the user a snapshot of Top Banks performances in the desired year range.

Possible Graphs : Pie chart, Donut Chart, line graphs, Scatter Plot, Histogram

Select Country

Australia ▽
India

Ⓐ Allows user to select country

Ⓑ Allows user to select which frequency of time they would like to see performance.

Select Time Period

☐ yearly
☐ monthly

This section depicts bank performances by calculating returns using below formula:

$$R = \frac{P_1 - P_0}{P_0}$$

It will then give the user an output of a line graph based on the user inputs.

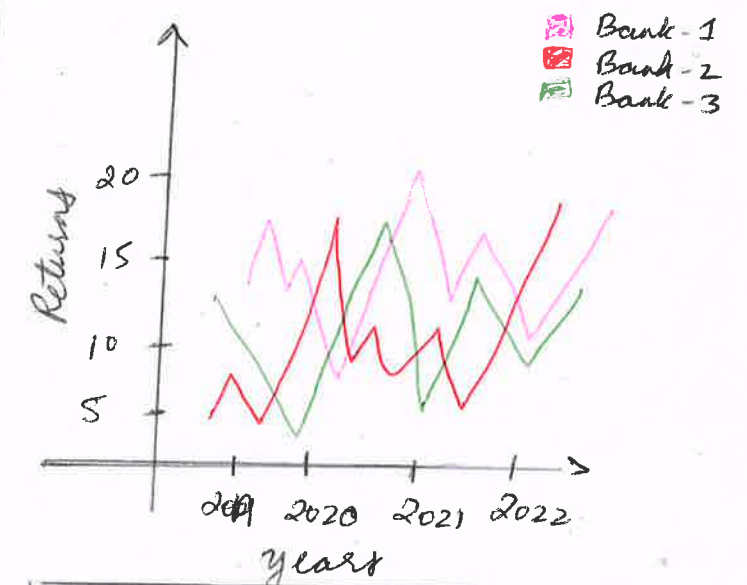Graph will also include details where the user hovers the cursor over the graph —
↳ Bank name
↳ Returns

Possible Graphs
- Histogram, Bargraph
- Scatter Plot
- Bubble chart
- Line Chart

Questions
* Does this section capture the overview of the banking sector in each country properly? in terms of performance?

🟪 Bank - 1
🟥 Bank - 2
🟩 Bank - 3

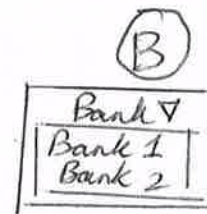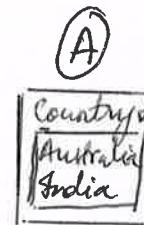(Line graph: Returns vs Years — 2019, 2020, 2021, 2022)

OUTPUT

Line chart depicting bank performance differentiated by colour.

PROs

Visually Intuitive diagram allowing ease of understanding by graphing performance side by side.

CONs

User would require little financial knowledge to draw best conclusion

Ⓐ
Country ▽
Australia
India

Ⓑ
Bank ▽
Bank 1
Bank 2

Operation

Ⓐ Drop Down Menu for user to select Country

Ⓑ Drop down menu for user to select Bank

This section focuses on providing the user with an understanding of how volatile the stocks of the selected bank is performing.
Volatility is important to understand the price fluctuations and therefore the risk of holding that particular stock.

Formula

$$\sigma_n^2 = \frac{\sum (R_t - \bar{R}_t)^2}{n-1}$$

Possible Graphs
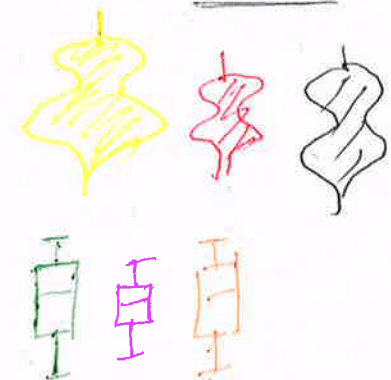
- Violin graph
- Box Plot
- Scatter Plot
- Histogram

PROs

↳ Apt diagrams to explain performance distribution

CONs

↳ Have to define current/ appropriate time periods within which to draw the diagram.
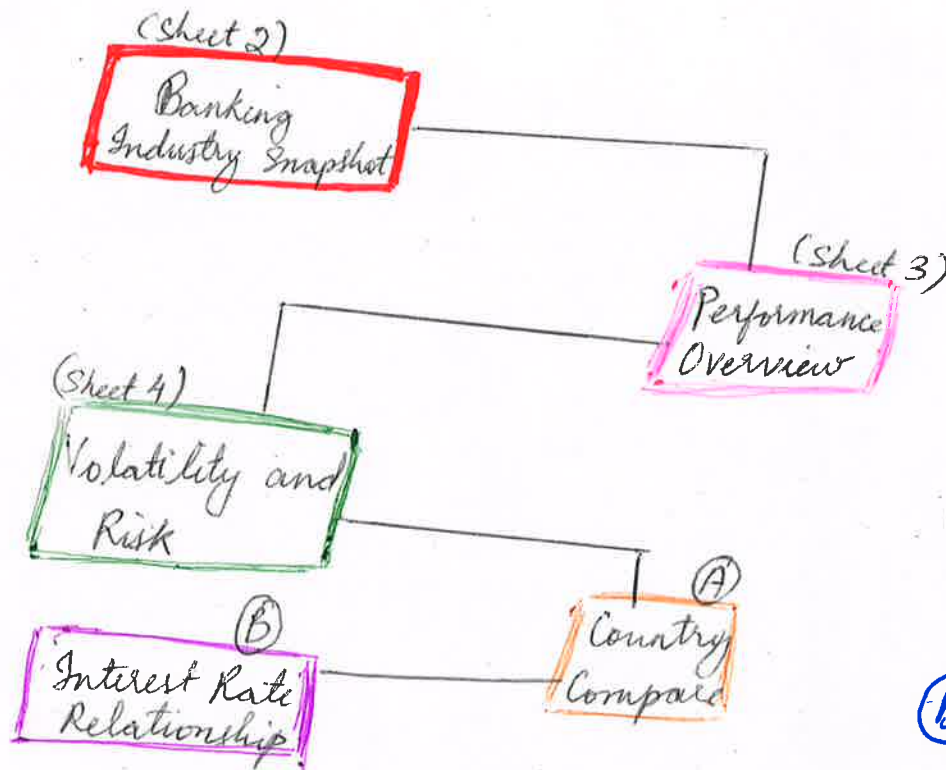
OUTPUT

Violin graph and box plots both are good visualisations to depict the distribution of stock performance.

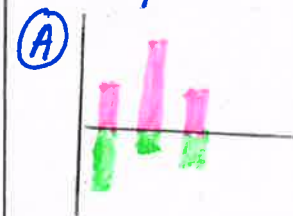- Interactive user inputs to get the diagram for chosen bank.

DASHBOARD LAYOUT

(Sheet 2)
Banking Industry Snapshot

(Sheet 3)
Performance Overview

(Sheet 4)
Volatility and Risk

(B) **Interest Rate Relationship**

(A) Country Compare

Operations : User selects option in which they will explore selected section more in depth.

(A) country compare will show the user the final conclusion of the comparative study

(B) Interest Rate Relationship : will depict the relationship between performance and rates.

Output

(A) Stacked Bar Graph

(B) Scatterplot

Country &
Australia
India

PROs

- Intuitive diagram easy for users to understand.
- Interactive user dashboard.

Discussion

Stacked bar graph to show comparison between countries banking sector performance. Scatter Plot depicts relationship better after a regression analysis to determine the existence of a significant relationship

MOTIVATION

The major motivation behind this project is to help people understand the stock performance of the banking sector in India and Australia. I have a vested interest, having been a Finance student with experience in Banking.

Questions

A. How do the banking industries of both countries compare?

B. Is there a relationship between interest rates and bank performance

Does the dashboard make information more accessible?