Bank Customer Churn Analysis

Filter by Geography
- [ ] France
- [ ] Germany
- [ ] Spain

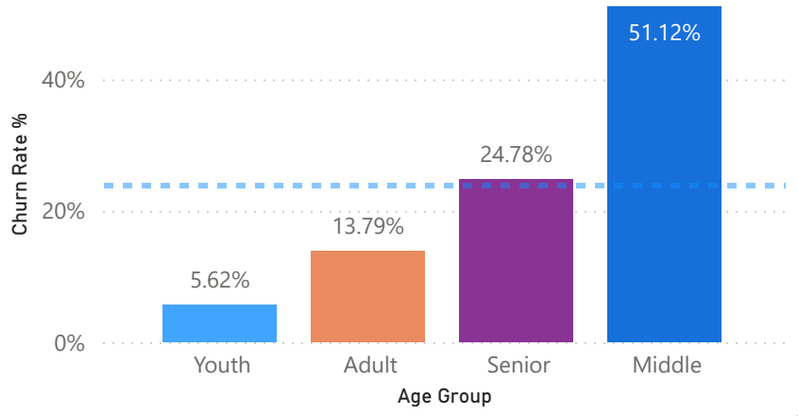
Gender
- [ ] Female
- [ ] Male

Age Group
- [ ] Adult
- [ ] Middle
- [ ] Senior
- [ ] Youth

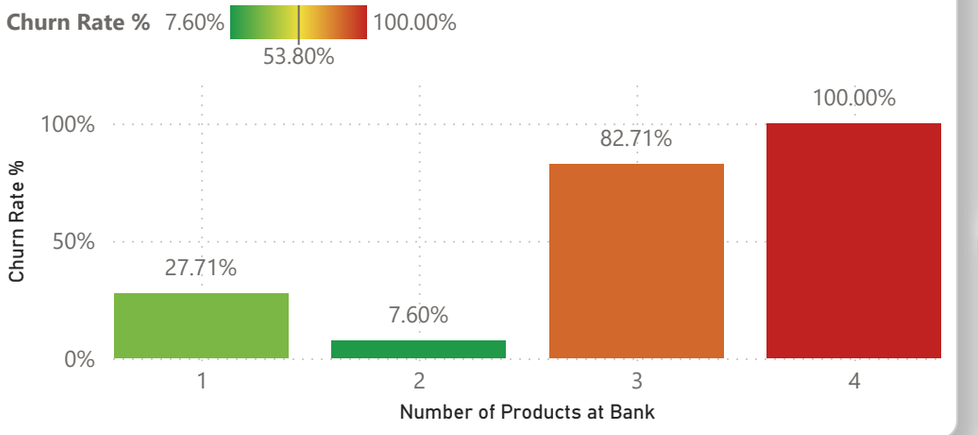
Balance Level
- [ ] High
- [ ] Low
- [ ] Medium
- [ ] Zero

Total Customers	High Risk Customers	Churn Rate	Average CLV	Average Balance
10K	989	20.38%	6.39K	76.49K

Churn Rate by Age Group



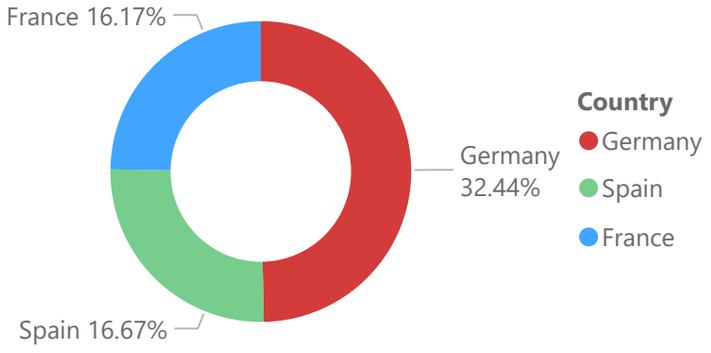
Churn Rate by Products Held



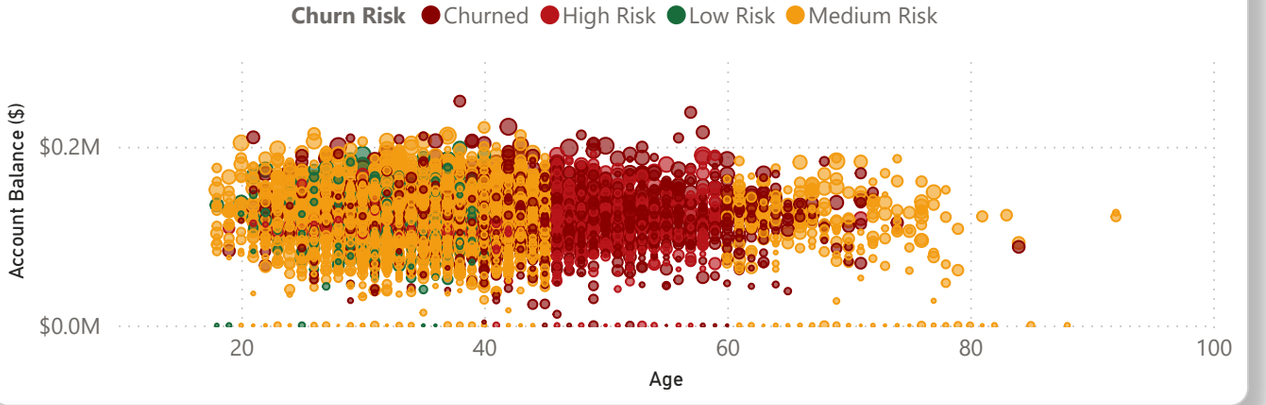
Age Groups:
Senior: >60
Middle: 45-60
Adult: 20-45
Youth: <20

Balance Levels:
High: >$150k
Medium: $50k-$150k
Low: <$50k
Zero: $0

Churn Rate by Geography



Customer Distribution: Age vs Balance by Churn



Model Performance & Business Impact

The Random Forest model identifies at-risk customers with 86% accuracy, enabling improved target retention campaigns.

SQL Rule-Based Mode
Accuracy: 72%
Approach: Business rules based on age, products, complaints

Random Forest Model
ROC-AUC: 0.86 Accuracy: 86%
Approach: Machine learning with 15+ features

$49.45K
Intervention Cost at 50$ per...

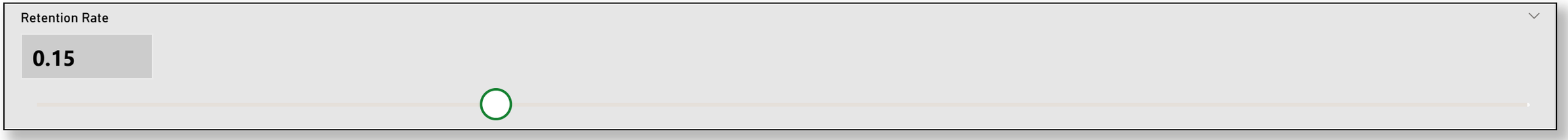
$990,142
CLV Saved

$940,692
Net ROI

1902%
ROI Percentage

Retention Rate

0.15



- Random Forest outperforms rule-based approach by 14%
- Model identified age and balance as strongest predictors
- Targeting 2,345 high-risk customers could save $990K in CLV at 15% retention
- With 15% retention success, ROI is 1902% ($940K net gain)