

Credit Card Transaction and Customer Risk Analytics for a Digital Bank

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Executive Summary

This report provides a comprehensive overview of key insights derived from credit card transaction and customer risk analytics. It highlights performance trends, regional error patterns, customer demographics, financial behaviors, and credit risk indicators. The recommendations aim to enhance profitability, customer engagement, and risk control for the digital banking portfolio.

1. Transaction Performance

Business Question: What is the total transaction performance and how many are error transactions?

Observation: The bank processed about 13 million transactions worth 639.35 million, with 202,000 (around 1.5%) identified as error transactions.

Recommendation: Focus on reducing transaction errors by improving system validations and payment gateway reliability. Implement automated reconciliation and error-handling alerts.

2. Regional Error Patterns

Business Question: Which states record the highest number of error transactions?

Observation: States like California, Texas, and New York show a much higher concentration of error transactions.

Recommendation: Conduct a regional review of merchant integrations and network reliability in these areas. Improve monitoring and support for merchants in high-volume states.

3. Age Group Contribution

Business Question: Which age group dominates the customer base and spending?

Observation: Middle-aged customers (30–49 years) represent about 36% of total users and contribute the most to transaction value.

Recommendation: Focus promotional campaigns, credit card upgrades, and rewards on this demographic to strengthen engagement and spending.

4. Financial Behavior by Age

Business Question: How do different age groups behave in terms of spending and risk?

Observation: Young customers (below 30) make smaller transactions and often have lower credit scores, while seniors (50+) transact less frequently but have more stable credit.

Recommendation: Introduce starter or youth credit programs for younger customers and low-risk premium cards or loyalty offers for seniors.

5. Credit Score Influence

Business Question: How does credit score affect transaction behavior?

Observation: Customers with credit scores between 700–800 have the highest average transactions per customer, reflecting stronger financial discipline.

Recommendation: Offer personalized rewards, higher credit limits, or exclusive offers to customers with high scores to boost retention and profitability.

6. Low Credit Score Risks

Business Question: Are low credit score customers contributing more to risk or errors?

Observation: Customers below a 600 credit score tend to have higher chances of transaction failure or fraud risk.

Recommendation: Apply risk-based credit policies, frequent monitoring, and proactive credit score improvement initiatives for this group.

7. Income and Spending Patterns

Business Question: Does income level influence transaction volume?

Observation: Higher yearly income is associated with greater transaction activity. Mid-to-high income groups generate most of the revenue.

Recommendation: Develop premium product offers and cross-selling strategies targeted at high-income, low-risk customers.

8. Credit Limit Optimization

Business Question: What credit limits result in the highest transaction volumes?

Observation: Customers with credit limits between \$9,000 and \$13,000 show the most active spending patterns.

Recommendation: Consider gradually increasing limits within this range for customers with consistent repayment and strong credit history.

9. Card Type Performance

Business Question: Which card types are most used and profitable?

Observation: Debit cards account for about 62% of usage, while credit cards form only 30% but are more profitable.

Recommendation: Promote credit card adoption through cashback offers, EMI options, and reward programs to enhance overall profitability.

10. Card Brand Insights

Business Question: Which card brands perform best?

Observation: Mastercard leads with over 50% of total transaction value, followed by Visa (38%) and Amex (8%).

Recommendation: Strengthen co-branding partnerships with Mastercard and launch targeted promotions with Visa and Amex to balance brand performance.

11. Fraud and Error Concentration

Business Question: Where are transaction errors or frauds most concentrated?

Observation: High-transaction states such as California, Texas, and New York show recurring error and risk patterns.

Recommendation: Deploy real-time fraud monitoring tools, regional analytics, and stricter merchant onboarding checks in these states.

12. Customer Segmentation Insights

Business Question: How can customer segmentation improve credit policy decisions?

Observation: Spending and risk behavior vary clearly by income, credit score, and age.

Recommendation: Use segmentation analytics to personalize credit limits, interest rates, and marketing strategies for different customer clusters.

13. Credit vs. Debit Profitability

Business Question: How can the bank improve overall card profitability?

Observation: Debit cards dominate in usage but yield lower revenue compared to credit cards.

Recommendation: Shift focus toward credit card growth, offering flexible repayment options and co-branded retail benefits.

14. Overall Credit Risk

Business Question: What is the overall risk exposure in the portfolio?

Observation: A small proportion of customers with low scores and high error rates pose potential financial risk.

Recommendation: Adopt risk-based pricing and enhance KYC validation to maintain profitability while controlling exposure.

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