

Bank Churn Analysis

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1. Executive Summary

This report analyzes **customer churn** in a **retail banking dataset** to determine key factors driving attrition. Using **Power BI for visualization and SQL for data analysis**, we identified **demographic, behavioral, and financial** trends impacting churn.

Key findings include **higher churn among female, middle-aged (35-54), and German clients**. Customers with **2 products churn the least, while those with 3+ products churn at extreme rates (83%-100%)**. **Inactive clients churn at nearly double the rate of active ones**.

Our recommendations include **engagement strategies for high-risk groups, product optimization to prevent multi-product churn, and targeted interventions for the German market**.

2. Introduction

Problem Statement

Customer churn is a significant challenge for banks, as it leads to revenue loss and increased acquisition costs. This analysis aims to **identify key factors influencing churn** and provide actionable insights to **improve customer retention**.

Importance of Analysis

- **Reduce churn** among high-value customers
- **Optimize product offerings** to ensure customers are satisfied
- **Identify at-risk customers and intervene early** to prevent churn

Dataset Overview

- **10,000 customers**, with attributes such as credit score, balance, salary, age, region, tenure, and churn status
 - **Churn Rate: 20.4% overall**
 - Three main analysis areas: **Demographic, Behavioral, and Financial**
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3. Data Preparation & Methodology

Data Cleaning & Preprocessing

- **Checked for and removed any NULLs**, duplicates, or severe outliers
- **Created age buckets** to better analyze customer segments
- **Converted categorical variables** (gender, active status)
- **Standardized column names and dropped** unnecessary columns (surname, row number)
- **Created churn rate calculations**

Tools & Techniques

- **SQL**: Data extraction, transformation, and analysis
- **Power BI**: Dashboard development (demographic, behavioral, financial churn trends)

Assumptions & Limitations

- The dataset **does not include** insight into specifics about the products offered to clients
 - This information is needed to understand why more products = higher churn
 - **No transaction history or customer feedback**, which could provide deeper individual churn insights
 - **Unknown reason for extreme churn (100%) among 4-product customers** – requires further investigation
 - High number of \$0 balance for individuals
 - Need further information as to whether this is expected or if the data needs updating
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4. Exploratory Data Analysis (EDA)

Demographic Trends

- **Female customers churn at 25.6%** (higher than **male churn of 17%**)
- **Ages 35-54** account for over 50% of clients (**churn of 26.7%**)
 - **Ages 55+ churn at 39.1%** (much smaller sample size)
- **Germany has the highest churn rate (32.1%)**, nearly double that of France and Spain (~17%)

Behavioral Patterns

- **Customers with 2 products** churn the **least (8%)**, while **3+ product** customers churn at a **83-100%** rate (requires further analysis)
- **Inactive customers** churn at a much higher rate (**27.6%**) than **active ones (14.8%)**
- **Credit card ownership** has no major impact on churn (**~.4% difference**)

Financial Factors

- **Credit score and salary have a minimal impact on churn (variations within 2-3%)**
- **High-balance customers (\$80K+) churn more (24%)**, despite representing over half the client base
- **Low-balance customers (<\$1k) churn the least (15%)**

5. Recommendations & Business Impact

Retention Strategies

- **Target female and middle-aged customers** with loyalty programs and personalized support
- **Investigate and address the high churn in Germany** – this market needs urgent attention

Product & Engagement Optimization

- **Encourage 1-product customers to adopt a second product**, as this drastically reduces churn
- **Investigate extreme churn (100%) among 4-product clients** – this could be a policy-driven issue
- **Re-engage inactive customers** with special offers to reduce churn
- **Offer exclusive retention benefits to high-balance clients (\$80K+)** to reduce churn

6. Conclusion & Next Steps

This analysis highlights key churn drivers and provides **strategies for retention, engagement, and product optimization**.

Next steps:

- **Investigate the German market for churn causes**
- **Target strategies for Females and Middle-aged clients to lower churn**
- **Understand why high-product clients leave at extreme rates**
- **Use predictive models to flag at-risk customers proactively**