

Loan Analysis with Tableau

Tableau Public Workbook

Original Version

https://public.tableau.com/profile/laura7226#!/vizhome/Project_231/Story1

Final Version

<https://public.tableau.com/profile/laura7226#!/vizhome/ProsperVisualization-Version2/Story-Version2>

Summary

Prosper Marketplace is a peer-to-peer lending marketplace where borrowers can request loans and investors can provide funding. This visualization explores loan data from November 2005 through March 2014, and tracks the performance of these loans over time. The purpose of this visualization is to show that borrowers having more credit in use, coupled with reduced costs for lenders, is related to the massive company growth in 2013. With more people needing to borrow money, and lenders more willing to finance it, debt consolidation became the largest driver of Prosper's growth.

Design

Version 1

This initial version focuses on the amount of money lost on investments, and looks at the 2007 and 2012 loss peaks, performance by state, and default/charge off rates.

Loan Amounts

The Story starts with a look at the average value of a loan and the number of loans over time. This visualization was plotted on a dual axis line chart, to show the relationship between number of loans and value of loans. It is designed to give the reader the visual confirmation that as the number of loans increases, so does the value.

Net Losses

This page focuses on yearly net losses on loans. This is to emphasize that loans in 2007, right before the great recession started, resulted in huge losses. In 2012, there was also another peak of losses, but is significantly less than that of 2007.

Losses by State

This visualization looks at where the losses are being generated. The state map allows a user to filter by year and shows on a color scale where the heaviest losses are by percentage. I had originally designed it to show the number of records, however most loans were generated in California, which skewed the data. Showing the percent loss per state is much more descriptive and identifies which states generated the highest losses.

Because loans that originated in 2014 were too new to be defaulted or charged off, that year was omitted from the visualization.

Since the chart is showing percent losses, a red color scale is used.

Loan Status

This bar chart gives readers a visual representation of the number of loans compared to the performance. For example, in 2007, the amount of Charged off and Default loans is pretty significant compared to the number of Completed loans. When you compare it to 2012, the amount of charged off and defaulted loans compared to completed and current loans is significantly smaller.

The bar chart is also a good representation of the massive growth in 2013.

Loan Types

This packed bubble chart utilizes two types of marks to describe the loan original amount: size and color. The tooltip also shows the number of records per loan type, and this further emphasizes the volume of loans that are taken out for Debt Consolidation.

Gray is being used for the color scale as it is a neutral color.

Version 2

From the feedback regarding Version 1, it appears that the story being told was muddled and unclear. It looked like it was more of a statement on economic growth, rather than looking at the default rate and why these loans were being made in the first place. The 2013 growth spurt was particularly interesting, so I did some research if there was an external reason why there was so much growth. It turned out that Prosper was purchased and under new management. It was this new management that caused the massive increase in loans and loan amount. This large influx of data, along with the early 2014 upper range of the data skewed some of the visualizations.

To present a more concise story, several sheets were removed and the story was focused down to explaining how debt consolidation was the biggest driver of Prosper's growth, instead of focusing on losses over time.

Loan Amounts

This sheet was changed to show total loan amounts instead of the average. This change provides a better representation of how rapidly loan values increased from early 2013 on.

Borrower and Lender Motivations

This is a new dashboard that shows two different multi-axis line graphs: One focuses on borrower motivations and the other focuses on lender motivations. For the borrower motivations, it shows that in 2013, there was an increase in the amount of credit a borrower had in use, as well as an increase in the number of open credit lines. This indicates that borrowers were spending more money, but were also taking on more debt.

The lender motivations sheet shows the amount of fees the lenders need to pay to fund a loan. With a significant reduction in the cost to finance a loan, it makes it more appealing for a lender to finance it.

Loan Types

This sheet has been altered from the first version: the tooltip has been made more descriptive to show the percentage of total amount loaned, and percentage of number of loans. Additionally, it was converted into a dashboard, with a small bar chart showing the loan status. Users can click on a year and a loan type to see how many loans were completed/defaulted/charged off.

Feedback

Version 1

The reviewer for version one had the following notes regarding the visualization:

1. The visualization shows an economic recovery around 2012 and 2013, indicating that more people are willing to take on debt. As more people are taking on debt, the amount of debt per person increases as well.
2. For the “Loan Types” visualization, knowing the percentage of total would be useful.
3. He did not understand what Prosper was as a service, and wondered why there were no “Mortgage” loan types.

Resources

<https://www.forbes.com/sites/nickclements/2015/10/01/prosper-resurgent-the-original-marketplace-lender-experiencing-exponential-growth/#6939adb23e17>