2023

German Bank - Executive Report

A1: Data-Driven Strategic Recommendations

JOO HAN

MBAN 2

DATA VISUALIZATON

The purpose of this analysis was to understand the dynamics of what makes a client either high or low risk in order to have a few parameters in mind when preparing for new customers. The data source, provided by the German Bank, consists of a few parameters usually recorded when a customer is asking for a new line of credit. Based on these factors as well as other factors not included in the dataset, the customer is deemed good or bad and thus associated as either a more risky or less risky client. Amongst this dataset, the most common parameters typically associated with the risk level of a client is their age, number of existing credits, how many months duration they have remaining on their credit, number of assets, and the length of employment. Thus, this analysis's purpose is to not only understand the dynamics of client risk but to answer if the common notion of the aforementioned variables really do influence the risk levels.

Age is an inherent parameter as it does not typically have direct associations with a client's risk level; however, there are a few indirect effects that can be noted. One such associated can be noted in the first line graph, "Age Vs Credit Duration". Here the trend implies that as the duration of one's credit until expiration goes up, the average age of the credit holder decreases. This could be explained by the fact that younger individuals tend to by more risk tolerant and create new lines of credit with new expiration dates causing the individual's duration marker to be higher than those older than them. Furthermore, when moving the duration metric to a range of four to eleven, the number of less risky clients changes to 153 while more risky clients lies at 27 leaving a total less to more risk ratio of 85% shown in the "Age Distribution and Risk" chart. This means that a remaining credit duration of four to eleven months is typically associated with an elevated level of less risky clients.

Additionally, the elevated level of less risky clients in the four to eleven credit expiration duration is associated with peak ages of 25 and 35. However, it should be noted that the remaining 15% of clients that are more risky clients encompass the ages of 15 to 45, albeit in much lower counts. This could mean that these are the age ranges in which predicting a new customer to be a more or less risky client, taking this age range into account may be beneficial. In regard to the whole dataset (a duration of 4 to 72), it is interesting to see that the trend between the clients that are more or less risky is very similar, just at different scales. This implies that the duration should be considered when viewing age for profiling potential clients as having a large range causes an undiscernible trend. Another interesting point to note is that the peak for both the 85% duration range and the overall duration range is at the age of 25; however, this may be due to the large quantity of the clientele base that is looking for a new line of credit is, on average, 25.

On the notion of opening new lines of credit, the next parameter that is typically thought to be associated with being a risky client in terms of credits is the number of existing credit lines an individual already has. The general trend here is that there seems to be little to no difference between the number of existing credit lines and whether or not the client would be deemed less risky with the largest difference being between when an individual owns 3 and when an individual owns 4. Overall, it seems that a less risky client is associated with having 3 lines of existing credit. This trend is further supported when changing the duration once again to the 4 – 11 range. Here, there are no individuals with four lines of credit and those who own three are all considered lower risk clientele.

The final two parameters associated when viewing riskiness of a client is the number of assets an individual owns as well as how long they have been employed for. The number of assets is an important factor as the more an individual owns, the increase likelihood of their ability to have the funds in repaying the used credits. Similarly, the years employed gives a similar notion as the longer one has been employed, the more likely they are to not only have a steady income for repaying credit but a potential savings account that the individual could draw from. These notions seem to be true as reflected from trend shown in the “Number of Assets” chart. This trend implies that the as an individual increases the number of assets they own, the likelihood that the individual would be considered a riskier client decrease. This trend stands true even when changing the duration filter to 4 – 11.

The years employed match its perceived notion as well as those who have no job or have only worked for less than a year had a population of 54% and 59% less risky respectively. On the other hand, working from 1 to 4 years had a 69% less risky population, 4 to 7 years had a 78% less risky population, and finally more than 7 years with 75% less risky population. It is interesting to note that more years does not necessarily mean more likelihood to be less risky as those who worked 4 to 7 years did slightly have more less risky clientele than those who worked for more than 7. This could be due to those who are in their 4^{th} to 7^{th} year of their career tend to be younger as shown by the age distribution chart whereas those who are working beyond 7 years in their career skews the age distribution to an older age.

Based on the delivered evidence, it seems clear that the notion that the age, number of existing credits, how many months duration they have remaining on their credit, number of assets, and the length of employment does play an important role in determining one's risk level. However, through some careful filtering, these factors can be nuanced and even carefully crafted in order to optimize to find clientele who are less risky. Thus, the final recommendation would be that those who are in their mid-20s to mid-30s, have a remaining credit duration of 4 to 11 months, have three existing credit lines, more assets (7 or higher), and employed from 4 to 7 years are typically less risky clients and should be pursued after.

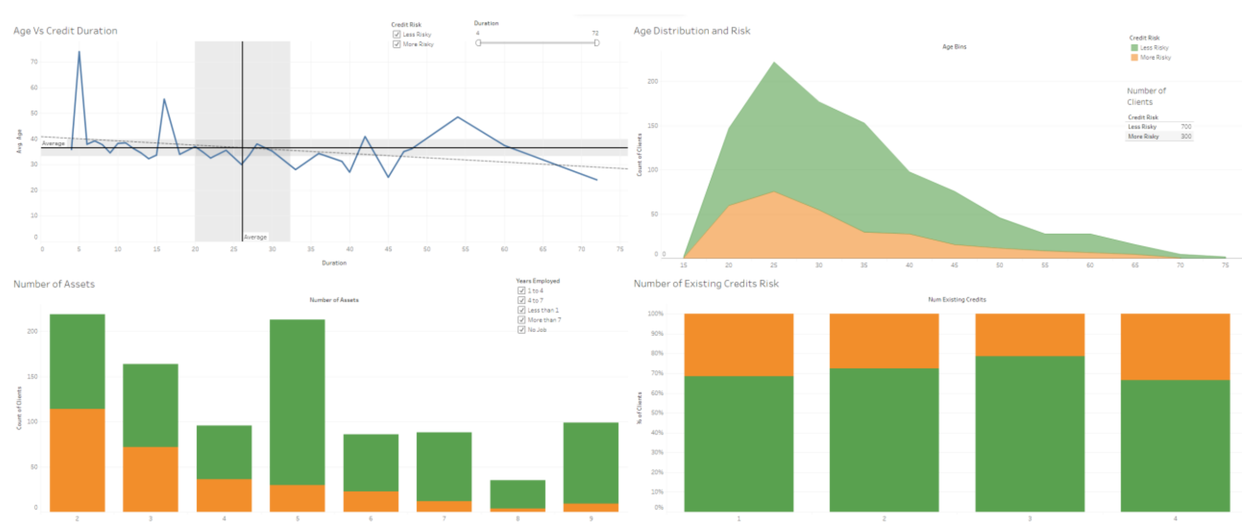

Figure 1. Overall Dashboard

Figure 2. Dashboard Filtered for Duration of Remaining Credit to be Between 4 and 11

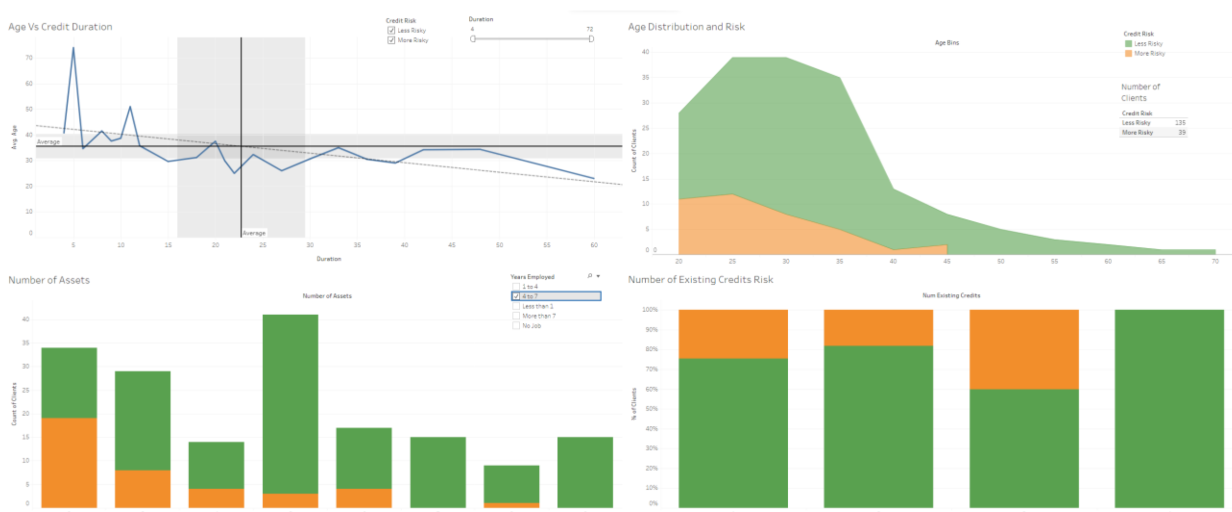

Figure 3. Dashboard Filtered for Those Who Worked from 4 to 7 Years.

Dashboard: https://public.tableau.com/views/a1datavizv2/A1DataViz?:language=en-US&publish=yes&:sid=&:display_count=n&:origin=viz_share_link