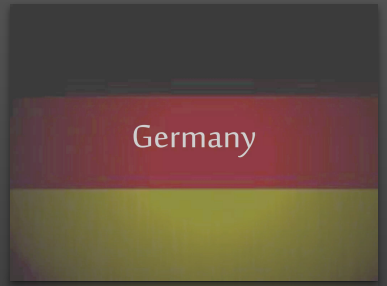
Capstone Project:
Analytical CRM Development for a Bank

BY: Neel M Odedra



Problem Statement:

- I have been assigned with the task to find key insights from the data provided by bank. The bank wants to reduce the churn rates, improve service delivery and enhance customer experience. They have provided you with datasets including customer demographics, transaction details, customer exit information, and active customer profiles.

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Introduction

- In this presentation we are going to analyse Bank churn and Demographic reports and find out key insights from those reports.
- We will analyse how different factors like Credit card, Activity, Credit scores, Age affects the performance of the bank and what are the obstacles which we are facing. We will also look into the solutions to this obstacles.
- Lets dive right into Analysis.

Data Optimisation

Data Cleaning:

- I used Power BI's Power query editor for data cleaning. I check for any missing values, duplicate values and made necessary changes. I changed the data type of Bank_DOJ column in bank_churn column to date.

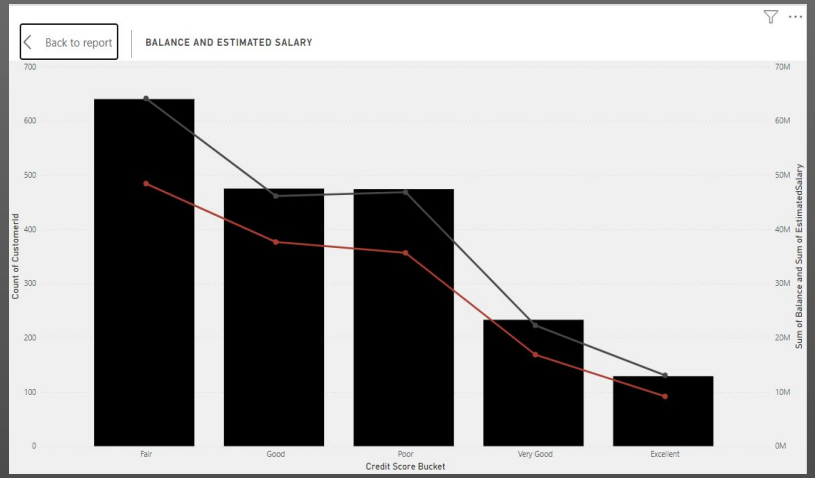
Adding columns:

- I have created and added columns like credit score bucket, age group bucket. I also created columns like Z score, Potential outliers, which will help us in extracting valuable insights.

Report Overview

Customer Behaviour Analysis:

- I have prepared this chart of Balance, salary and Total Customers by Credit score buckets to see the patterns and relations.
- Here we can see that maximum no of customers are in Fair, Good and Poor segments of Credit score. While only 1224 and 655 customers are in Very Good and Excellent segments respectively.



Contd.(Customer Behaviour Analysis)

- I have used the slicer shown in the second Screenshot for year by year relations between all three.
- The results here are very fascinating. We can see from the charts that the distance between lines of Balance and Salary decreases as the Credit Score segment is changed from Poor to Excellent. We can see that it is least for Very Good and Excellent Credit Scores. This shows that The balance is very close to salaries received by customers and they spend the money wisely. For other segments we can see that Amount in their balances and their salaries have big gaps, showing there are chances of bad spending habits of customers and thus their credit scores reflect the same.

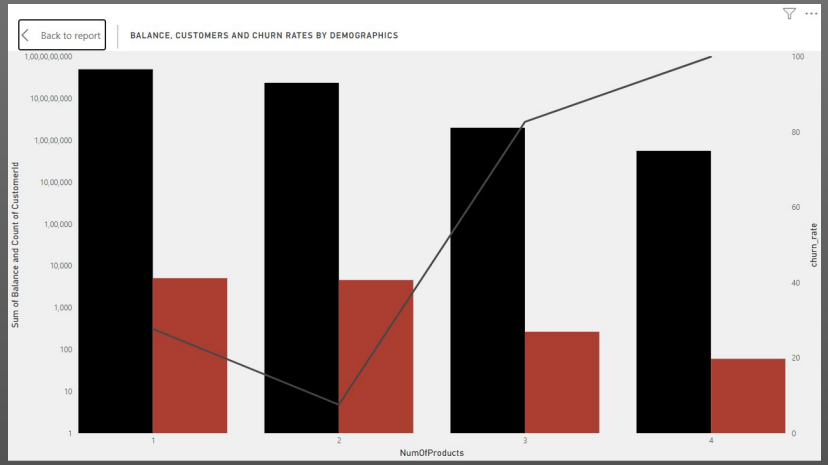
2016	2017	2018	2019

Contd.(Customer Behaviour Analysis)

- After analysing this report for different joining years and tenure, I have found similar patterns for years 2016, 2017 and 2018. In 2019 there is a slight decrease in distance between the two lines, showing customers have tried to change their spending habits.
- I found churn rates of different Credit score segments for different years. Here I found that as customers have better credit scores as well as the tenure is big. They are less likely to leave the bank and are loyal customers of the banks. Customers with poor credit scores are at risk of leaving the bank.

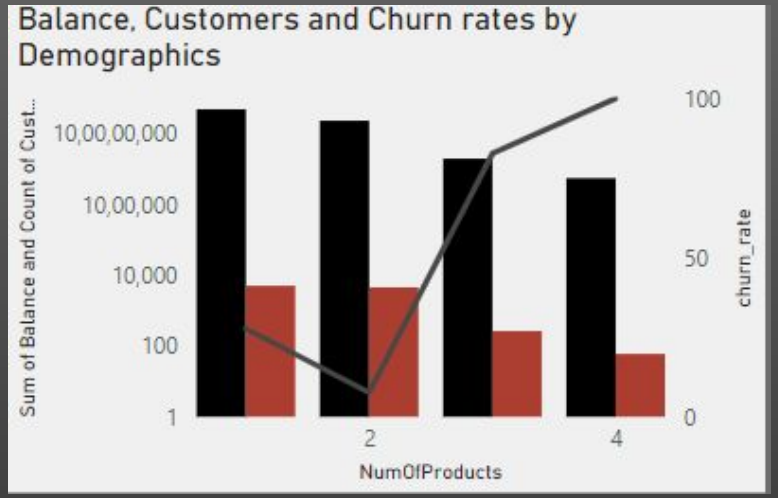
Product Affinity Test

- The maximum customers use 1 and 2 products. No. of customers using 3 and 4 products are less comparatively. The churn rates of customers using 3 and 4 products are also high with 82.71% and 100% respectively.



Contd.(Product Affinity Test)

- The Balance is also maximum in the customers who use 1 or 2 products.
- For cross selling product analysis, we need more information towards products, its essential Kpis. In this presentation we won't be leaning towards that.

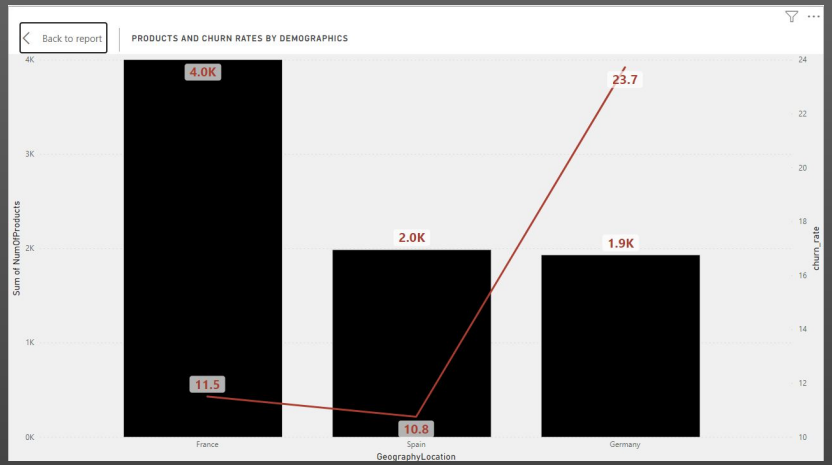


Geographic Market Trends

ACTIVE MEMBERS

Products:

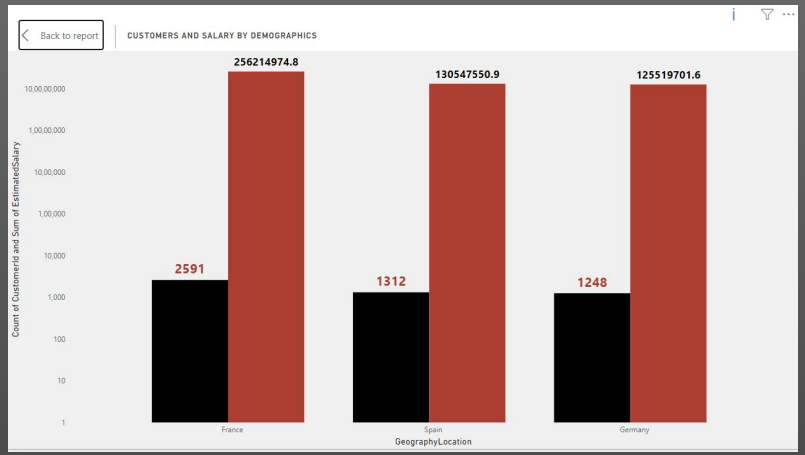
- France consumes most no. of products 4k from total products consumed. Also from the chart we can see France and Spain have lower churn rates with 11.5 and 10.8 respectively Germany has less products as well as high churn rates.



Contd.(Geographic Market Trends)

Salaries:

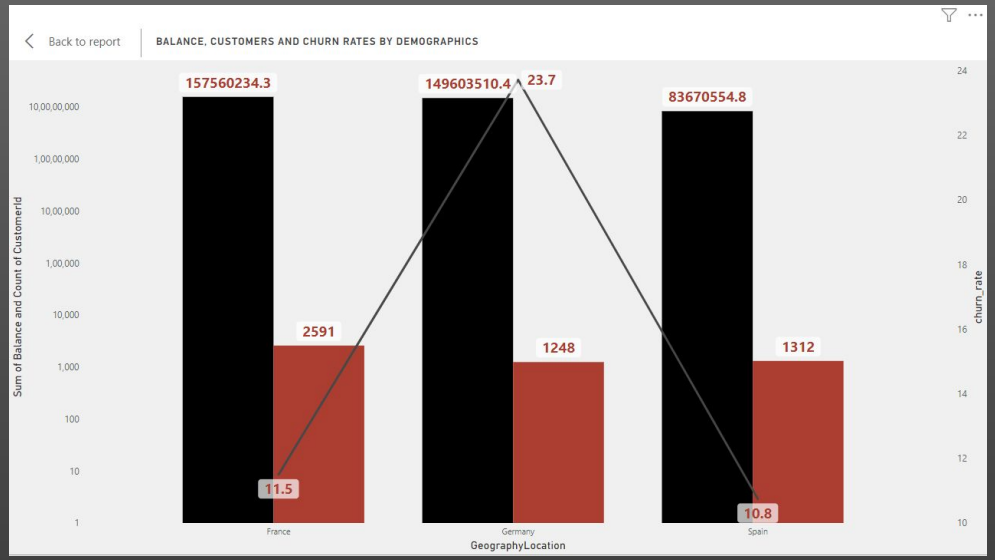
- The chart shows total salaries and count of customers for each region. Here also we can see similar trends as we saw in the products section. France is leading in terms of salaries as well. This indicates that our maximum business comes from France and there is room for improvement in other two regions



Contd.(Geographic Market Trends)

Balance:

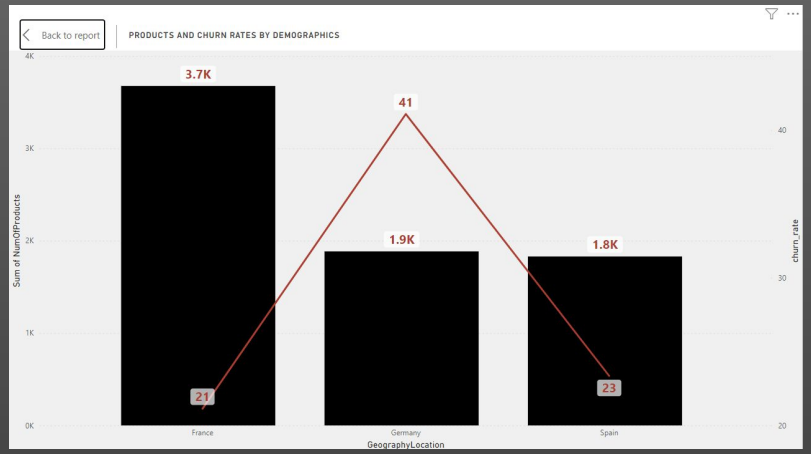
- In terms of account balances, France and Germany are leading, while Spain is lagging behind the two.



INACTIVE CUSTOMERS

Products:

- For inactive customers also, products are consumed most by france and patterns are identical to products from Active customers.
- Although while comparing churn rates, I found out that churn rates are significantly higher for all regions for Inactive customers. This can be a key indicator for RISK and should be treated with priority.



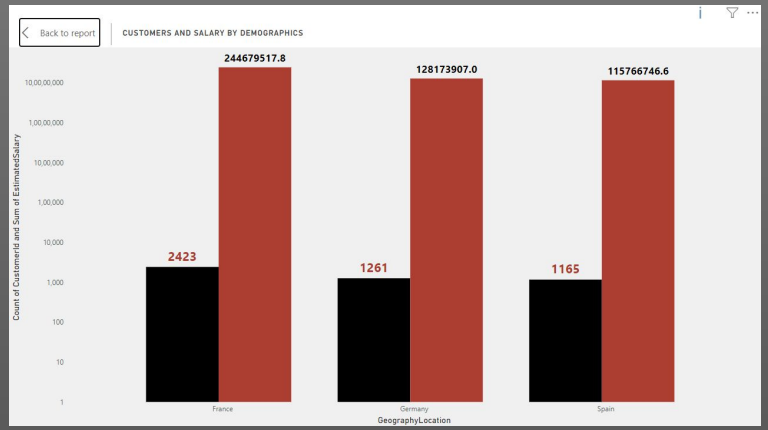
Contd.(Geographic Market Trends)

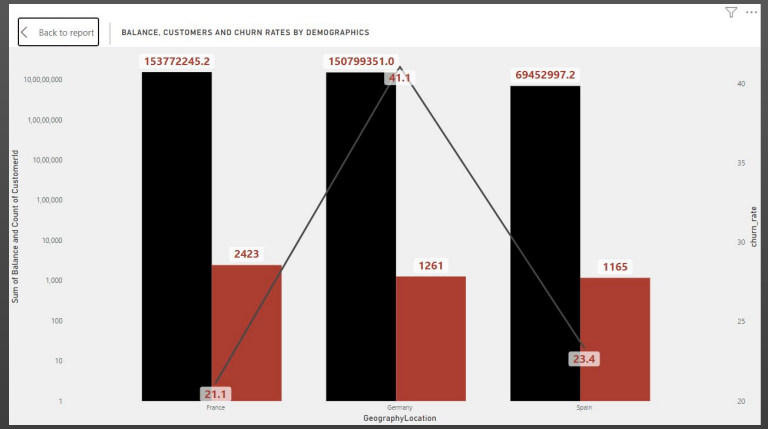
Salaries:

- The results are identical for inactive customers as well.

Balance:

- Same trend can be seen for both active and inactive members in terms of balances.



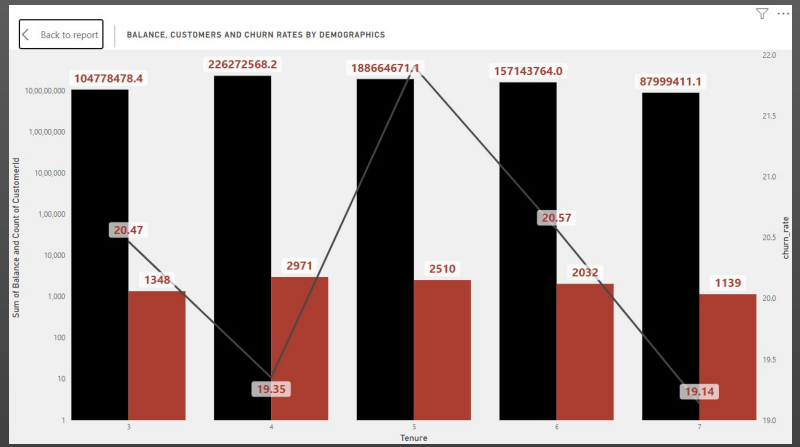


Risk Management Assessment

I have created the Demographics parameter from field parameters for this and we will analyse different charts for conclusions.

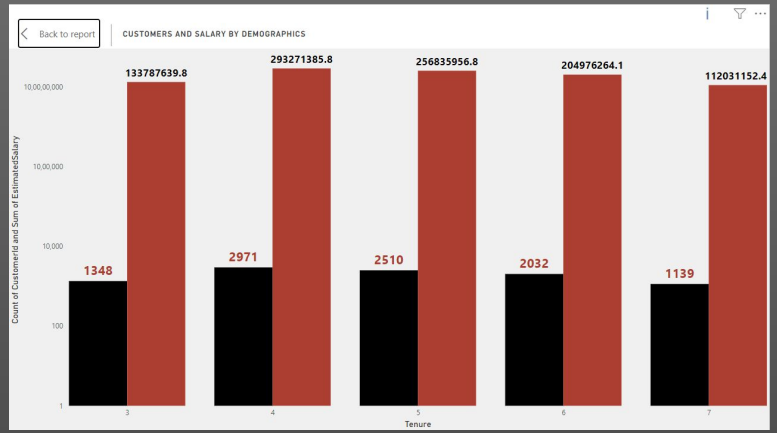
By Tenure:

- The chart gives us idea on how balance of accounts varies with tenure



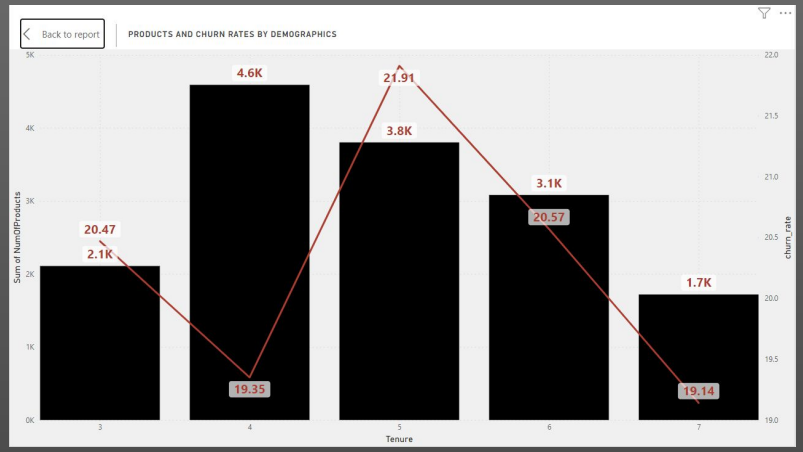
Contd.(Risk Management Assessment)

- This graph gives us insights on salaries over different tenure.
- Both Balance over tenure and salaries over tenure gives us similar insights. We can see that the balance and salaries of customers are less when tenure is small. Then we see a spike in balance and salaries both when tenure is 4 and 5 years. Then there is a drop in both when tenures are 6 and 7.



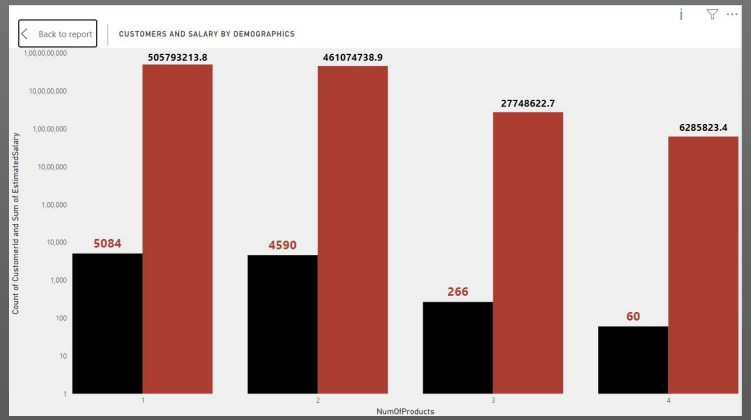
Contd.(Risk Management Assessment)

- When we see the churn rates for different tenure we get key insights
- After seeing churn rates over the tenure we see that as tenure increases from 3 to 4 the churn rates decreases and we see that balance and salaries increases this indicates that no. of customers are also increasing. Then we see churn rate again increases in tenure 5 and we see drop in salaries and balance, this decline continues with increase in tenure.



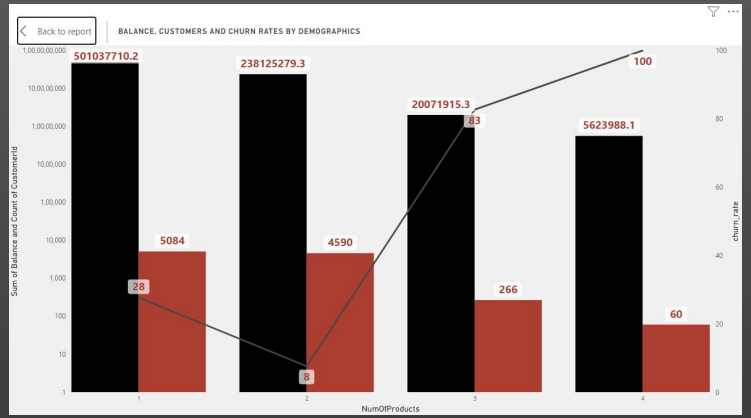
Contd.(Risk Management Assessment)

- This indicates that an average customer will stay for 4 to 5 years in the bank and then there are chances that he will leave the bank and this imposes a great Risk for customers of that tenure.



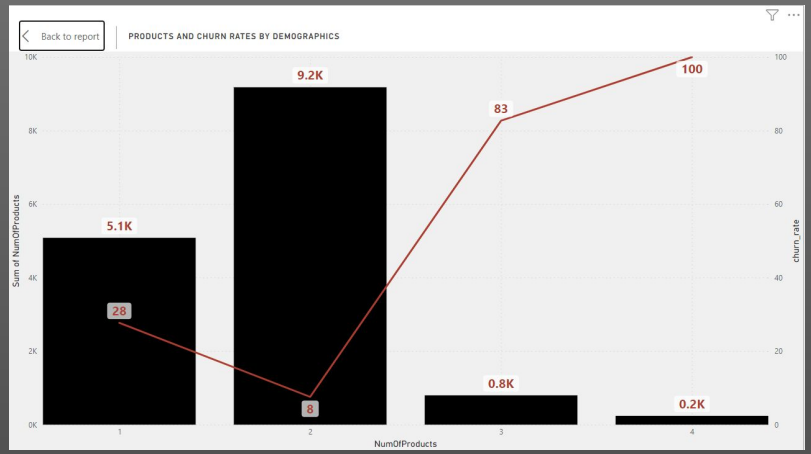
By No. of Products:

- After comparing the charts of balance and salaries by the No. of products. We can see that as no. of products increases, customers are decreasing.



Contd.(Risk Management Assessment)

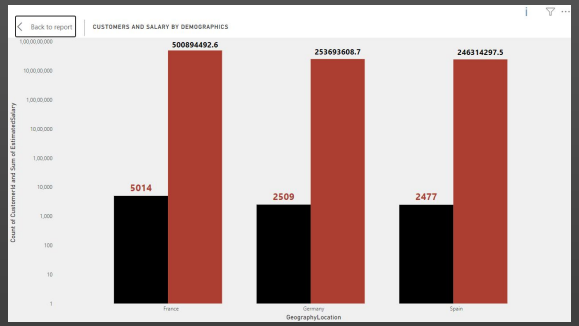
- While we see churn rates over products we see similar results too. With increase in no. of products, the churn rates are also increasing.
- For further analysis on how No. of Products affect customer churn rates we need further data and information.

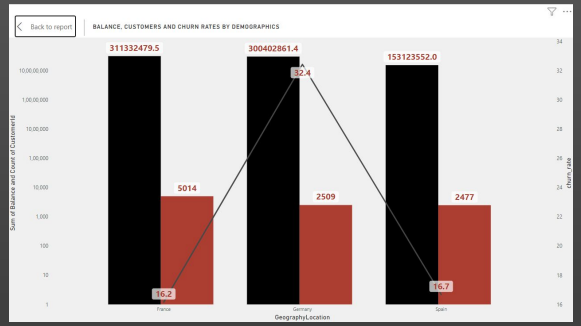


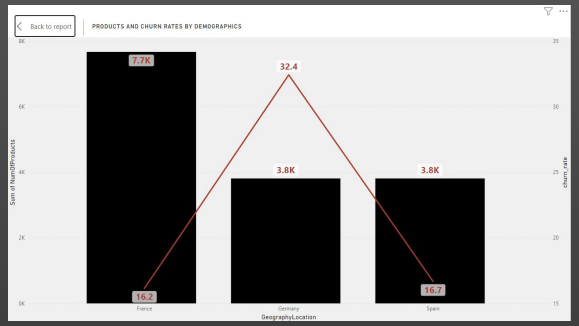
Contd.(Risk Management Assessment)

By Geography:

- After analysing Balance, salaries and churn rates, we see that France is where our business most comes from. We see that churn rates are most in Germany and we need to make extra efforts to retain customers there.
- Also the business is less in Germany and Spain, and we need to focus on capturing more customers from there.





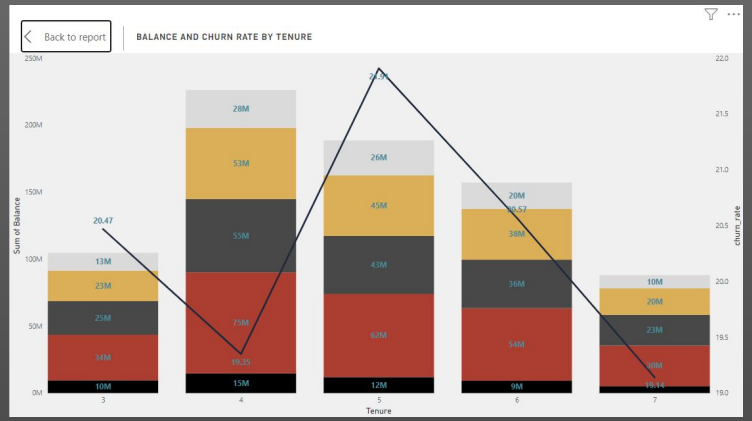


Customer Tenure Value Forecast:

I have divided the customers into two segments: Based on credit scores, Based on Age.

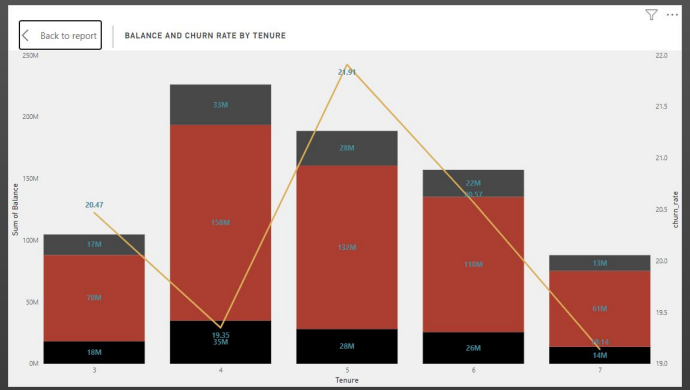
Tenure(Credit Score Segment):

- When we see balance distribution over different credit card segments, we see that maximum balance lies in the Fair Segment of customers. The least Balance is found in Excellent and Very Good segments.



Contd.(Customer Tenure Value Forecast)

- In Poor segments too, the balances are significant.
- This trend follows as we go through different tenures, and we see this is a general problem. Old as well as new customers both are high in the Fair and Poor segment.
- The maximum balance lies in the age group of 30 to 50. We see that young as well as old both customers have comparatively very less balances. Young customers can have long tenures with the bank and we need to give extra focus on young customers.
- We need to focus our marketing strategies towards these young customers.

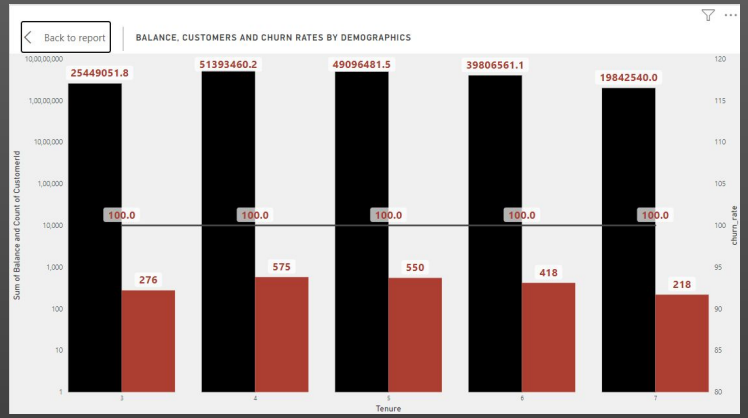


Marketing Campaign Effectiveness

- After analysing customer segments. We can find key segments where we need to focus our marketing on.
- This segments are
- Based on age: Young and OLd
- Based on Credit Score: Very Good and Excellent.
- For preparing marketing strategies, we will need additional information like what type of products customers use. We will also need relations of these products with geographical regions, Tenures, Activity of the customers based on the products they use

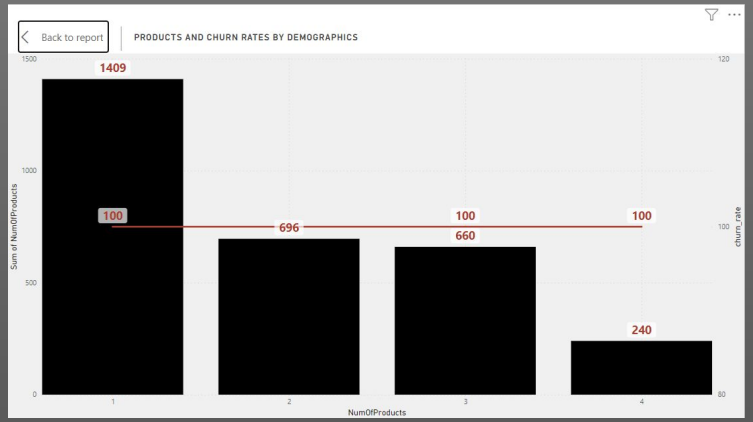
Customer Exit Reasons Exploration

- Out of total customers having a Credit card which is 7055, customers who exited only 1424 of those had credit card. This shows that people who don’t have credit cards can leave the bank.
- With an increase in tenure we see customers leaving the bank. This shows we are not able to retain our customers for longer tenures. We need to focus on retaining these customers.

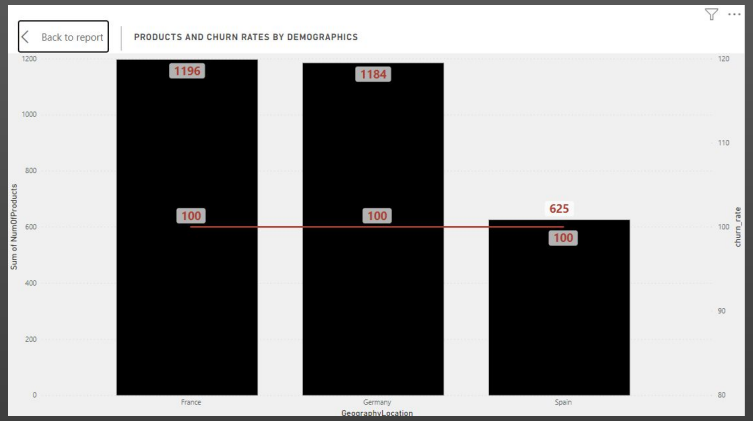


Contd.(Customer Exit Reasons Exploration)

- By this chart, we can see that with an increase in no. of products, we see customers exit decreases. This shows with the increase in use of our products, customers are more dependent on it and won't leave the bank easily. We need to increase the no. of products used by customers to retain them.



- This graph shows us the customers exit is least from Spain. France and Germany are regions where customers left most. Also no. of customers in germany is already less. This shows we are not able retain our customers in Germany and we need to focus our marketing in that region.



Key Insights from Analysis

- Customers with low credit scores in the categories ‘Poor’ and ‘Fair’ and customers with smaller tenures are customers at risk of leaving the bank.
- Most of our customers are using very 1 or 2 products, no. of customers using more than 2 products are very few.
- Maximum of our business comes from France, and we are lagging behind in Germany and Spain. Especially Germany has shown signs of high risks as churn rates there are comparatively higher than other regions.
- We have very few customers in age segments of (18-30) and (50+). Maximum of our business is from (30-50) age categories. We need to focus most on customers in (18-30) age segments as they can have big tenures with us.

Strategic Planning

Based on credit scores:

- We need to bifurcate customers based on credit scores, and we need to see our marketing expenses on customers with bad credit scores, as they pose as a great risk of defaulting and may churn the bank, at the same time we can use this resources to further improve our marketing who are maintaining their credit scores and are contributing to our profits. We can provide better interest rates for this customers as they have proven track records of repayments of loans.

Contd.(Strategic planning)

Based on no. of products:

- Maximum no. of customers uses at max 2 products from all products provided by bank. We need to focus on rights customers to provide them better incentives and discounts on using our products, As this customers will increase the use of our products, our dependability will increase, and the customer churn rates will decrease.
- Also with increase in no. of products consumed by people our profits will also increase which we can use in further expansions.

Contd.(Strategic planning)

Based on regions:

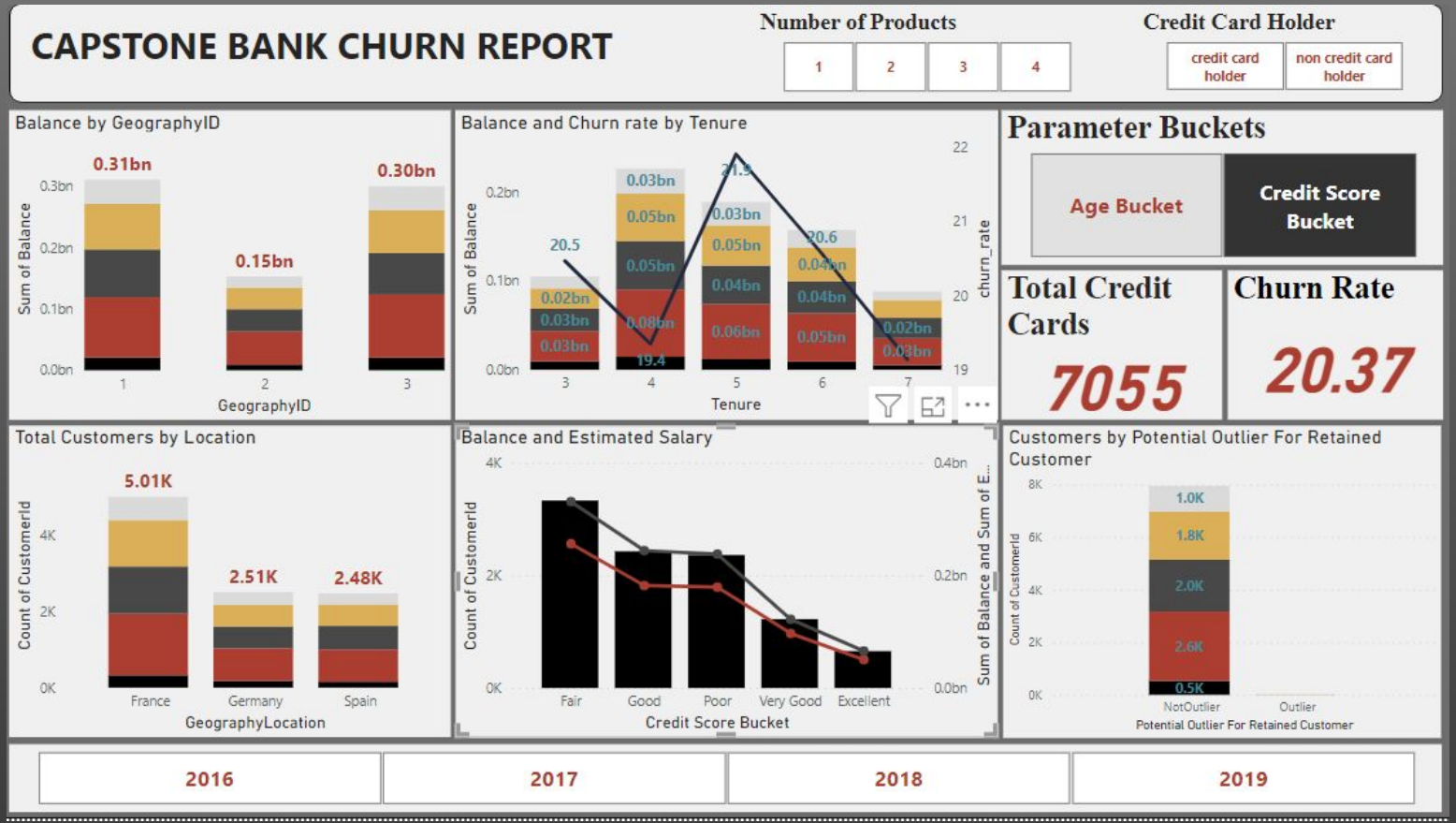
- Our business is lagging in germany and Spain. We have seen high churn rates in Germany. To increase our presence in this regions we need to focus our marketing more on this regions. We need to compare what other banks are offering, which are making customers to go to that banks leaving us. We need to come up with similar or better offers to increase our customer base in this locations.

Contd.(Strategic planning)

Based on customer age:

- Customers in the age group (30-50) contributes max to our business. We also see that young customers in age bucket (18-30) contributes very little to our business.
- This customers are of utmost importance to the bank, as this customers will have long tenures with us. We need to make special strategies to capture this age segment. We can come up with incentives like cheap loans, better cashbacks, more student and business loans at affordable rates. This will help in keeping our customers and reduce churn rates as well as new customers will join us by seeing offers provided.
- For customers in age segment (50+), we can come up with solutions which will make bank processes simpler and easier, so people in this age segment will also prefer our bank and we will be able to increase our business.

Dashboard


CAPSTONE BANK CHURN REPORT
Number of Products
1
2
3
4
Credit Card Holder
credit card holder
non credit card holder
Balance by GeographyID
0.31bn
0.15bn
0.30bn
Sum of Balance
GeographyID
Balance and Churn rate by Tenure
Sum of Balance
churn_rate
Tenure
Parameter Buckets
Age Bucket
Credit Score Bucket
Total Credit Cards
7055
Churn Rate
20.37
Total Customers by Location
5.01K
2.51K
2.48K
Count of CustomerId
France
Germany
Spain
GeographyLocation
Balance and Estimated Salary
Count of CustomerId
Sum of Balance and Sum of E...
Fair
Good
Poor
Very Good
Excellent
Credit Score Bucket
Customers by Potential Outlier For Retained Customer
Count of CustomerId
NotOutlier
Outlier
Potential Outlier For Retained Customer
2016
2017
2018
2019

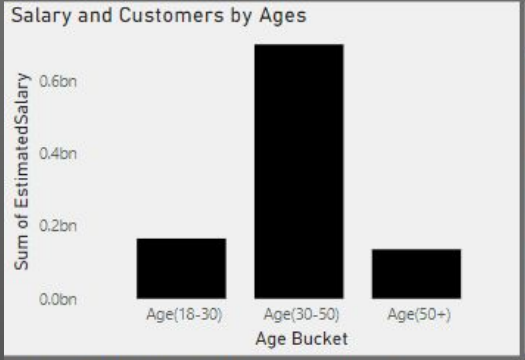
Contd.(Dashboard)

DEMOGRAPHIC REPORT

Exited: Exit | Retain

Gender: Female | Male

Activity: Active Member | Inactive Member



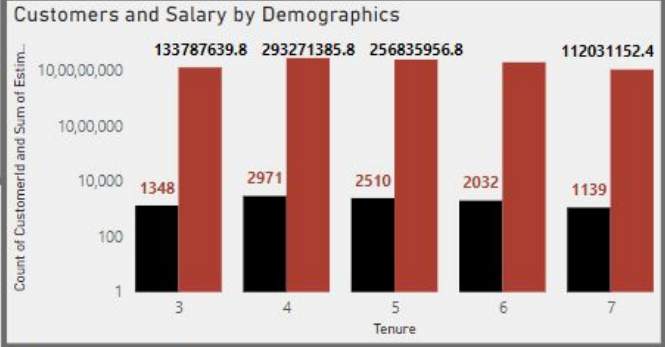
CustomerId	Sum of EstimatedSalary	Credit Score Buc
15565701	90,212.38	Good
15565706	83,256.26	Fair
15565714	96,517.97	Fair
15565779	1,88,258.49	Fair
15565796	74,510.65	Very Good
15565806	30,583.95	Poor
15565878	1,97,963.46	Fair
15565879	56,185.98	Excellent

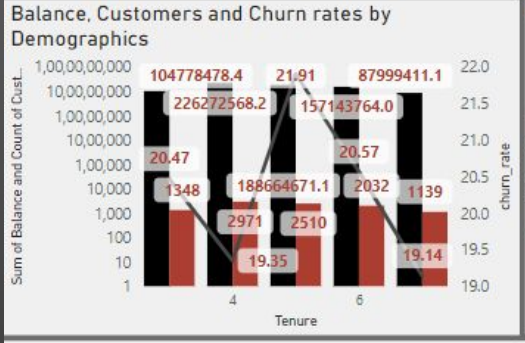
Churn Rate

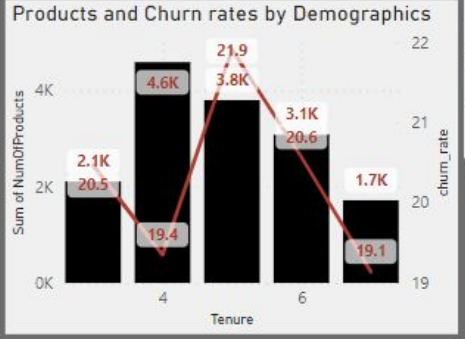
20.37

Total Credit Cards

7055







Demographics

- Tenure
- Year
- NumOfProducts
- GeographyLocation

Credit Score Types

Excellent | Fair | Good | Poor | Very Good

Conclusion

- Maximum of our business is from France. Germany has seen maximum churn rates among all regions, and we have to work both in Germany and Spain to give tough competitions to banks in those regions
- Our customers uses very few services and products provided by us, we need to increase the use of services and products by the customers.
- We have to focus more on customers who are in age group (18-30) as they are still young and can provide us with maximum business.
- We need to bifurcate our customers based on their credit scores and we need to incentivise our customers accordingly.

"It's not about how many customers you have, it's about how many customers have you."

THANK YOU