



BANK - LOAN AND RISK ANALYSIS



OBJECTIVE

To analyze customer data and financial behavior to identify patterns of loan defaults, with the ultimate goal of minimizing financial risk to the bank.

The aim is to derive actionable insights and present critical KPIs to stakeholders for better decision-making.

FINANCIAL INFO IN DATA

Estimated Income: How much money the client is estimated to earn annually.

Amount of Credit Cards: Number of credit cards the client owns.

Credit Card Balance: Total outstanding balance on the client's credit cards.

Bank Loans: Total amount of loans taken from the bank.

Bank Deposits: Total deposits client has made in bank accounts.

Checking Accounts: Amount held in checking/current accounts (used for daily transactions).

Saving Accounts: Amount held in savings accounts (usually for saving money long-term).

Foreign Currency Account: Amount stored in accounts with foreign currencies.

Assets and Risk info

- Properties Owned:** Number of properties (like houses, buildings) the client owns.
- Risk Weighting:** How risky the bank considers this client. A higher number = more risk for the bank.

Mapped IDs for Categorical Values

BRId (Banking Relationship):

- 1: Retail – Common everyday people like you and me.
- 2: Institutional – Big companies or organizations.
- 3: Private Bank – Very wealthy clients with special treatment.
- 4: Commercial – Business-related banking (small/medium businesses).

GenderId:

- 1: Male
- 2: Female

IAId (Investment Advisor): An ID representing which investment advisor is handling the client. You also have a lookup for names like Victor Dean, Jeremy Porter, etc.

COLUMNS CREATED

- Creating a new column **Engagement Days** which tells us how many days the client spent from the date of joining in banks

Engagement days = DATEDIFF(Banking_Clients[Joined Bank], TODAY(), DAY)

- Creating a new column **Engagement Timeframe** which tells about the time line of the clients in banks

**Engagement timeframe = SWITCH(TRUE(), Banking_Clients[Engagement days] < 365, "< 1 year",
Banking_Clients[Engagement days] < 1825, "< 5 Years",
Banking_Clients[Engagement days] < 3650, "< 10 Years",
Banking_Clients[Engagement days] < 7300, "< 20 Years",
> 20 Years")**

- Creating bins for the Estimated Income < 100000 as low and <300000 as Mid with the column named as **Income Band**.
- Creating a new column named as **Processing Fees** for the column Fee Structure like if fee structure is high then processing fee would be 0.05

**Processing Fee = SWITCH(Banking_Clients[Fee Structure], "High", 0.05,
"Mid", 0.03,
"Low", 0.01, 0)**



BANKING DASHBOARD

LOAN DEPOSIT

DEPOSIT ANALYSIS

SUMMARY

2013

2014

2018

2019

2020

2021

Female

Male

Total Clients

2940



Total Loan

\$4.38bn



Total Deposit

\$3.77bn



Total Fees

\$158.2M



Total CC Amount

\$9.53M



Saving Account Amount

\$698.7M



Banking Relationship

Commercial Institutional Private Bank Retail

Gender

Female Male

Investment Advisor

All

Nationality

All

Total Loan

\$4.38bn 

Bank Loan

\$1.77bn 

Business Lending

\$2.6bn 

Credit Cards

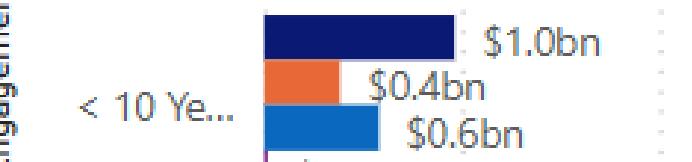
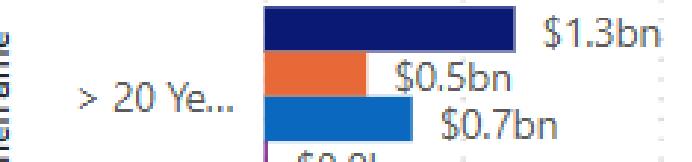
4391 

Bank Loan by Banking Relationship

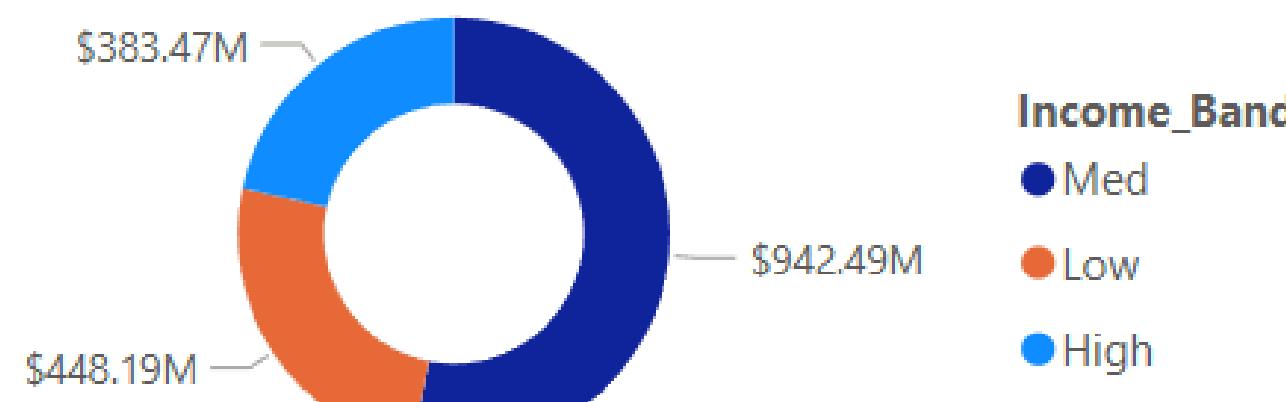


Total_Loan, Sum of Bank Loans, Sum of Business Lending and Total CC balance ...

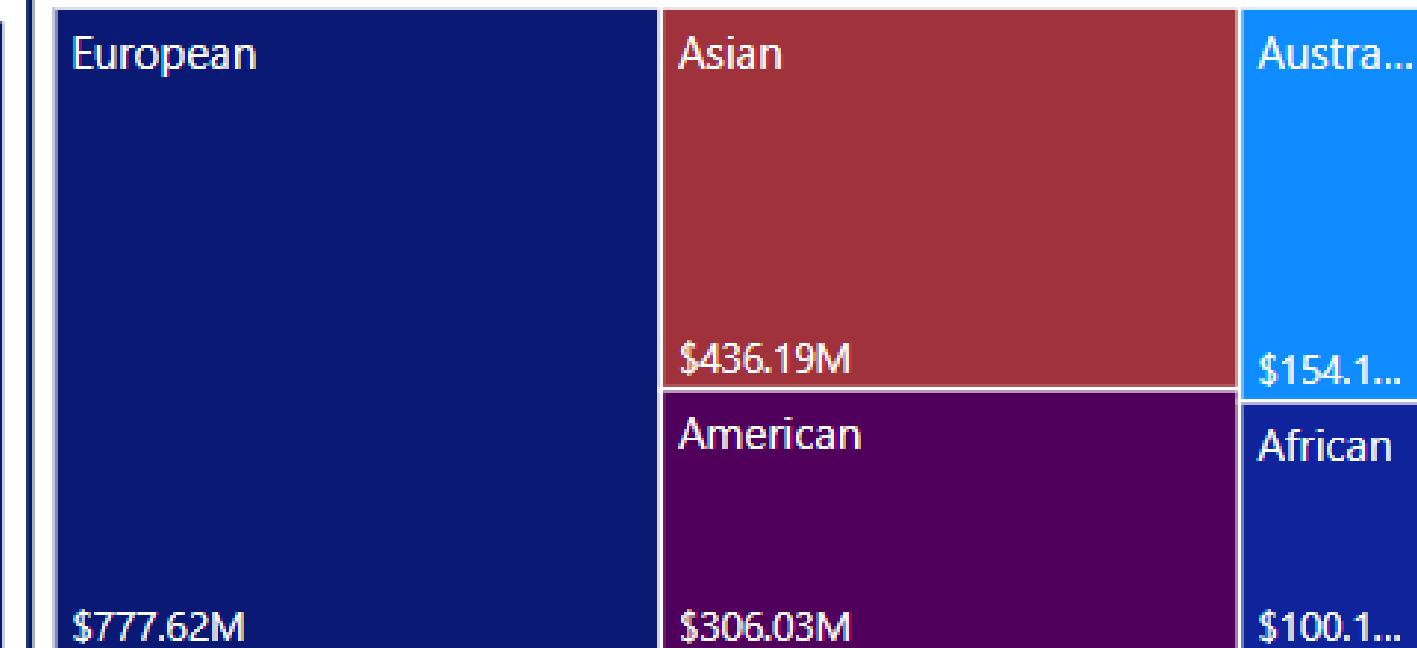
Total_Loan Sum of Bank Loans



Bank Loan by Income_Band



Bank Loan by Nationality



\$0bn \$1bn \$2bn
Total_Loan, Sum of Bank L...

Banking Relationship

Commercial Institutional Private Bank Retail

Gender

Female Male

Investment Advisor

All

Nationality

All

Total Deposit

\$3.77bn 

Bank Deposit

\$2.01bn 

Foreign Currency Amount

\$89.65M 

Saving Account Amount

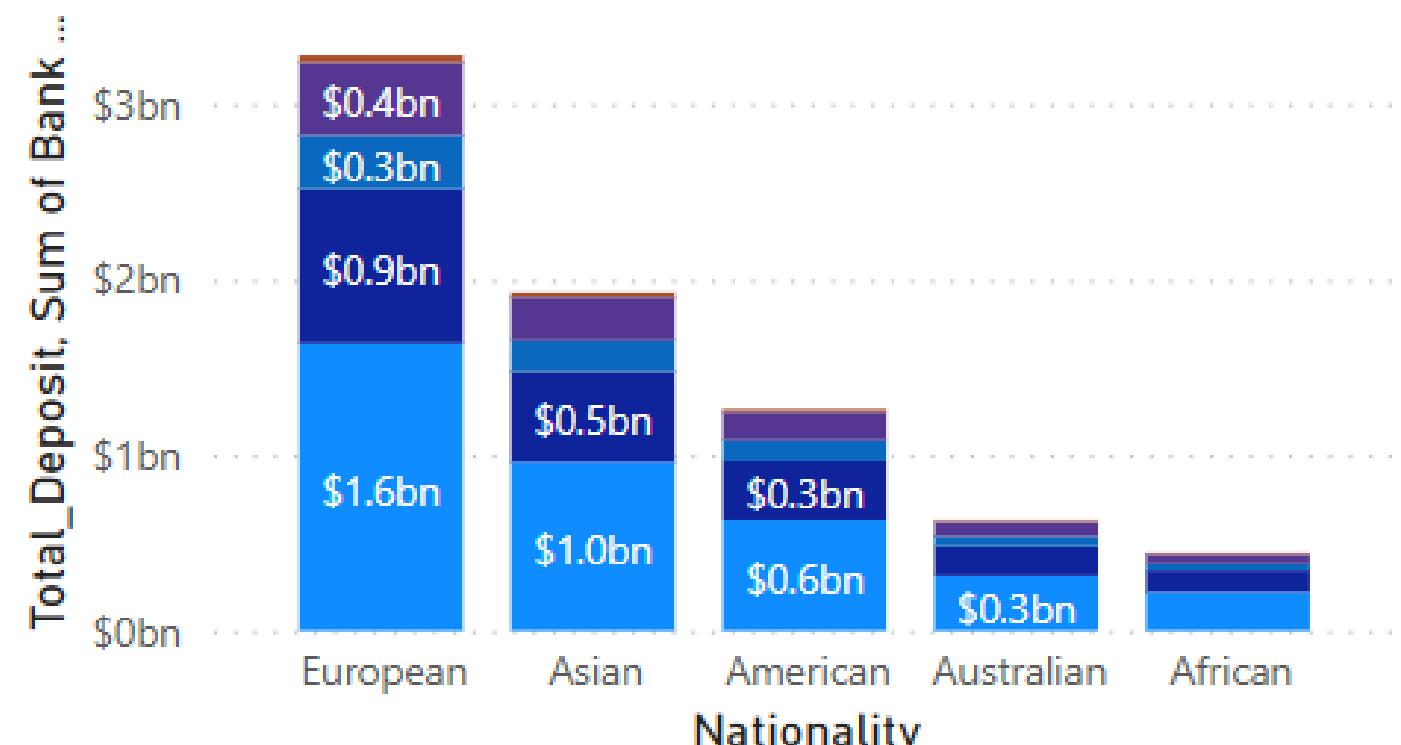
\$698.7M 

Checking Account Amount

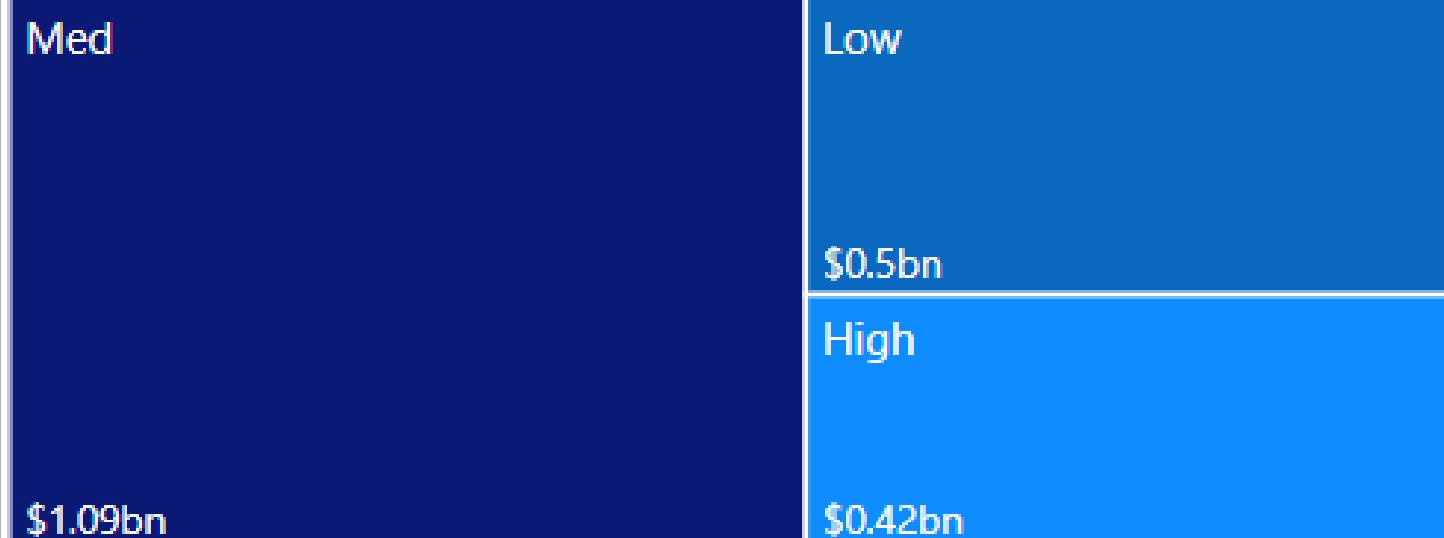
\$963M 

Total_Deposit, Sum of Bank Deposits, Sum of Saving Accounts, Sum of Checking Accounts and Sum of Foreign Currency Account by Nationality

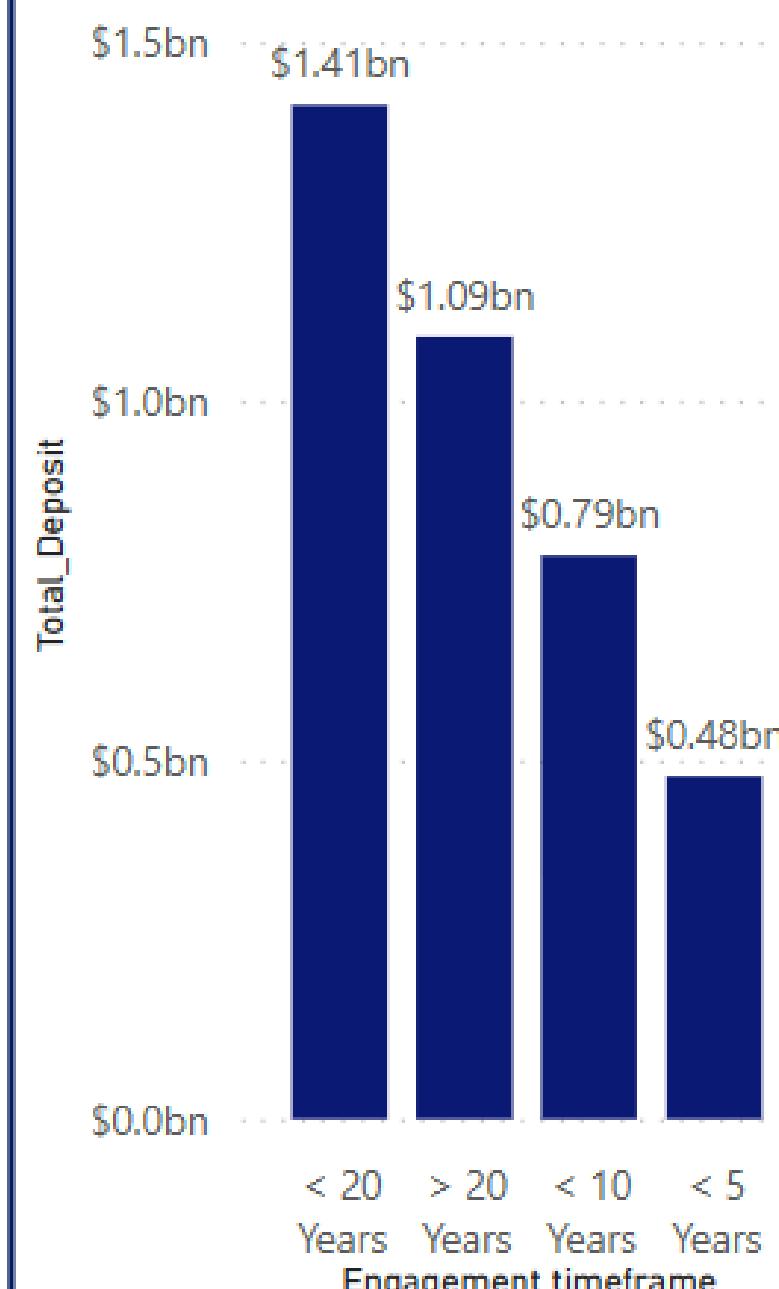
● Total_Dep... ● Sum of ... ● Sum of S... ● Sum of ... ● Sum of ...



Bank Deposit by Income Band



Total_Deposit by Engagement timeframe



Banking Relationship

Commercial
Institutional
Private Bank
Retail

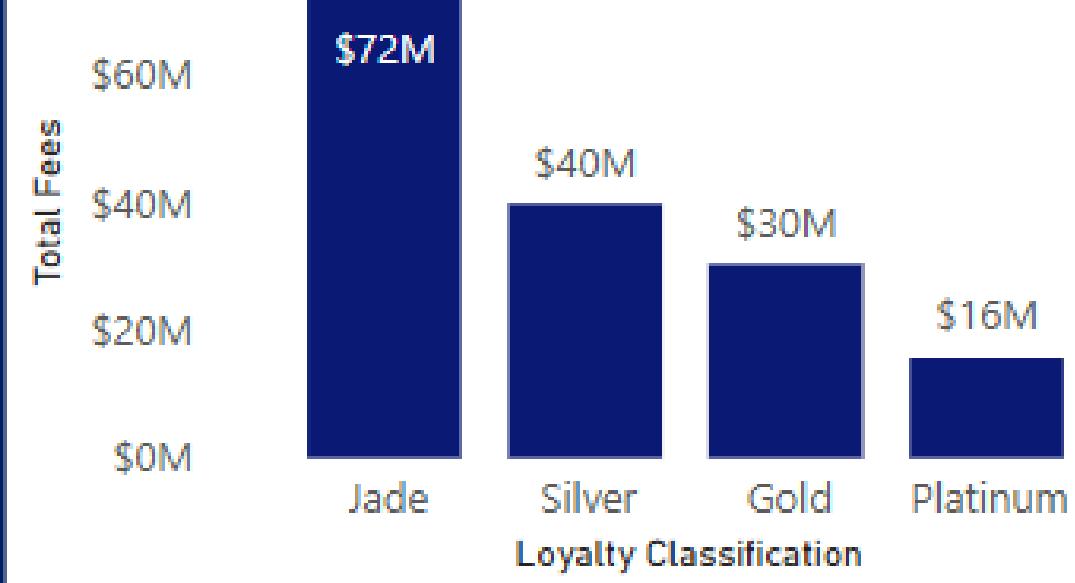
Gender

Female
Male

Investment Advisor

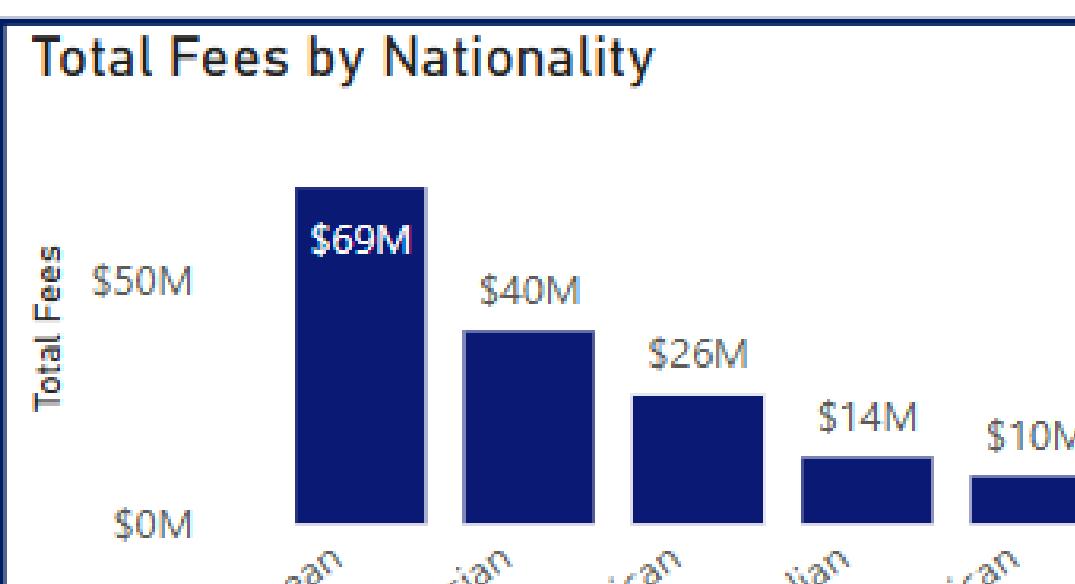
All
▼

Total Fees by Loyalty Classification



Loyalty Classification	Total Fees
Jade	\$72M
Silver	\$40M
Gold	\$30M
Platinum	\$16M

Total Fees by Nationality



Nationality	Total Fees
European	\$69M
Asian	\$40M
American	\$26M
Australian	\$14M
African	\$10M

Name	Investment Advisor	Engagement Length	Total Fees	CC amount	Total CC balance	Savings Account
Aaron Bryant	Victor Dean	\$5,915	\$11,672.1	1	\$2,942.94	\$368,275.4
Aaron Burke	Juan Ramirez	\$4,001	\$28,547.5	1	\$1,094.80	\$240,098.9
Aaron Cook	Nicholas Ward	\$9,383	\$11,561.3	2	\$513.92	\$64,558.9
Aaron Day	Sean Vasquez	\$1,917	\$5,856.7	1	\$1,895.06	\$64,095.4
Aaron Edwards	Carl Anderson	\$9,133	\$97,537.5	2	\$7,708.61	\$284,659.4
Aaron Evans	Carl Anderson	\$2,952	\$12,065.6	2	\$2,530.84	\$301,532.9
Aaron Ferguson	Eric Shaw	\$9,338	\$207,561.1	3	\$9,442.30	\$211,172.2
Aaron George	Gregory Boyd	\$2,833	\$173,481.2	1	\$6,524.49	\$789,564.2
Aaron Gray	Ernest Knight	\$8,380	\$2,366.2	1	\$2,830.87	\$60,967.2
Aaron Harvey	Ryan Taylor	\$3,687	\$49,653.8	2	\$1,095.09	\$221,230.6
Aaron Hawkins	Victor Dean	\$1,909	\$12,449.3	1	\$412.37	\$280,225.2
Aaron Jordan	Ernest Knight	\$3,867	\$28,229.0	1	\$2,206.68	\$170,659.5
Aaron Marshall	Victor Dean	\$4,478	\$24,897.1	1	\$4,458.61	\$133,711.1
Aaron Palmer	Victor Rogers	\$1,617	\$65,847.5	1	\$1,489.87	\$410,431.3
Aaron Reynolds	Jeremy Porter	\$9,113	\$16,028.1	1	\$1,344.71	\$64,460.4
Aaron Rice	Carl Anderson	\$3,061	\$30,476.6	1	\$1,265.37	\$56,208.8
Aaron Russell	Carl Anderson	\$2,284	\$43,944.3	1	\$3,129.72	\$9,006.1
Aaron Russell	Nicholas Ward	\$7,702	\$36,488.7	3	\$1,400.00	\$337,207.5
Aaron Simpson	Joe Carroll	\$4,154	\$13,194.2	2	\$1,184.02	\$127,049.2

Total **\$16,082,993** **\$158,192,196.3** **4391** **\$9,528,620.34** **\$698,725,060.3**

KEY PERFORMANCE INDICATORS (KPIS)

Total Clients

2940



Total Loan

\$4bn



Bank Loan

\$1.8bn



Total Deposit

\$3.77bn



Total Fees

\$158.2M



Bank Deposit

\$2.01bn



KEY INSIGHTS

Loan Distribution by Client Category

- Private Bank (Very wealthy clients with special treatment) clients hold the highest average bank loan exposure.

Loan vs Deposit Relationship

- Loan-to-Deposit Ratio is 116.2%
- Deposit-to-Loan Ratio is 86.1%, This is below 100%, meaning the bank is lending more than it has in deposits.

Nationality-wise Loan Insights

European clients have the highest average loan amount and the largest share of total deposits and fees.

Income Band Analysis

- Medium-income clients hold the largest loan volume, while low-income clients sometimes show elevated borrowing in certain segments (e.g., business lending), suggesting stress in their financial behavior.
- Low-income clients have borrowed \$653M in business loans but have an income of only \$66M.

KEY INSIGHTS

Client Tenure and Loans

Clients who have been with the bank for a longer time (more than 5 years) usually have:

- Higher loan amounts
- Higher deposit balances
- This shows they trust the bank and are more financially involved.

New clients (with the bank for less than 5 years):

- Have moderate loan balances
- But usually maintain lower deposit amounts

Long-time clients are more loyal and financially active. To grow their business and reduce customer churn, the bank should engage newer clients with better services, offers, and financial guidance to help them grow into high-value relationships over time.

KEY INSIGHTS

Fees Analysis by Loyalty Classification

- Clients in the Jade loyalty tier are generating the highest fees – almost twice as much as those in Silver or Gold tiers.
- Jade clients are likely using more premium or complex banking services, which come with higher account and service charges.
- Medium-income clients are generating the highest total fees: **\$85 million**
- High-income clients generate the least: **\$34 million**

KEY RISK INDICATORS

Credit Card Balance: High balances may indicate over-leverage and potential inability to repay loans.

Number of Credit Cards: Too many cards can increase financial stress and the chance of default.

Bank Loan + Business Lending Amounts: Higher combined loans without matching deposits or income raise red flags.

Estimated Income vs Loan Exposure: Clients with low income but high borrowing are at higher risk of default.

Engagement Tenure: New clients have less history, while long-tenure clients with consistent deposits are lower risk.

Risk Weighting: A higher number means the client is seen as more likely to cause a financial loss (like not repaying a loan).

RISKS AND REDUCTION PLANS

Risk Area: High-Income & Private Bank Clients + Platinum Loyalty Tier

What's Happening:

- These clients hold large loan amounts, but maintain low deposit balances with the bank.
- This creates a concentration risk – if even a few of these high-value clients default, the bank has limited fallback liquidity to recover the loss.
- Particularly, Platinum clients show the highest Loan-to-Deposit Ratio (120.9%), meaning the bank is lending more than what it holds in their deposits.
- Their total deposits are also the lowest among all loyalty tiers, further amplifying risk.

Recommendations

- Perform more rigorous verification of income, assets, and repayment ability before loan approvals.
- Secure large loans with proof of property, investments, or other high-value assets.
- Suggest clients deposit their monthly salary directly into their bank account.
- Due to their high LDR(Loan-to-Deposit Ratio) check their ability to repay more often, avoid giving risky new loans, and ask them to keep more money (deposits) in their account.

RISKS AND REDUCTION PLANS

Income-Based Lending Patterns

What's Happening:

- Medium-income clients are taking the highest total loans and also show strong deposit activity.
- Low-income clients, especially in business lending, are borrowing much more than they earn – a major warning sign
- The bank may be extending too much credit to clients in the low and medium-income groups, increasing the risk of non-repayment.
- Low-income clients borrowed \$653M in business loans, but their income is only \$66M – almost 10x more borrowing than income.

Recommendations

- Before giving loans to low and medium-income clients, make sure they can really afford to repay. Look closely at their income and expenses.
- Find out why low-income clients are borrowing so much for business. Maybe set borrowing limits or offer other kinds of support instead.
- Medium-Income Clients are active with their money. Give them special offers, rewards, or flexible loan plans to keep them engaged and earning more for the bank.

RISKS AND REDUCTION PLANS

Engagement Based

- Longer-engaged clients (<20 years) contribute most significantly to loans and deposits.
- They usually take bigger loans and keep more money (deposits) in the bank. This increases the bank's revenue through interest and fees.

Recommendations

- Avoid offering too many top-up loans just because they're long-time clients. Base it on current repayment ability.
- Periodically review their financial health to make sure they can still manage their loans.
- Give bonuses or better interest rates if they keep more money in the bank.

Expand Non-European Segments

What's Happening:

- European clients currently hold the largest share of both loans and deposits in the bank. While they may seem reliable, putting too much focus on one region can be risky.
- If a large part of the bank's business is tied to European clients, any regional issue (like a recession or war) could heavily affect the bank.
- Australians and Africans have low engagement

RISKS AND REDUCTION PLANS

Recommendations

- Targeting other regions like Africa, Australia, or Asia.
- Creating localised financial products for different geographies.
- Promoting loans and deposit schemes tailored to those clients.

Fee Strategy Optimization

What's Happening:

- Jade clients are paying the highest fees, nearly double compared to Silver or Gold clients. This is likely because they use premium or complex banking services.
- If fees feel too high without matching service quality, these valuable clients may feel overcharged and may reduce their engagement or leave the bank.
- High-income clients are contributing the least in total banking fees – despite holding significant wealth and loans.

Why This Happens:

Make fewer but high-value transactions, which don't trigger frequent service charges.

They receive premium services

Banks aim to retain them by offering perks and avoiding friction.

RISKS AND REDUCTION PLANS

How They Help the Bank:

- High Loan Volumes: They bring in interest revenue through large loan amounts.
- Strong Relationship Value: Often have longer tenure and higher engagement.
- Prestige clients enhance the bank's reputation and trust appeal.

CONCLUSION

This comprehensive risk analysis highlights key segments and behaviors that could potentially expose the bank to financial risk. By adopting the recommendations outlined above, the bank can better manage its credit exposure, diversify its portfolio, and ensure long-term financial stability.

