Loan Analysis Report - HSBC UK

Introduction

In a highly competitive banking environment, a detailed understanding of loan applicant profiles is essential. This report presents a detailed analysis of data from HSBC UK, aimed at identifying key trends and supporting strategic decision-making. The analysis is based on a dataset comprising 45,000 records and 14 variables, including information on applicant profiles, loan characteristics, and credit history.

1. Objectives and Tools

A. Objectives of the Analysis

The main objectives of this analysis are:

a. **Evaluate the risk associated with HSBC UK's loan portfolio** to identify default trends.
b. **Understand borrower characteristics and their impact on loan performance**.
c. **Optimise lending strategies** by identifying profitable customer segments.
d. **Develop data-driven insights** to improve credit risk management.
e. **Visualise key trends and KPIs using Power BI** to support strategic decision-making.

B. Tools

a. **Python**: For initial exploration and data quality validation.
b. **SQL Server**: For preparing and analysing data using SQL scripts.
c. **Power BI**: For creating interactive dashboards and visualizing key metrics.

2. Methodology

The analysis will be conducted using a combination of **SQL, Python, and Power BI**, following these key steps:

A. **Data Extraction & Cleaning**
   - Query the loan dataset from HSBC's dataset.
   - Perform data cleaning, handling missing values, and removing duplicates.

B. **Exploratory Data Analysis (EDA)**
   - Analyse loan distribution, borrower profile and loan performance.

- Identify correlations between key variables.

C. **Advanced Analytics**
   - Analyse borrower solvency and behavioural and time trends.
   - Identify high-risk segments.

D. **KPI Development & Dashboarding**
   - Develop visual reports highlighting key insights.
   - Present findings to stakeholders with actionable recommendations.

3. Exploratory Data Analysis (EDA)

The EDA phase will include:

- **Descriptive Statistics**: Distribution of loan status, loan amount and interest rate.
- **Correlation Analysis**: Understanding relationships between variables (e.g., loan distribution by borrower education, Income vs Loan amount).
- **Trend Analysis**: Loan approval trends and most valuable customer segments.

4. Advanced Analytics

This phase will involve:

- **Clustering Analysis**: Identifying borrower segments based on financial behaviour.
- **Creditworthiness Evaluation**: Assessing optimal thresholds for loan approvals.

Key Performance Indicators (KPIs)

The following KPIs will be measured:

1. **Loan Approval Rate**: Percentage of loan applications approved.
2. **Average Loan Amount**: Mean loan disbursed to customers.
3. **Interest Rate Distribution**: Spread of interest rates across different borrower profiles.
4. **Credit Score Distribution**: Analysis of borrower creditworthiness.
5. **Profitability Index**: Revenue generated from interest payments.

5. Power BI Dashboard & Visualisation Strategy

Power BI will be used to create interactive dashboards featuring:

- **Loan Portfolio Summary**: Summary statistics on loan disbursement, approvals, and rejections.
- **Loan Portfolio Overview**: Approvals rate by segment, credit score impact, Interest revenue, loan distribution by sector, and high-value customer insights.

6. Strategic Recommendations

A. Optimizing Loan Allocation Criteria

a. Professional Experience and Loan Acceptance

Strategy: Prioritize borrowers with greater professional stability by adjusting eligibility criteria.

Action:

- Offer preferential rates to applicants with significant professional experience
- Develop solutions for young professionals with little experience by integrating other stability criteria (banking history, type of employment contract).

b. Real Estate Ownership and Loan Acceptance

Strategy: Reassess risk criteria for homeowners and tailor offers to the most reliable profiles.

Action:

- Analyse why homeowners have a lower acceptance rate than renters and adjust risk assessment criteria.
- Develop refinancing or debt consolidation offers for homeowners to better meet their needs.

c. Default History and Loan Acceptance

Strategy: Implement a more nuanced scoring model for borrowers with a history of default.

Action:

- Introduce a "second chance" program with small loans and strict monitoring for borrowers with a history of default but recent improvement in their financial behaviour.
- Add mandatory insurance to loans for these profiles to reduce the risk of default.

d. Credit Score and Acceptance Rate

Strategy: Refine credit score analysis to identify critical acceptance thresholds.
Action:

- Implement more precise credit score intervals to detect the highest-risk profiles.
- Offer credit improvement solutions (financial education, personalized monitoring) for borrowers close to the acceptance threshold.

B. Optimization of Loan Management and Borrower Behaviour

a. Relationship Between Borrowed Amount and Speed of Repayment

Strategy: Adapt the repayment term and terms based on the borrowed amount and risk profile.
Action:

- Develop small-amount loans with more competitive rates to encourage rapid repayment.
- Offer flexible repayment options for large loans to avoid defaults.

b. Loan Acceptance According to Purpose

Strategy: Prioritize loans for less risky uses while optimizing approval for other categories.
Action:

- Strengthen evaluation criteria for loans intended for risky uses such as personal investments.
- Encourage loans for debt consolidation and medical expenses with favourable terms for these segments.

Conclusion

This analysis provides HSBC UK with actionable insights into its loan portfolio. By optimising lending strategies and focusing on profitable segments, HSBC can **enhance profitability while minimising risk**. The next steps include implementing the recommendations and monitoring key performance indicators (KPIs) to evaluate their impact.