

# LENDING CLUB ANALYSIS

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## BREIF FACTS

- Lending club is an American peer to peer company that helped borrowers to create loans ranging from around \$1000 to \$ 40,000 on their website by providing basic details about themselves, A credit grade was then assigned to reach borrower varying from A ( lower interest rates) to G (higher interest rates) which assigned them particular interest rate and fees. Investors made money form the interest on these loans. Lending club made money by charging investors a charging fee and investors a service fee.
- Lending club originally was based on the idea that it would be a social networking peer to peer networking service where borrowers would less likely to default lenders to whom they had some kind of common background or relationship. It made a algorithm called Lending match for identifying people with closely related networks
- Lending club operated as a middleman between the investors and borrowers by charging fees for the investor and borrowers. In this model the investors were made to buy securities from the Lending club , due to which Lending club were totally responsible for the payment of the borrowers amount. This is very risky in terms of as an Investors as they not only have to worry about the money being repaid to them after 3-5 years but also puts them at a risk of losing all the investment they did, in case Lending club declared themselves bank corrupt.

# DATASET

Target – accepted / rejected

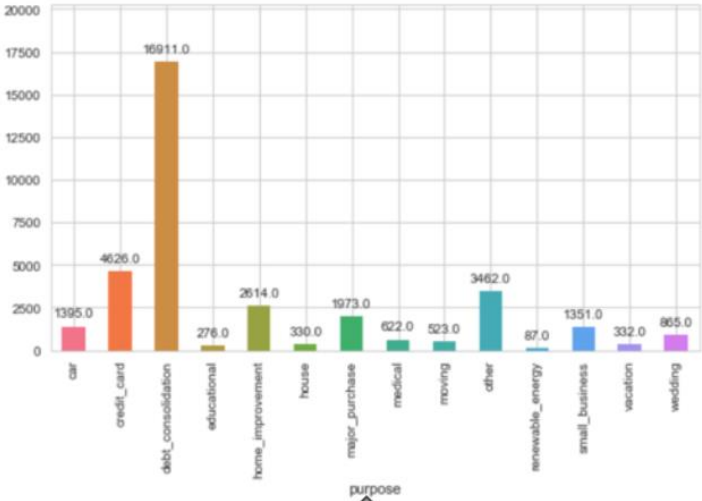
- Credit grade / risk score
- Dti ( debt to income ratio)
- Years of employment
- Requested amount
- Area
- Loan title

All the above variables the features that are common in both the accepted and rejected. We shall use them to figure out the various trends and patterns through out their initial days to days after the Lending club scandal to find reasonable answers to the Assignment.

# LETS LOOK AT SOME GRAPHS

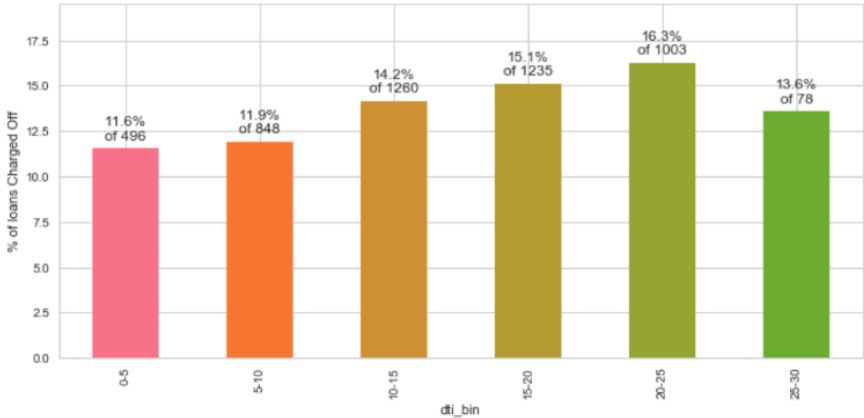
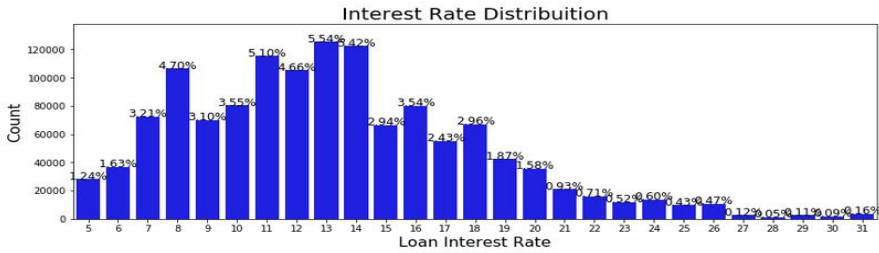
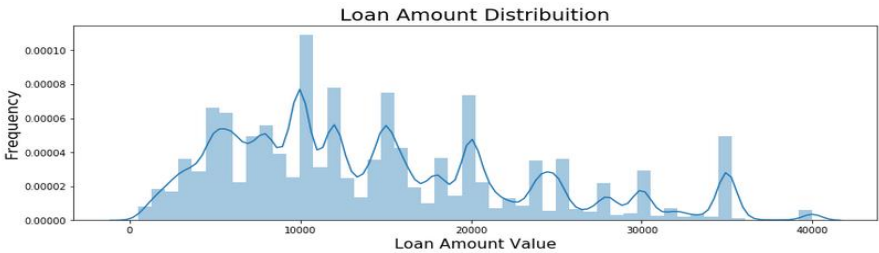
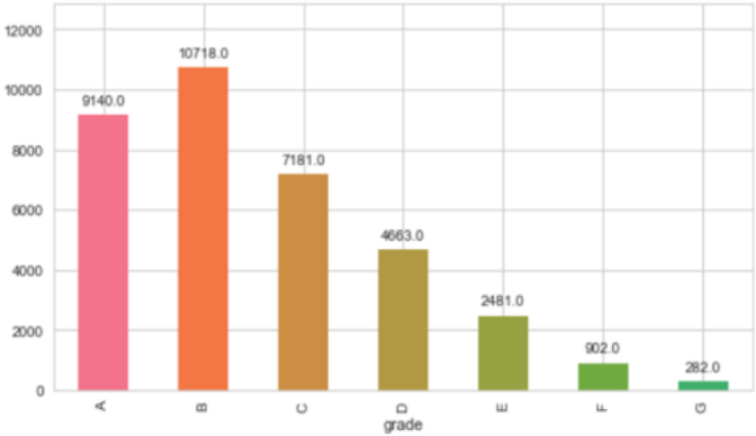
Q) What were the factors that governed whether an applicant got a loan from Lending Club? How did this change over time?

- the basis of the borrower's credit score, credit history, desired loan amount and the borrower's debt to income ratio.



Maximum number of loans are for debt consolidation, followed by credit card

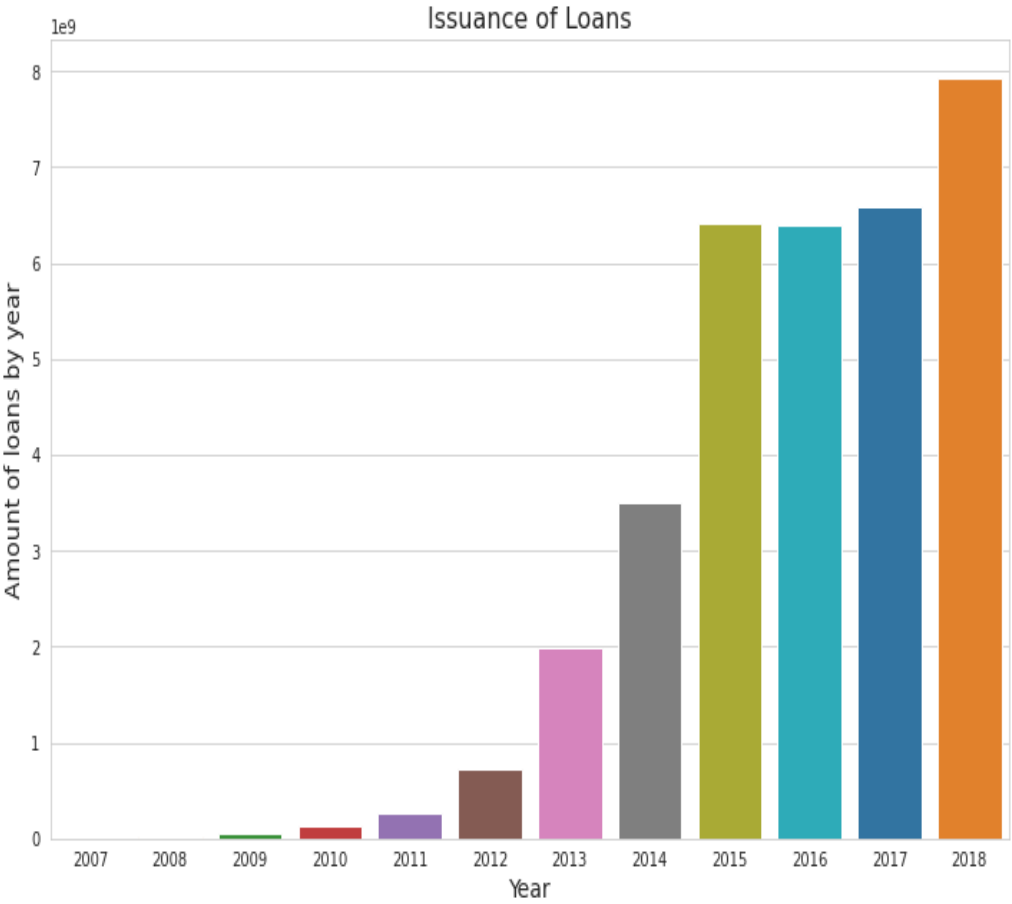
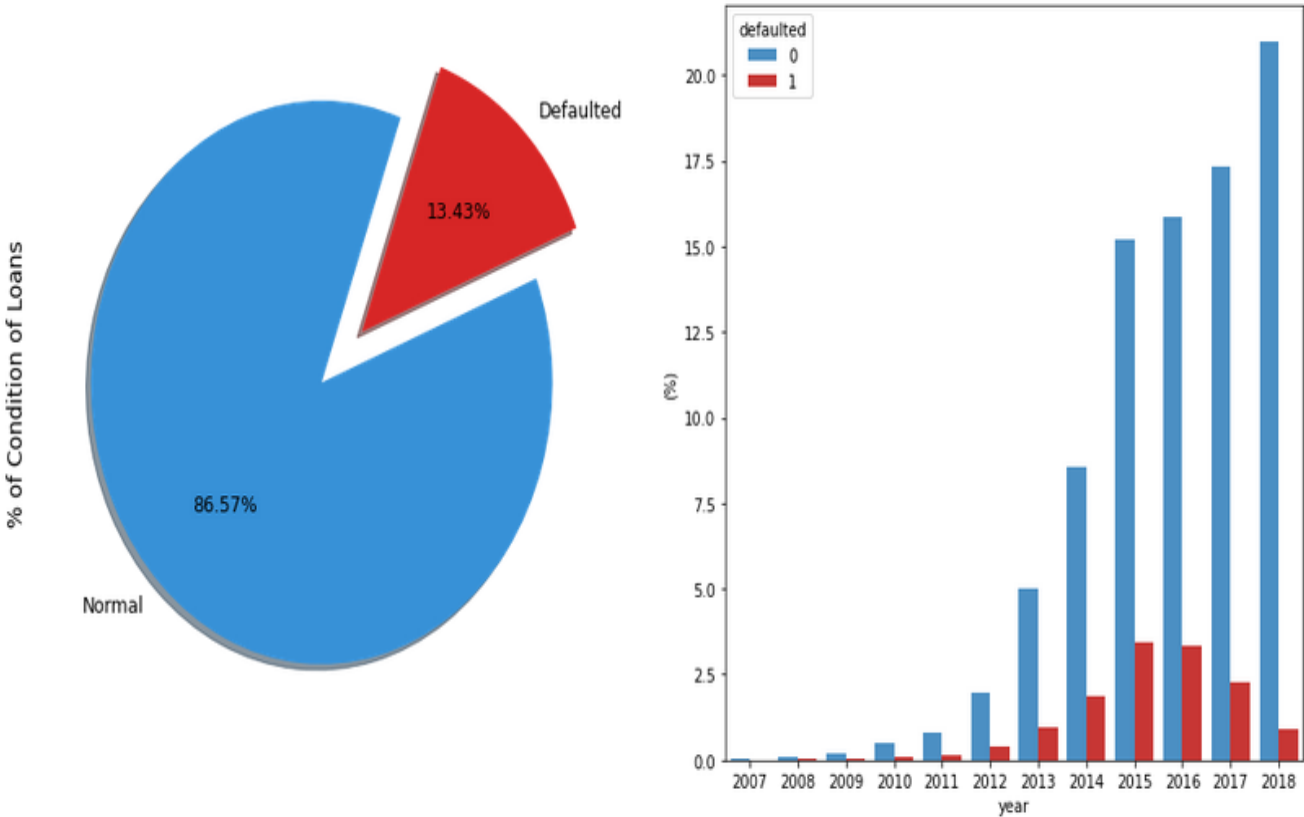
Most loans are high quality, with a grade of A or B



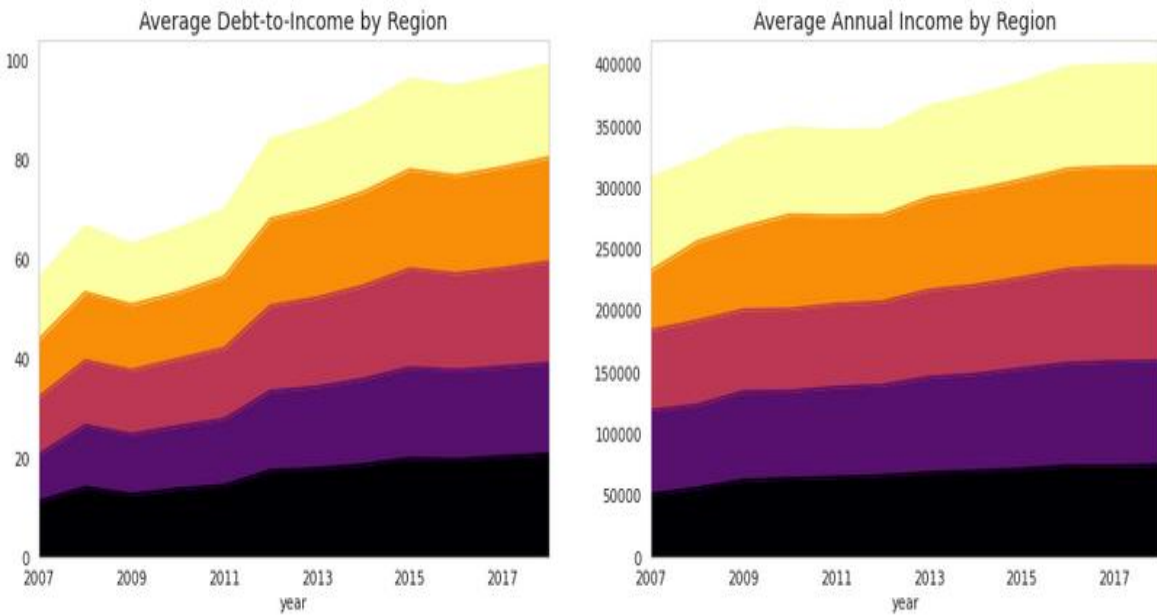
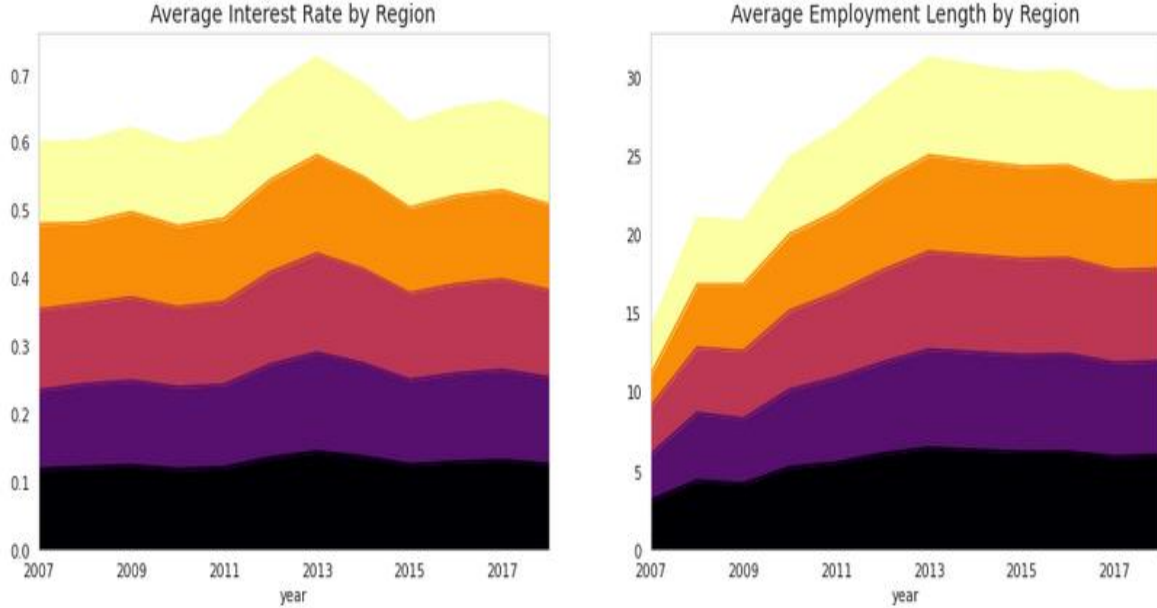
As the dti rises above 20, the loans become risky

Q) Based on the data, can you comment on how the business changed over the years? What impact did the crisis of 2016 have on the business?

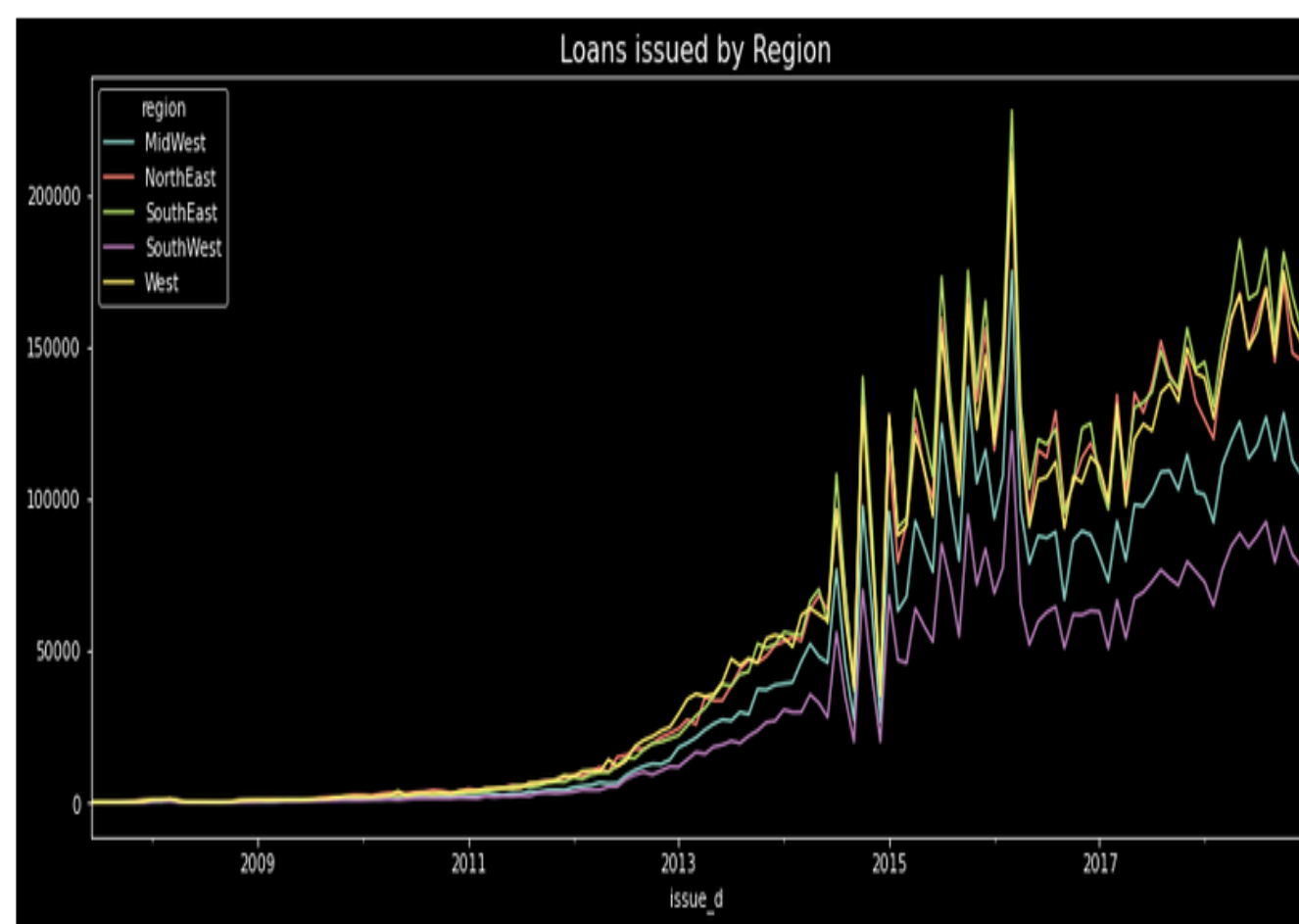
Information on Loan Conditions



Of the total loans, defaulted accounted for 13.43%, and by yearly analysis, bad loans have recently been on the decline, and have declined significantly in 2018



MidWest NorthEast SouthEast SouthWest West

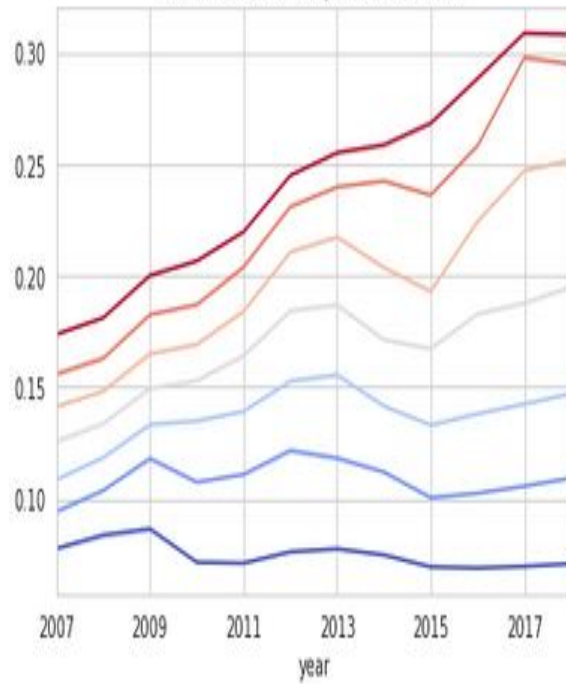


- The four graphs represent the annual trend of the average loan interest rate, number of years worked, DTI, and income distribution for each region.
- If you look at the graph, you can see that there are differences in income, difference in number of working years, difference in interest rate, and DTI in each of the five regions.
- Moreover, it shows that the ranking does not change from year to year, but gradually increases.

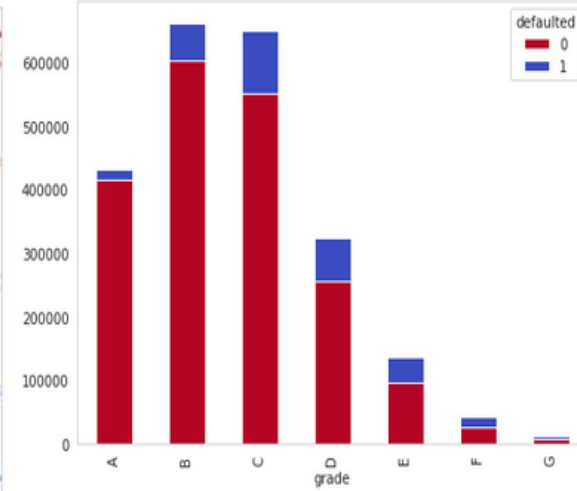
Loans issued by Credit Score



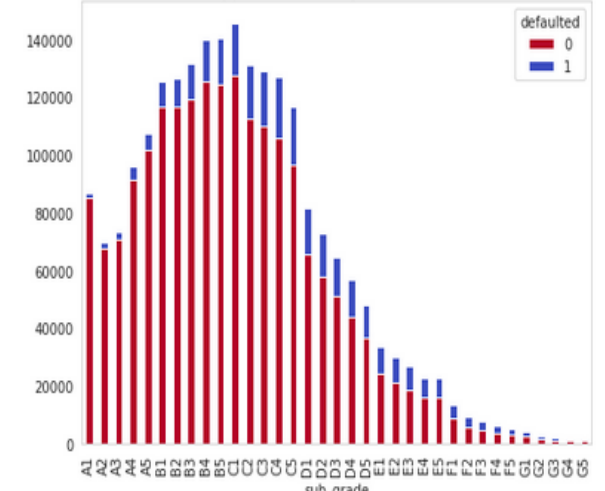
Interest Rates by Credit Score



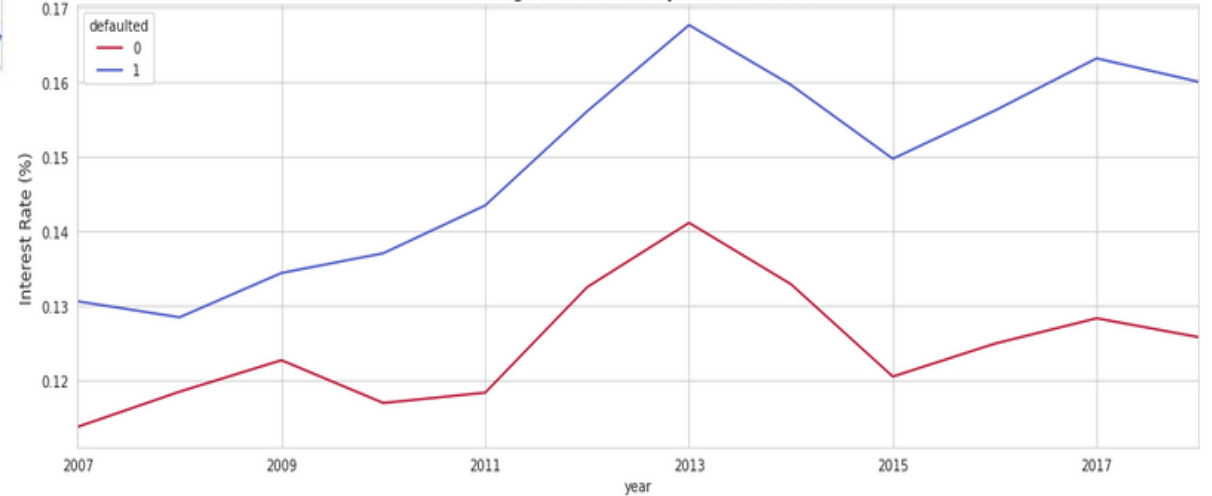
Type of Loans by Grade



Type of Loans by Sub-Grade



Average Interest rate by Loan Condition

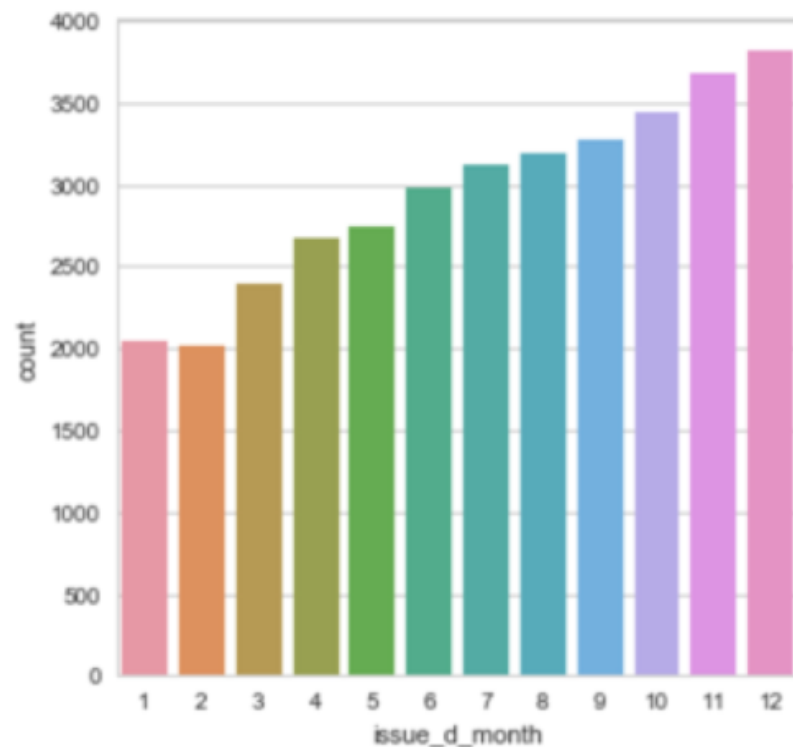


- Higher grades (A, B) loans are increasing, and lower grades (F, G) loans are gradually decreasing.
- Interest rates for higher grades (A, B) are falling, and interest rates for lower grades (F, G) are gradually increasing.

- Most of the loan execution is done at credit ratings A, B, C and D.
- The interest rate on bad debt (defaulted=1) seems to be relatively high.

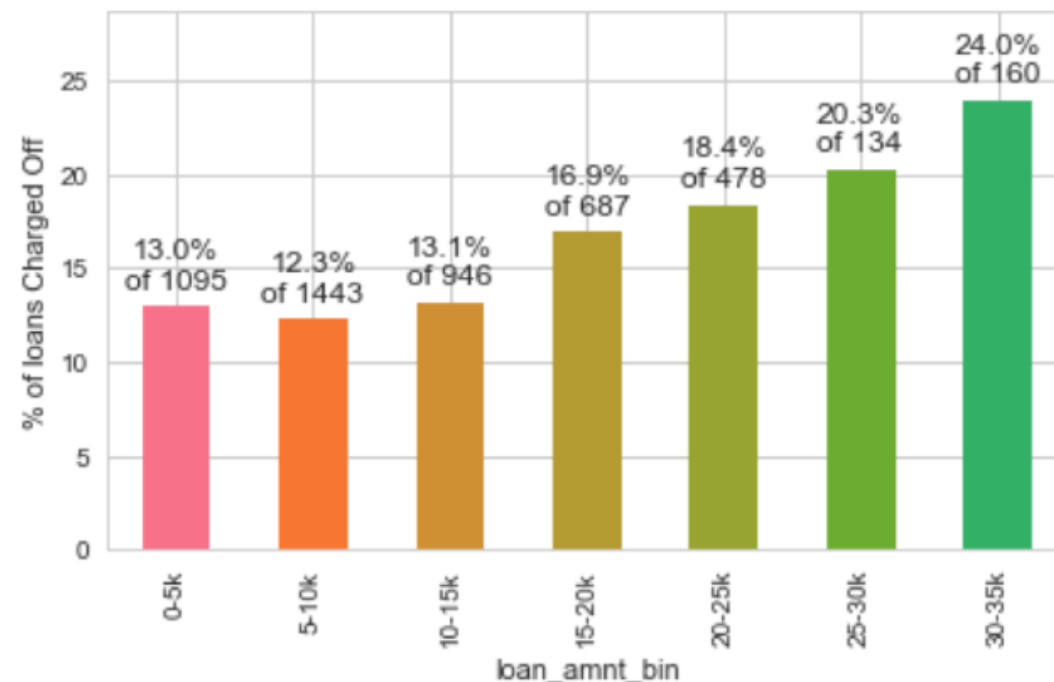
**Q) Any other interesting stories you can tell about the business based on the data that you have.**

Loan numbers increase as months get closer to year-end. Are people trying to meet targets?



As the loan amount increases, the chance of default also increases.

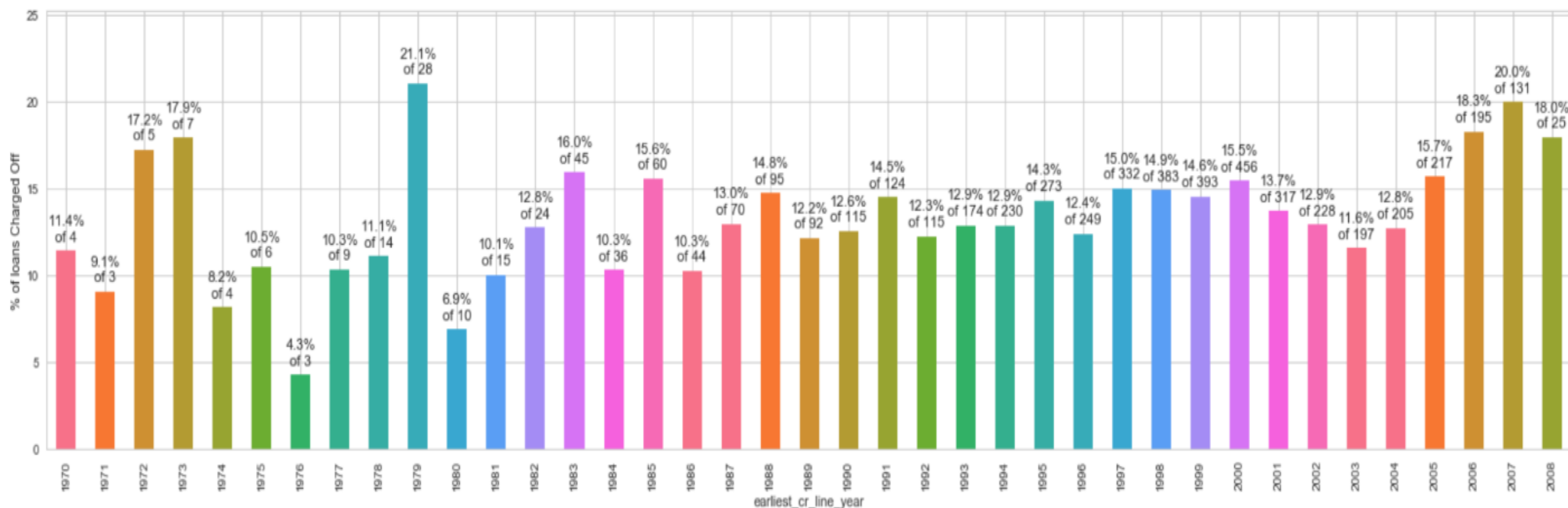
**High value loans are being extended to questionable quality borrowers?**





People who took their first loans just before an economic crisis, like the one in 1980 and the subprime crisis in 2008, have higher rates of default.

Presumably, these are young people who were affected by the economic conditions of their early career.



# REFERENCE

- <https://en.wikipedia.org/wiki/LendingClub>
- <https://www.youtube.com/watch?v=73LXyrAFNvY>
- <https://www.kaggle.com/kabure/lending-club-insightful-financial-eda>
- <https://www.kaggle.com/pileatedperch/predicting-charge-off-from-initial-listing-data#5.-Pre-processing-and-Exploratory-Analysis>
- <https://www.kaggle.com/jonchan2003/exploration-of-lending-club-data>

THANK YOU