

Part II

Prosper Loans Explanatory Analysis

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Investigation Overview

What Alpha Rating tend to get a higher loan and/or better APR?

The goal of this presentation is to offer visualizations of the relationships between Occupation, Loan Amount, Borrower APR, Prosper Score, Accounts Created over time and Prosper Alpha Ratings.

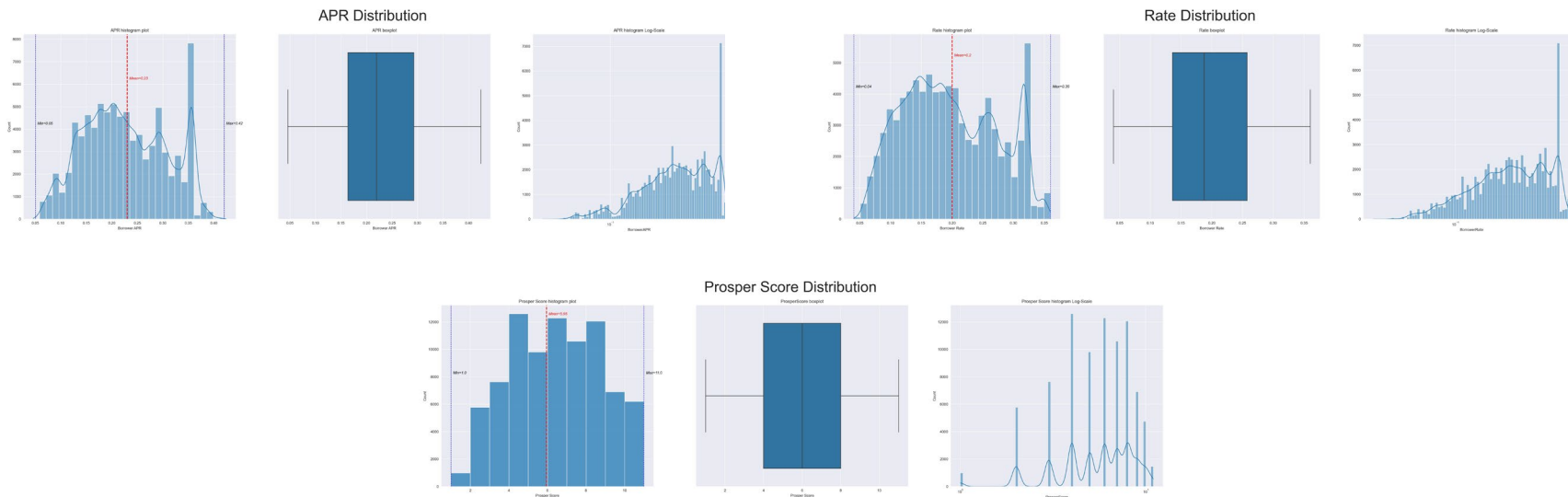
Dataset Overview

The Prosper loan dataset contains 113,937 loans with 81 variables on each loan, including loan amount, borrower rate (or interest rate), current loan status, borrower income, plus other features.

PLEASE NOTE: Prosper Score was added to accounts that originated after July 2009. With this being said, this analysis will only focus on record with a Prosper Score.

Distributions

* The APR data distribution is unimodal and skewed to the right, with a single mode of 0.35797, indicating that the majority of the values are close to this value. The range and interquartile range are relatively small, indicating that the data is not spread out. The Rate data distribution is also unimodal and skewed to the right, with a single mode of 0.3177 and small range and interquartile range, indicating that the data is not spread out. There are no outliers in the data. The Score data distribution is multimodal and skewed to the left, with a mode of 4.0 and mean of 5.95 being less than the median of 6.0, indicating that there might be multiple groups of data. The range and interquartile range are relatively wide, indicating that the data is spread out.

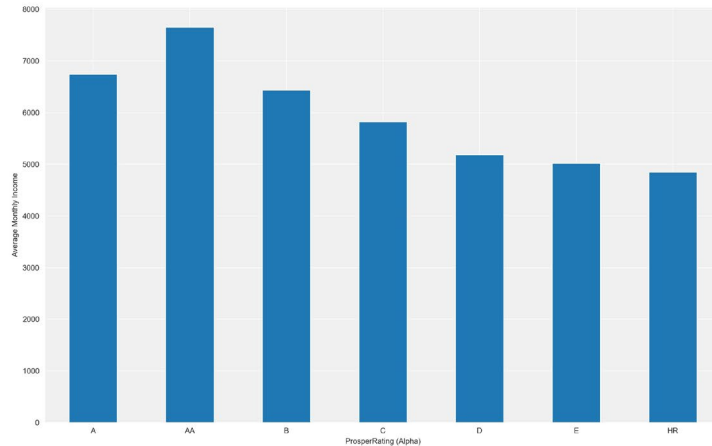
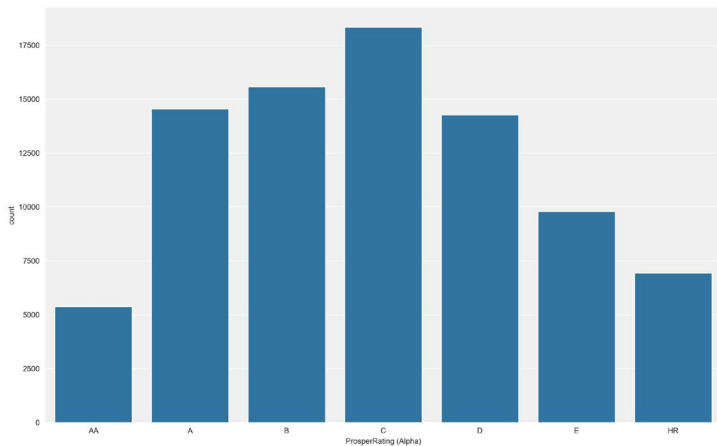


The Borrower APR and Rate seem to be relatively the same and after looking into the Rate outliers and verifying them I will focus on APR and not the Rate going forward

Alpha Ratings

The Prosper Alpha Rating tell us that the majority of accounts fall under the rating C which is the mid point of the rating. The best rating "AA" has the lowest number of accounts. We can also see that Accounts with an Alpha Rating of AA have a higher average Monthly Income of \$7,500 Followed by account with an Alpha Rating of A of \$7,000. Lowest Average Monthly Income fall under Alpha Rating HR

Accounts by Alpha Rating & Average Monthly Income

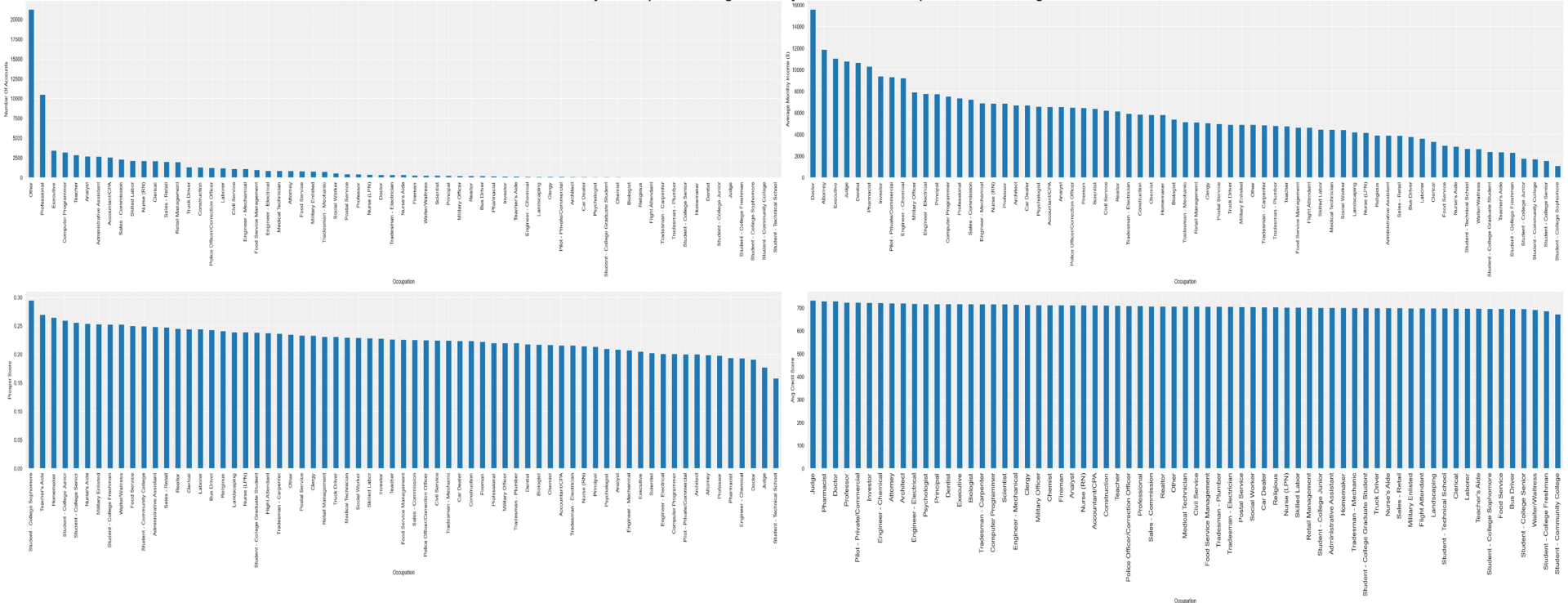


Occupations

For Occupations: We see that "Other" has the highest number of accounts followed by "Professional"

The Occupation with the highest average Income is Doctor with an average income of just under \$16,000/Month, followed by Attorney, Executive, Judge, Dentist & Pharmacist making over \$10,000/Month. The Occupation with the highest average Prosper Score is Student - College Sophomore with a Prosper Score average of just under 6.3. 45,159 accounts have an avg credit score over 700

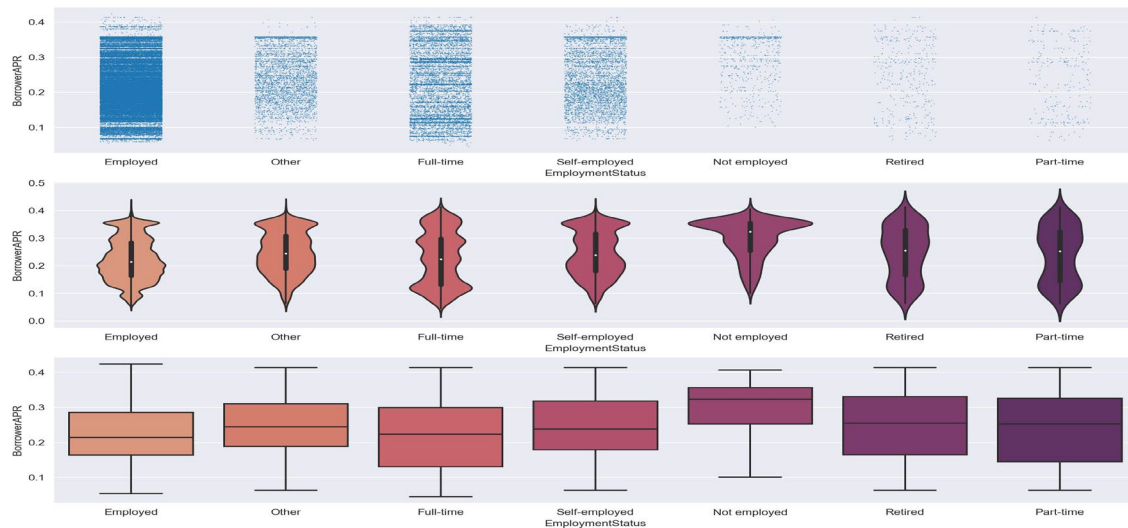
Number of Accounts by Occupation, Avg Monthly Income & Prosper Score & Avg Credit Score



Borrower APR & Employment Status

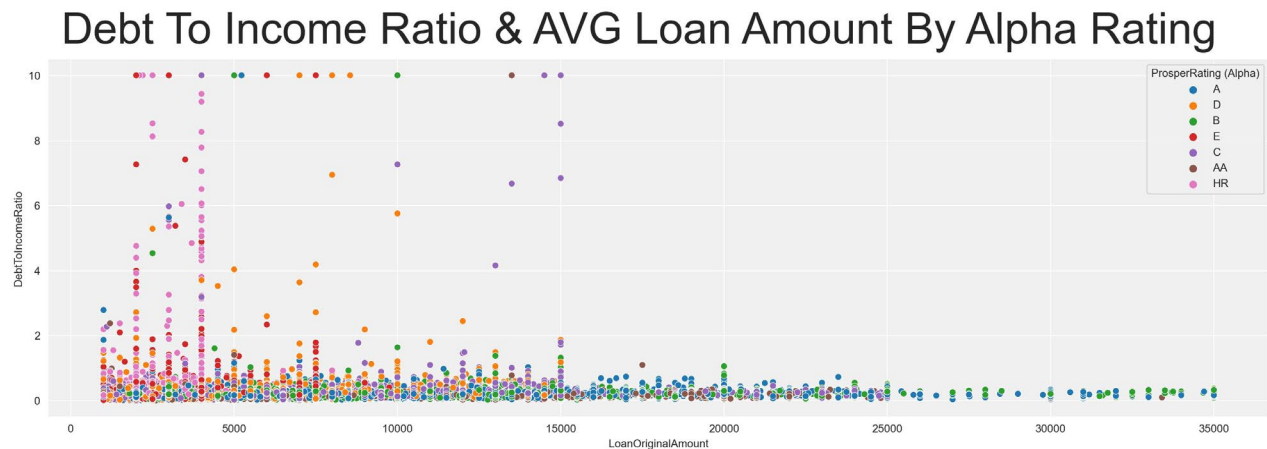
Employed and Full-Time have almost the same APR range. However, more accounts have are listed as Employed. Other and Self-Employed also seem to have the same range. Not employed seem to concentrate more at a APR rate of .35 where as Retired does have some concentration at around .29 & .35 APR. Part-Time seems to concentrate at three different APR levels: 0.11, 0.29 & 0.35

Borrower APR & Employment Status



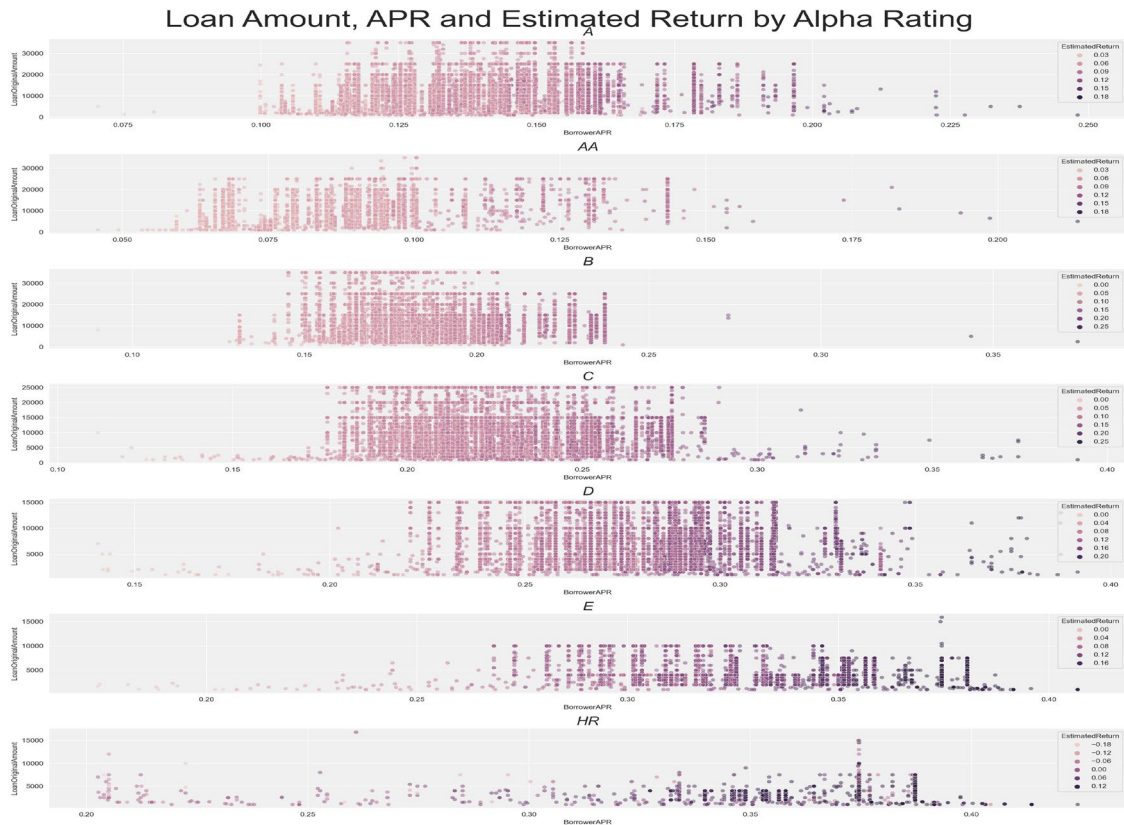
Debt To Income Ratio & AVG Loan Amount By Alpha Rating

90.61% of accounts have an average loan of \$17,500 or under and after further exploration it was determined that Accounts with an Alpha Rating of C hold an average loan of \$16,588. Most accounts with a Rating of HR have lower loan amounts



Loan Amount, APR and Estimated Return By Alpha Rating

The majority of accounts with a Rating of A, AA, B & C tend to get an APR of .25 or lower while accounts with a Rating of D, E, HR tend to get an APR higher than .25. We can also see the majority of accounts with a E rating have a loan of \$10,000 or less. Some account have a higher loan but not many.

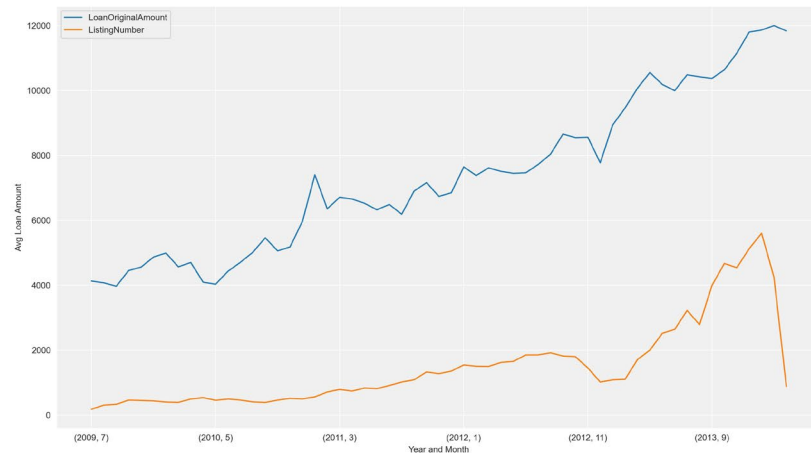
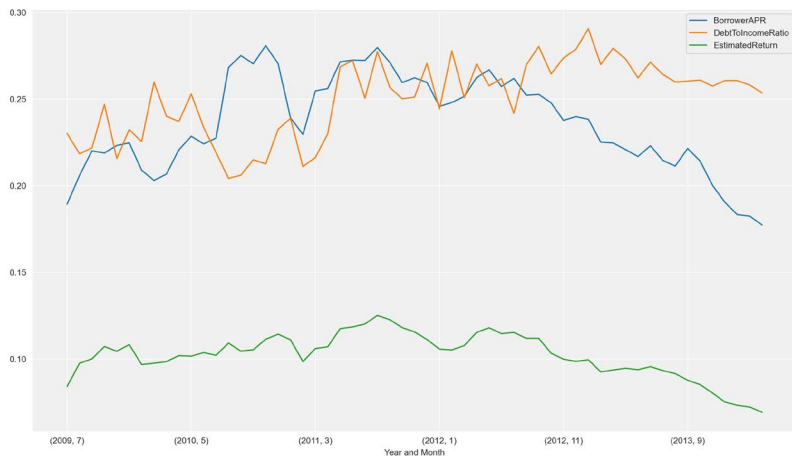


Loan Amount, APR and Estimated Return By Alpha Rating

APR rates fluctuated from 2009 to the end of 2013. Accounts opened after Oct 2012 were able to get an APR of .25 or lower.

During that same time the number of accounts grew steadily from and peaking at 7,000 accounts by the end of 2013.

DebtToIncomeRatio, BorrowerAPR, EstimatedReturn & LoanAmount, Account over time



Conclusion:

After analyzing the Prosper dataset I've concluded that on average, accounts with a Rating of A, AA, & B get a higher loan. It is also worth mentioning that occupations such as Doctor, Judge, or Professional also tend to get a higher loan but not necessarily a better APR rate.