

AI-Driven Banking Risk & Loan Performance Analytics Dashboard

Developing a comprehensive understanding of risk analytics in banking and financial services to minimize the risk of losing money while lending to customers through data-driven decision making.



CHALLENGE

The Problem We're Solving

Banks face a critical challenge: how to make informed lending decisions that minimize financial risk while serving customers effectively. Traditional methods often lack the data-driven insights needed to accurately assess an applicant's likelihood of loan repayment.

Our solution leverages Power BI's latest tools to create interactive dashboards that analyze applicant profiles comprehensively. These dashboards enable banks to make confident approval decisions based on concrete data patterns and risk indicators, transforming raw banking data into actionable intelligence.

Key Capabilities

- Real-time risk assessment
- Applicant profile analysis
- Data-driven loan decisions
- Comprehensive client insights

Understanding Our Dataset

The foundation of our risk analytics system is a comprehensive dataset containing detailed bank and client information. This multi-table structure provides a 360-degree view of banking relationships and client profiles.

Banking Relationship

Client-bank connection details and account types

Client-Banking

Transaction history and engagement metrics

Demographics

Gender, location, and personal information

Investment Advisor

Advisory relationships and guidance data

Period

Time-based analysis and trends

These tables are interconnected through primary and foreign keys, enabling comprehensive cross-referential analysis and deep insights into client behavior and risk profiles.

Data Cleaning & Transformation

We implemented sophisticated data cleaning processes to enhance the dataset's analytical value. Three critical transformations were applied to create actionable insights from raw banking data.

01

Engagement Timeframe

Created timeline categories based on client tenure: <1 year, <1.5 years, <5 years, <10 years, and >10 years, providing clear segmentation of client relationships.

02

Engagement Days

Calculated the exact number of days from joining date to present using DATEDIFF function, enabling precise tenure analysis and relationship maturity assessment.

03

Income Bands

Categorized estimated income into Low (<\$100K), Mid (\$100K-\$300K), and High (>\$300K) bands for risk stratification and targeted analysis.

04

Processing Fees

Mapped fee structures to processing rates: High (0.05), Mid (0.03), Low (0.01), automating fee calculations across all client accounts.

Power BI Functions Powering Our Analytics

SUM

Aggregates all numbers in a column, returning decimal totals for financial calculations.

```
Bank Deposit =  
SUM('Clients - Banking'[Bank Deposits])
```

DISTINCTCOUNT

Counts unique values in a column, essential for client counting and deduplication.

```
Total Clients =  
DISTINCTCOUNT('Clients - Banking'[Client ID])
```

SUMX

Evaluates expressions row-by-row before summing, perfect for calculated totals.

```
Total Fees =  
SUMX('Clients - Banking',  
[Total Loan] * [Processing Fees])
```

SWITCH

Evaluates expressions against value lists, returning conditional results for categorization.

```
Income Band =  
SWITCH(TRUE(),  
[Estimated Income] < 100000,  
"Low",  
[Estimated Income] < 300000,  
"Mid",  
"High")
```

DATEDIFF

Calculates interval boundaries between dates for tenure and engagement analysis.

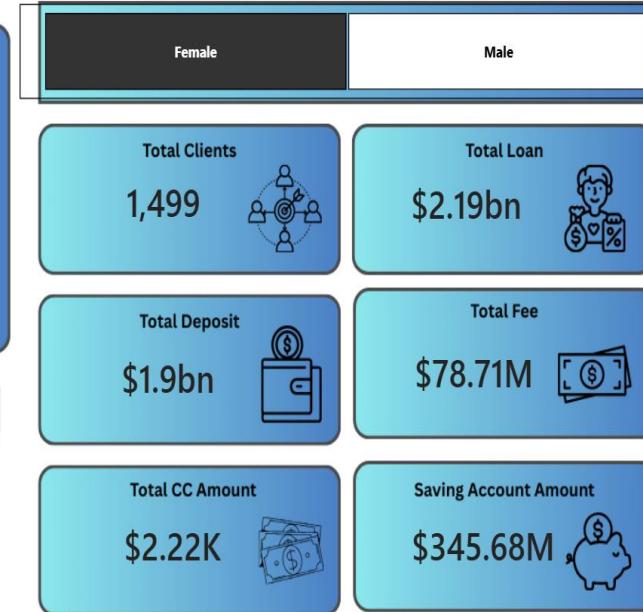
```
Engagement Days =  
DATEDIFF([Joined Bank],  
TODAY(), DAY)
```

AI-DRIVE BANKING RISK & LOAN PERFORMANCE ANALYTICS

DASHBOARD



All Time	Last 30 D	Last 90 D	Last 3 M	Last 6 M	Last 12 M	Last 24 M	CM	CQ	CY
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DEPOSIT ANALYSIS

LOAN DEPOSIT

SUMMARY

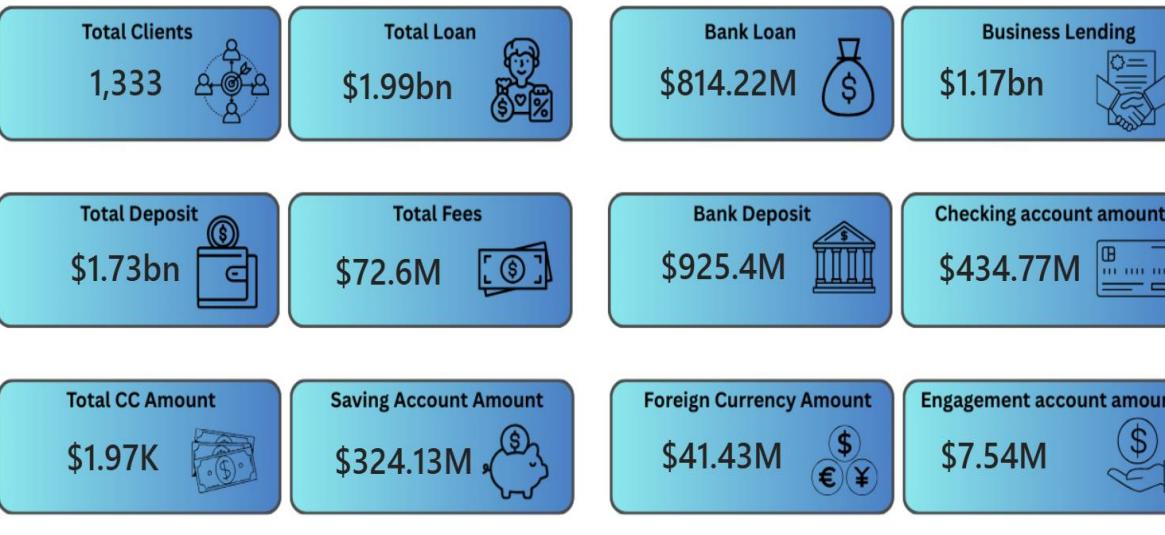
Home DEPOSIT ANALYSIS LOAN DEPOSIT SUMMARY

All Time	Last 30 D	Last 90 D	Last 3 M	Last 6 M	Last 12 M	Last 24 M	CM	CQ	CY
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Banking Relationship: Private Bank

Gender: All

Investment Advisor: All



Key Performance Indicators

Our dashboard tracks 12 critical KPIs that provide comprehensive insights into banking operations, client relationships, and financial health. These metrics enable real-time risk assessment and strategic decision-making.

1,333

Total Clients

Distinct count of all banking clients

\$1.99bn

Total Loan

Combined bank loans, business lending, and credit card balances

\$814.22M

Bank Loan

Total loan amounts to be repaid by clients

\$1.17bn

Business Lending

Loans provided to small businesses

Deposit & Account Metrics

Total Deposit

\$1.73bn

Sum of all deposit types:
bank deposits, savings,
foreign currency, and
checking accounts

Bank Deposit

\$925.4M

Money deposited directly
into bank accounts

Savings Account

\$324.13M

Interest-bearing deposit
accounts

Foreign Currency

\$41.43M

Accounts held in non-
domestic currencies

Checking Accounts

\$434.77M

Funds in accounts for daily transactional needs

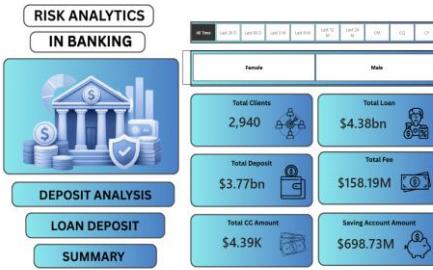
Total Fees

\$726M

Account setup and maintenance charges



Four Powerful Dashboard Views



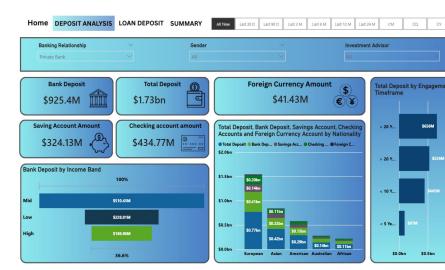
Home Dashboard

Central hub displaying total clients (2,940), total loans (\$4.38bn), total deposits (\$3.77bn), and total fees (\$158.19M) with gender-based filtering and time period selection.



Loan Analysis

Detailed breakdown of bank loans (\$814.22M), business lending (\$1.17bn), and credit cards (\$4.28M) by nationality and banking relationship, with European clients leading at \$0.36bn.



Deposit Analysis

Comprehensive view of deposits by income band (Mid: \$510.43M, Low: \$228.01M, High: \$186.96M) and engagement timeframe, with nationality-based segmentation.



Summary Dashboard

Complete overview of all 12 KPIs including total clients (1,333), loans, deposits, fees, and account amounts, providing a holistic view of banking operations.



Key Insights & Strategic Value

Our Power BI dashboards deliver actionable intelligence that transforms banking operations. The data reveals critical patterns and opportunities for strategic decision-making.



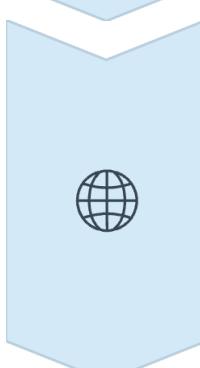
Investor Intelligence

Banks can instantly access complete loan amounts and financial profiles for any investor, enabling rapid risk assessment and personalized service.



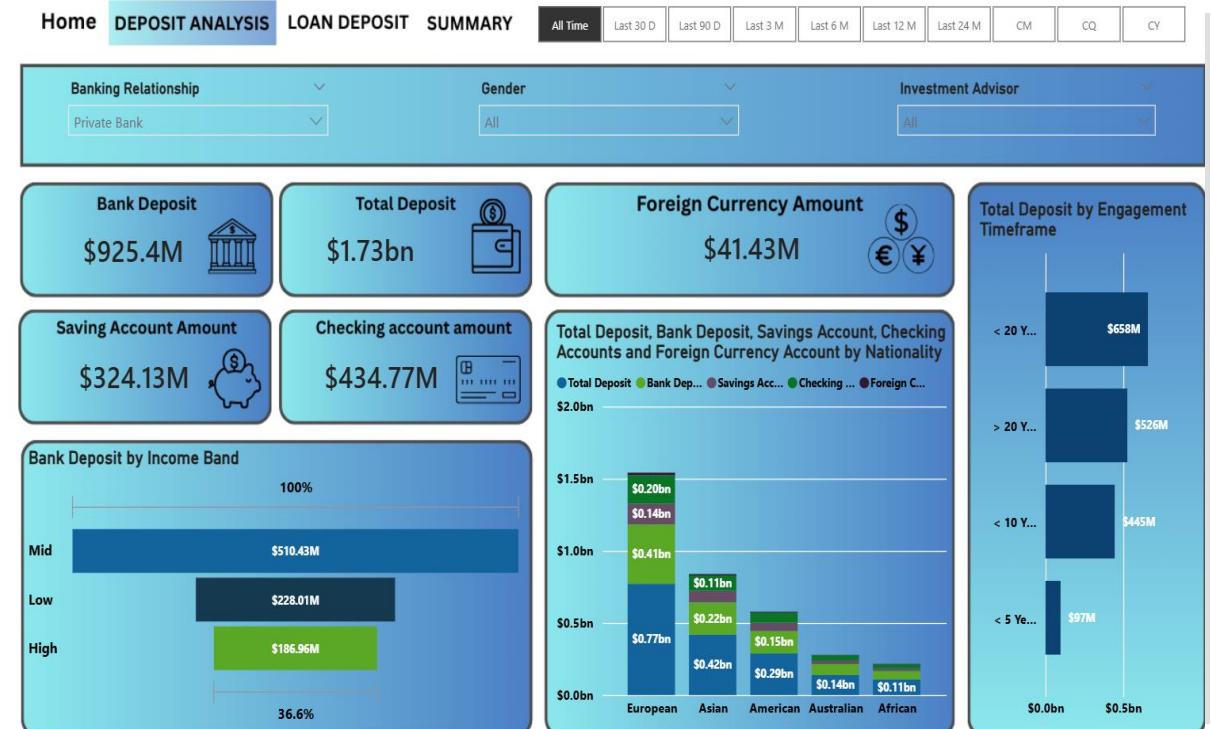
Competitive Strategy

Private banks dominate with the highest client counts. Other banking institutions can leverage these insights to develop targeted strategies for client acquisition.



Nationality Patterns

European clients represent the largest loan segment at \$0.36bn, followed by Asian (\$0.20bn) and American (\$0.13bn) clients, informing market focus and resource allocation.



Conclusion & Future Opportunities

Proven Impact

Power BI dashboards represent one of the most effective resources for the banking sector, transforming complex data into clear, actionable insights for risk management and strategic planning.

Future Enhancements

- Predictive analytics for loan default probability
- Real-time fraud detection algorithms
- Customer lifetime value modeling
- Automated risk scoring systems
- Integration with external credit bureaus
- Machine learning for pattern recognition

By empowering banks with comprehensive visibility into client relationships, account types, and financial behaviors across nationalities and demographics, these dashboards minimize lending risk while maximizing operational efficiency and customer satisfaction.