Financial Management and Risk Assessment of LendingClub Loans

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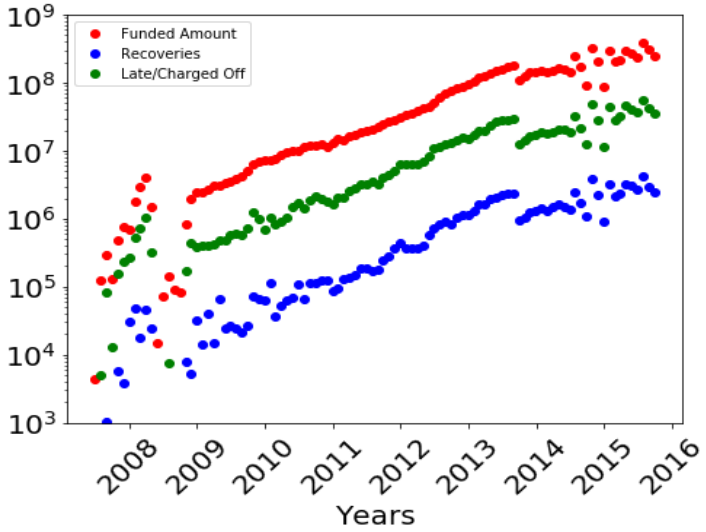
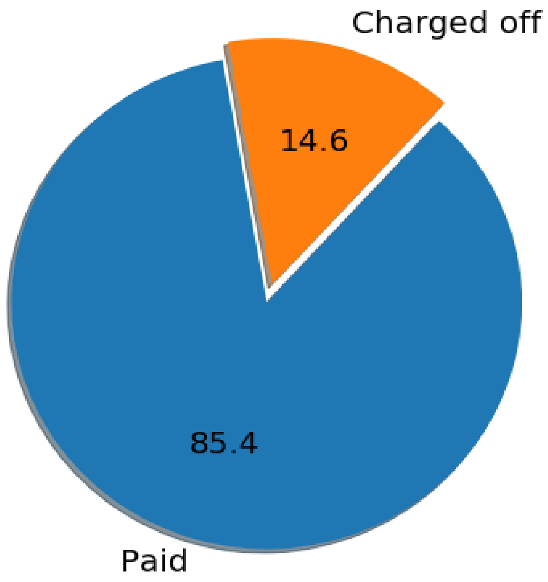
Lending Club

- Not a bank – but like a bank.
- Gives personal loans to $40,000
- Connects investors for good returns.

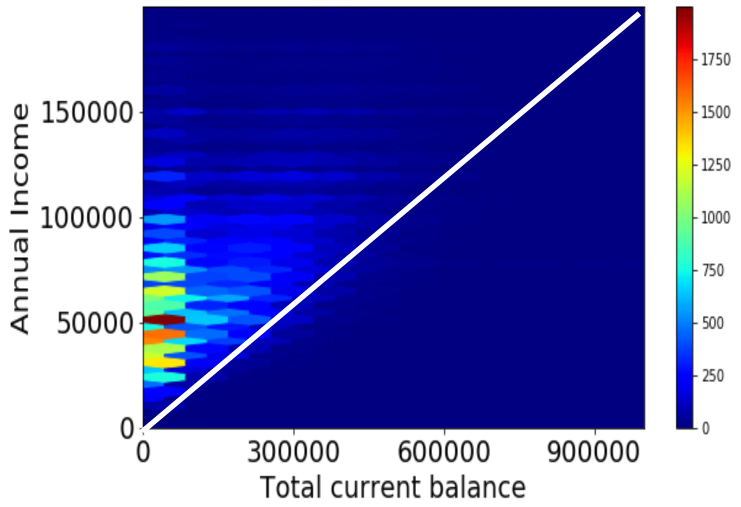
Financial History

- Started in 2007
- Logarithmic growth over time.
- Large fraction of Late/charged-off payments.



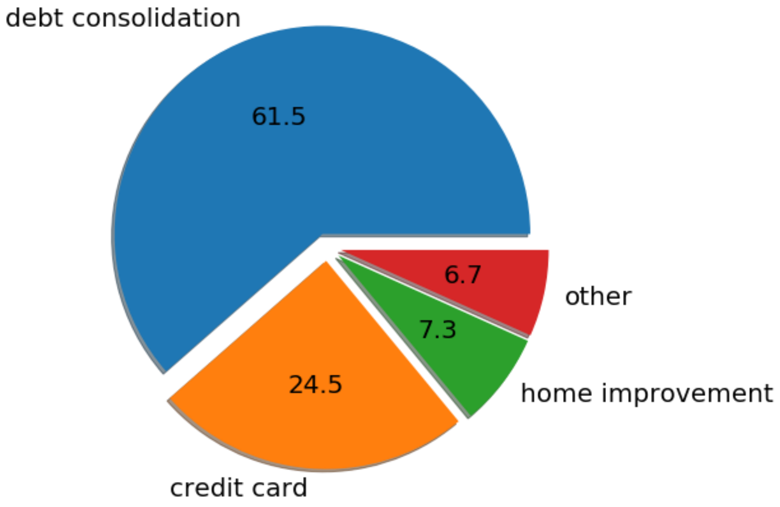


borrowers?



Who?

- Income below $1,00,000.
- Current loans less than 5 times yearly income.

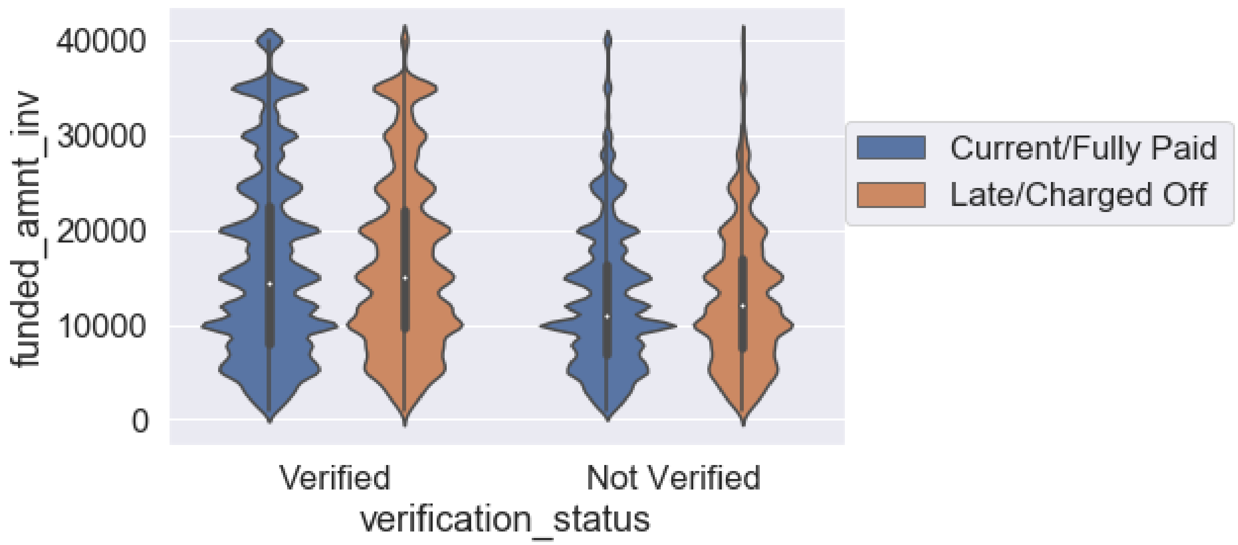


Why?

- Debt consolidation
- Credit card payment

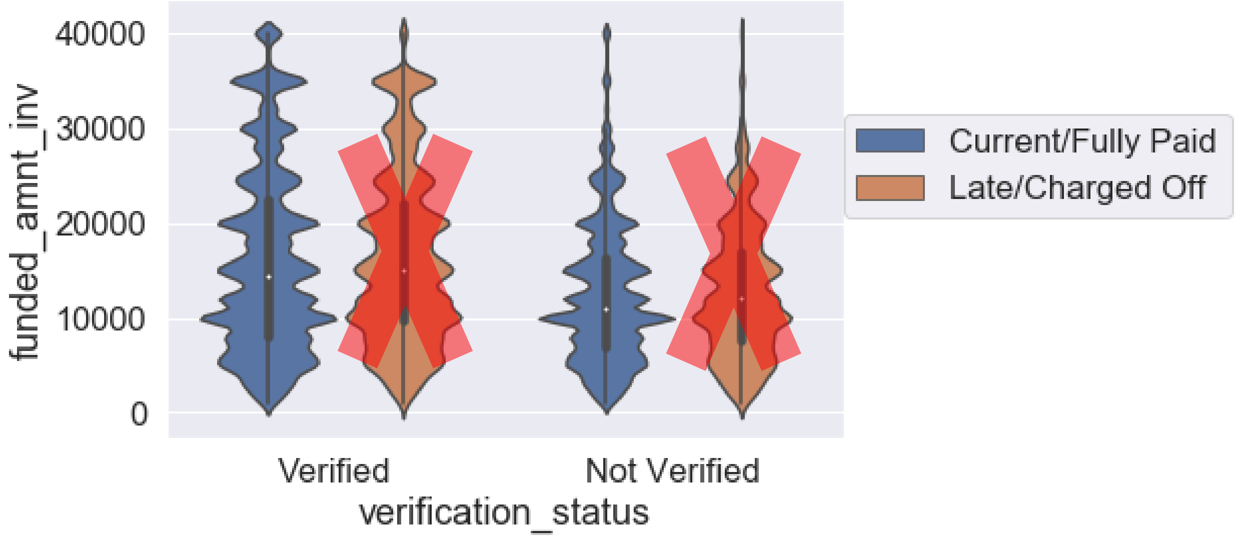
Loan Distribution

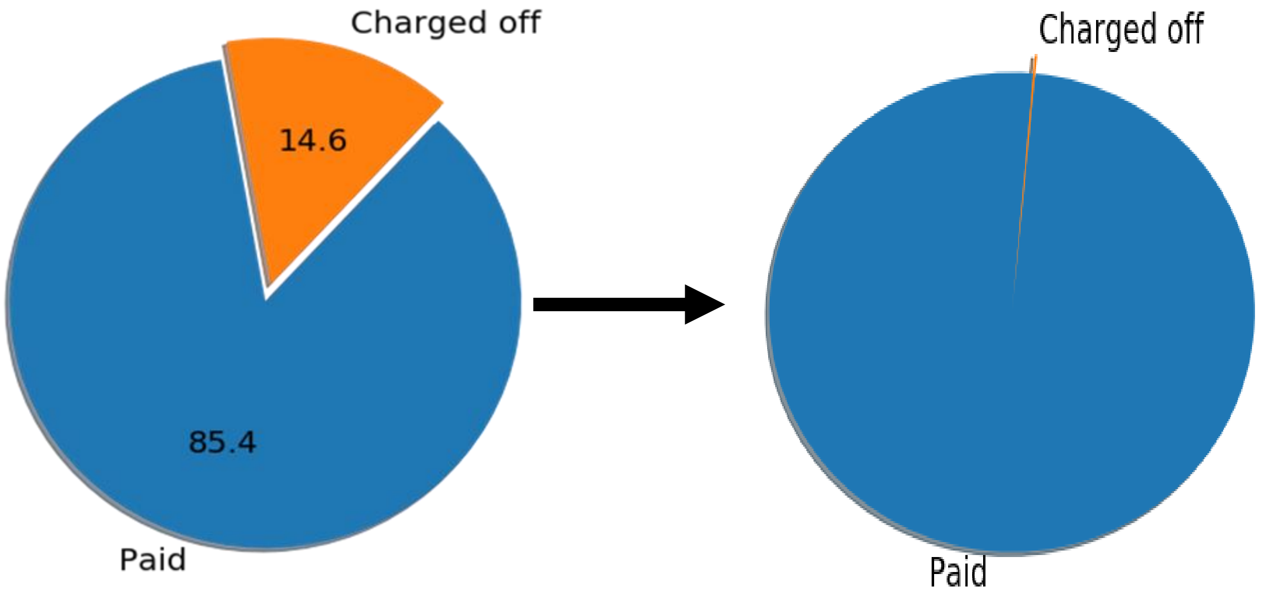
- Only income verified borrowers get high amount.
- Distribution among good and bad borrowers is similar.



Current Goal

- Minimize Late/charged-off payments.
- Risk quantification.
- Estimate returns.



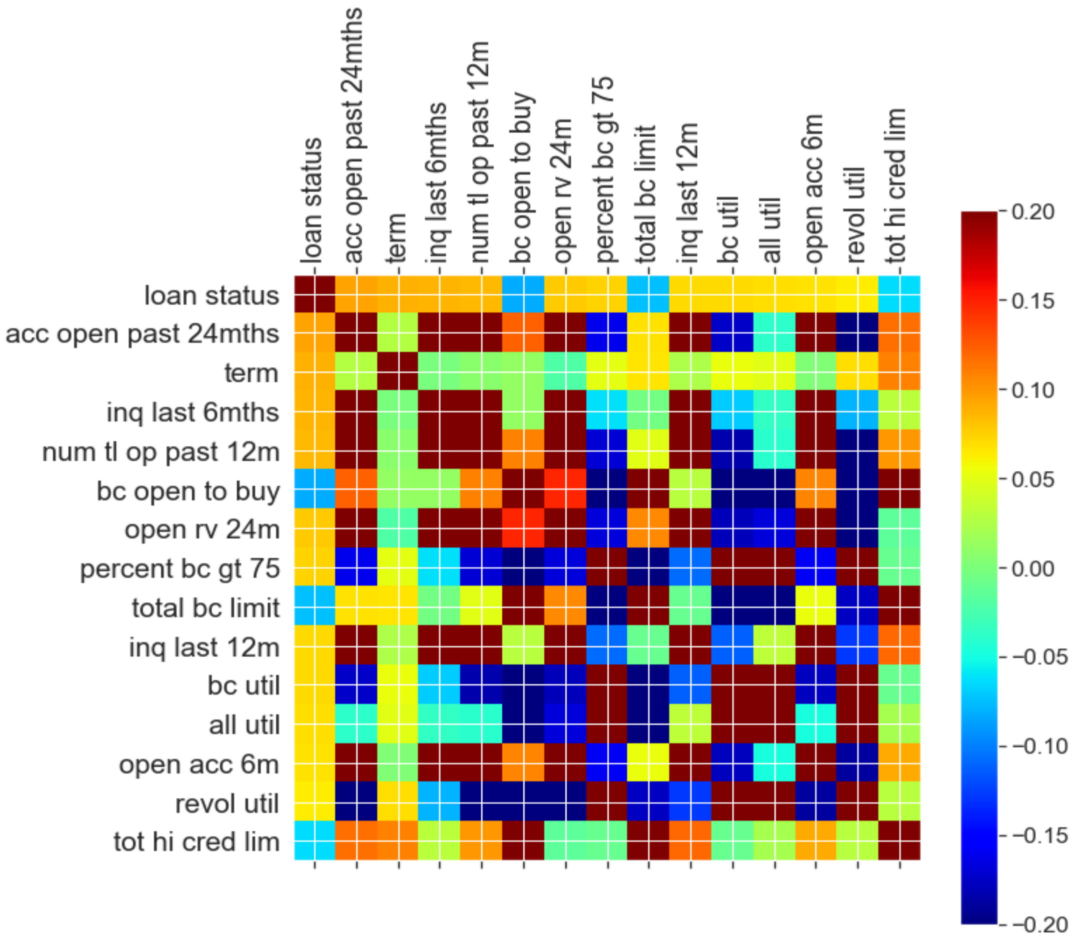


Approach

- Borrower's Classification – Classification methods.
- Estimate return – from Regression methods
- Identifying management strategies – Data exploration

Important Features

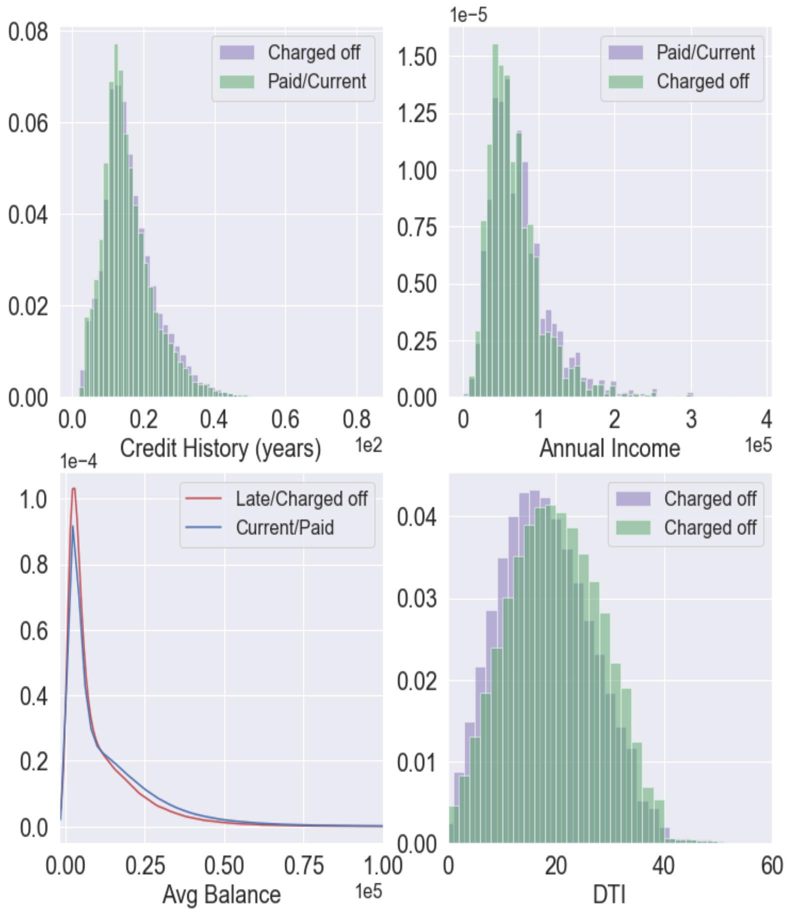
- A rough approach
- Gives relative importance of variables.
- Recent history is more important.

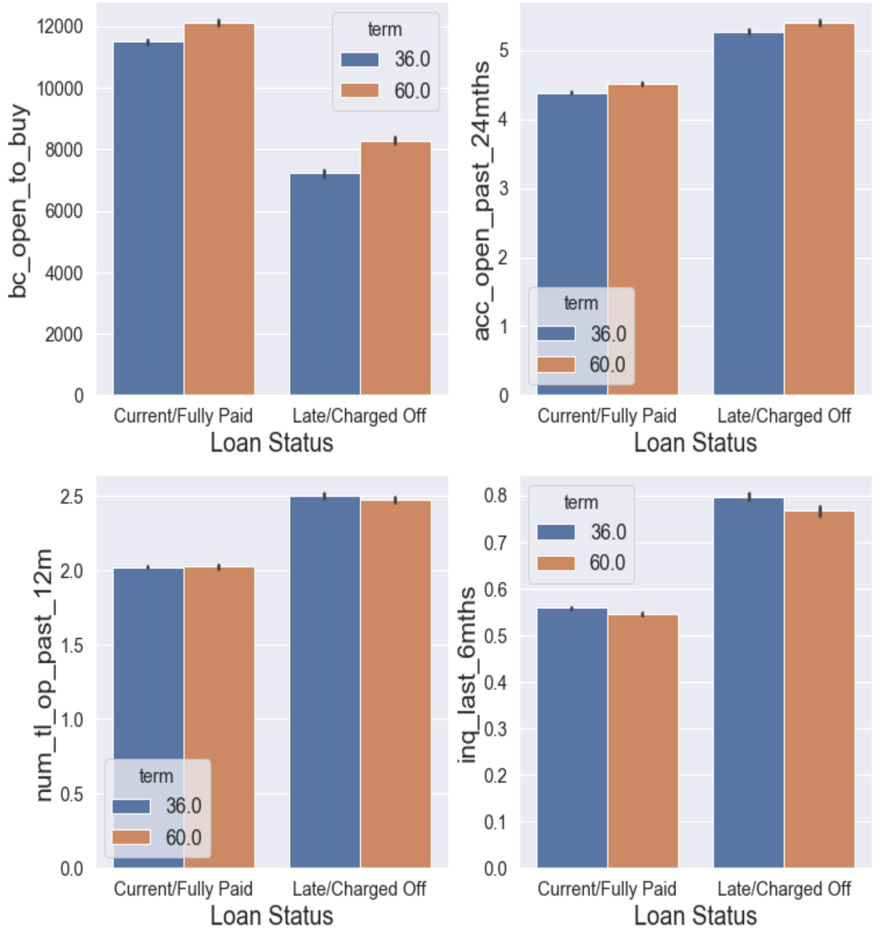


Recent Credit history

- History is more important than income.

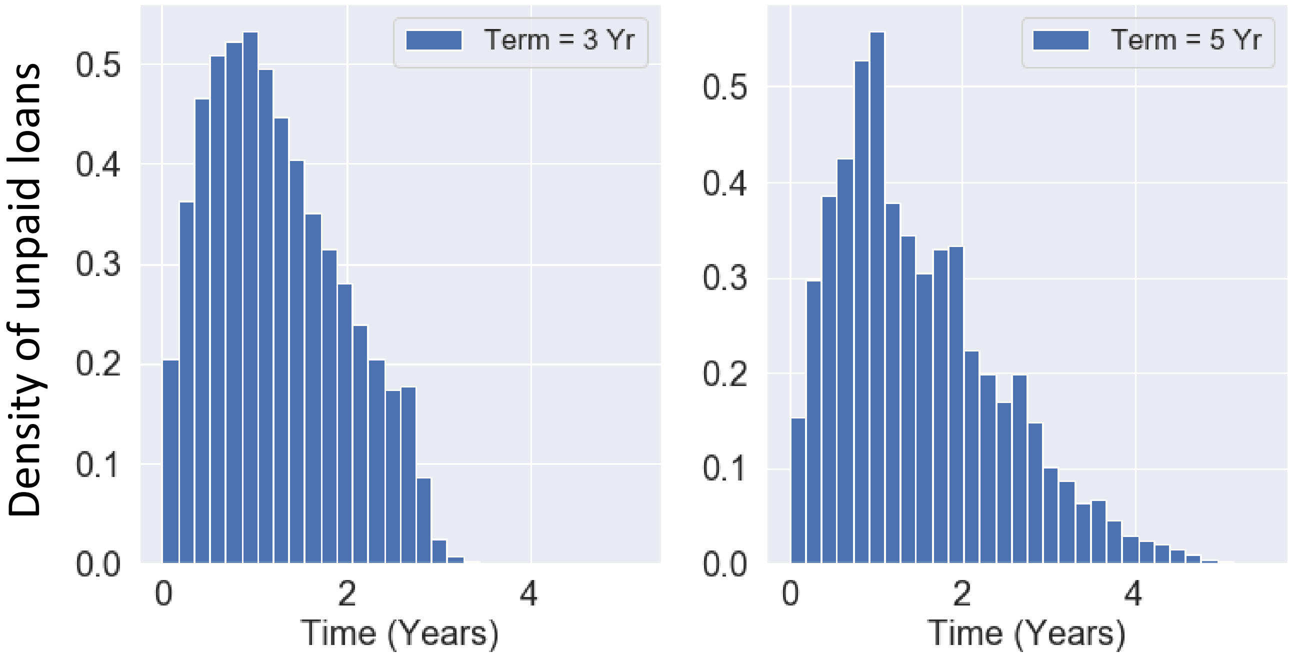
- Recent credit history is more important than long-term history.





Loan Terms

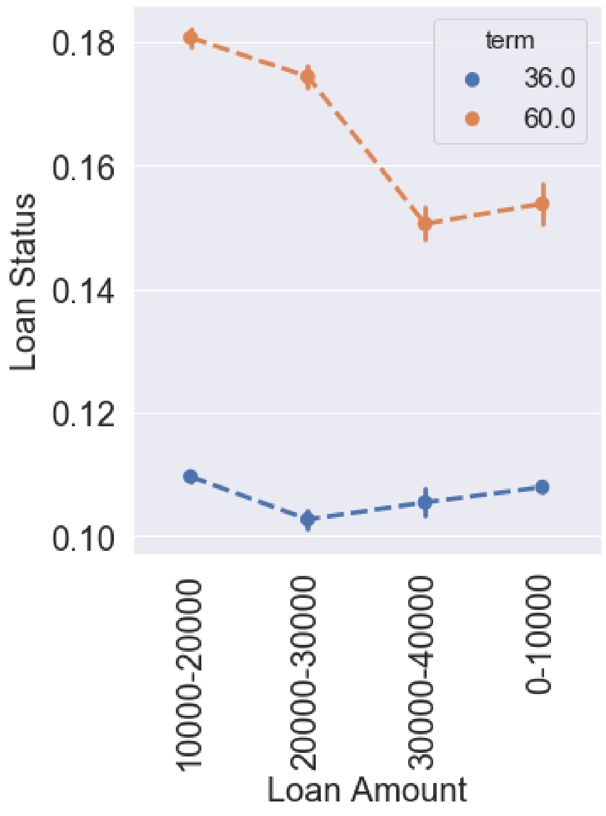
- Risk increases after a year of loan.

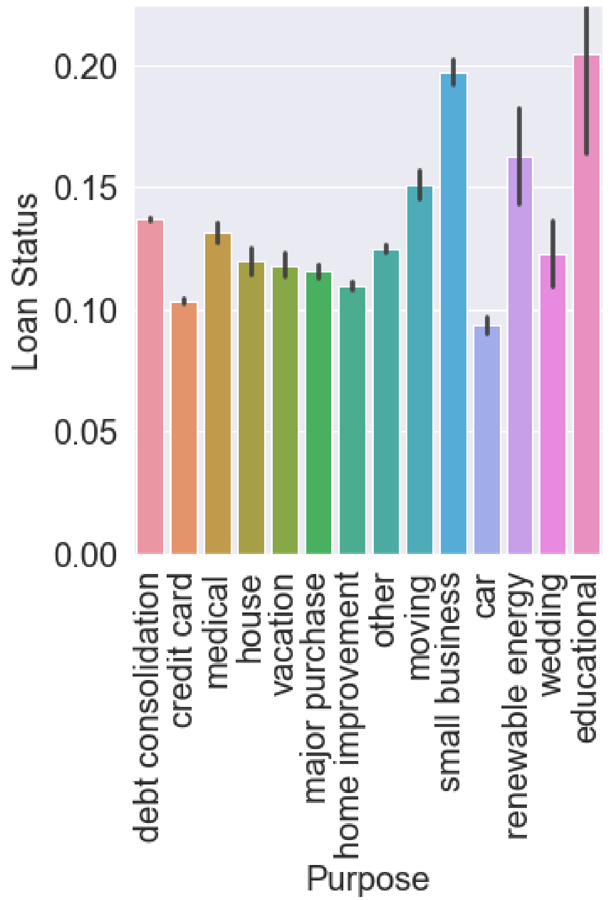


Risk

- Five year loans have higher risk compared to three year loans.

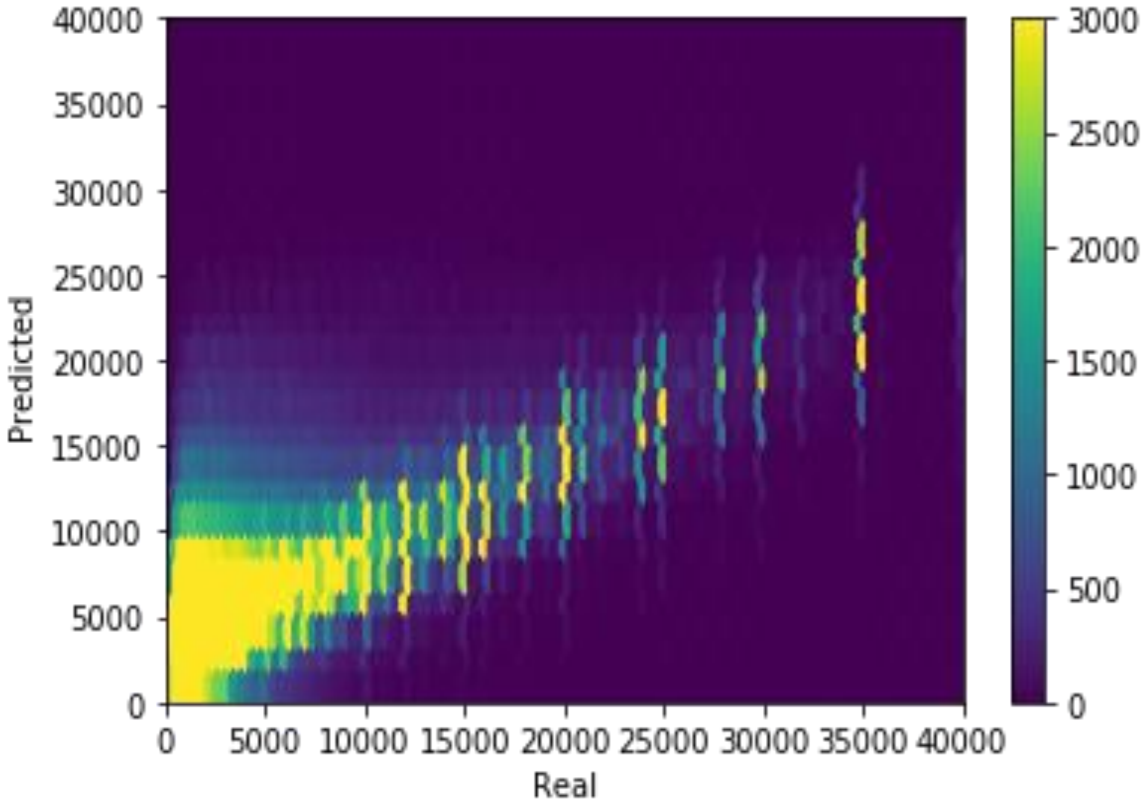
- Small business and educational loans have much higher risk compared to other categories.





Predicting Returns

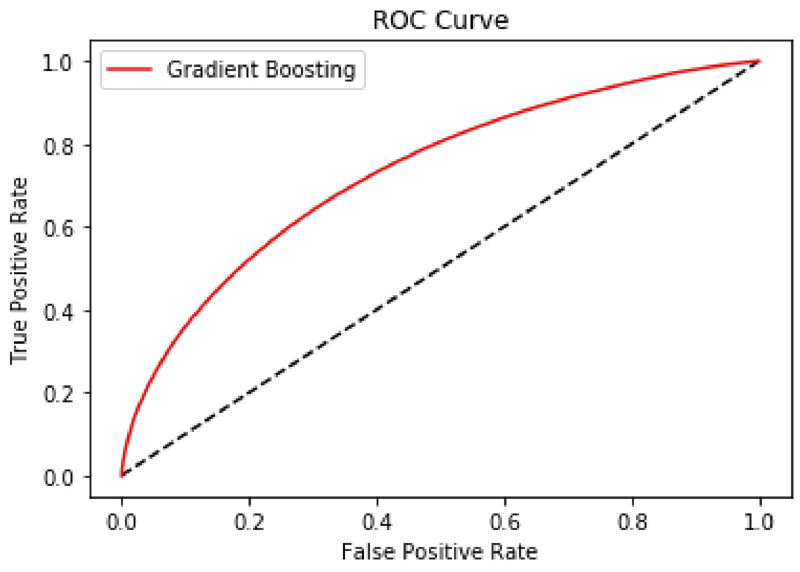
- Linear Regression using scikit-learn.
- Predicts how much principle amount is returned after the loan term.



Borrower's Classification

- Gradient Boosting classifier for borrower's classification.

- Calculates with 67% accuracy.



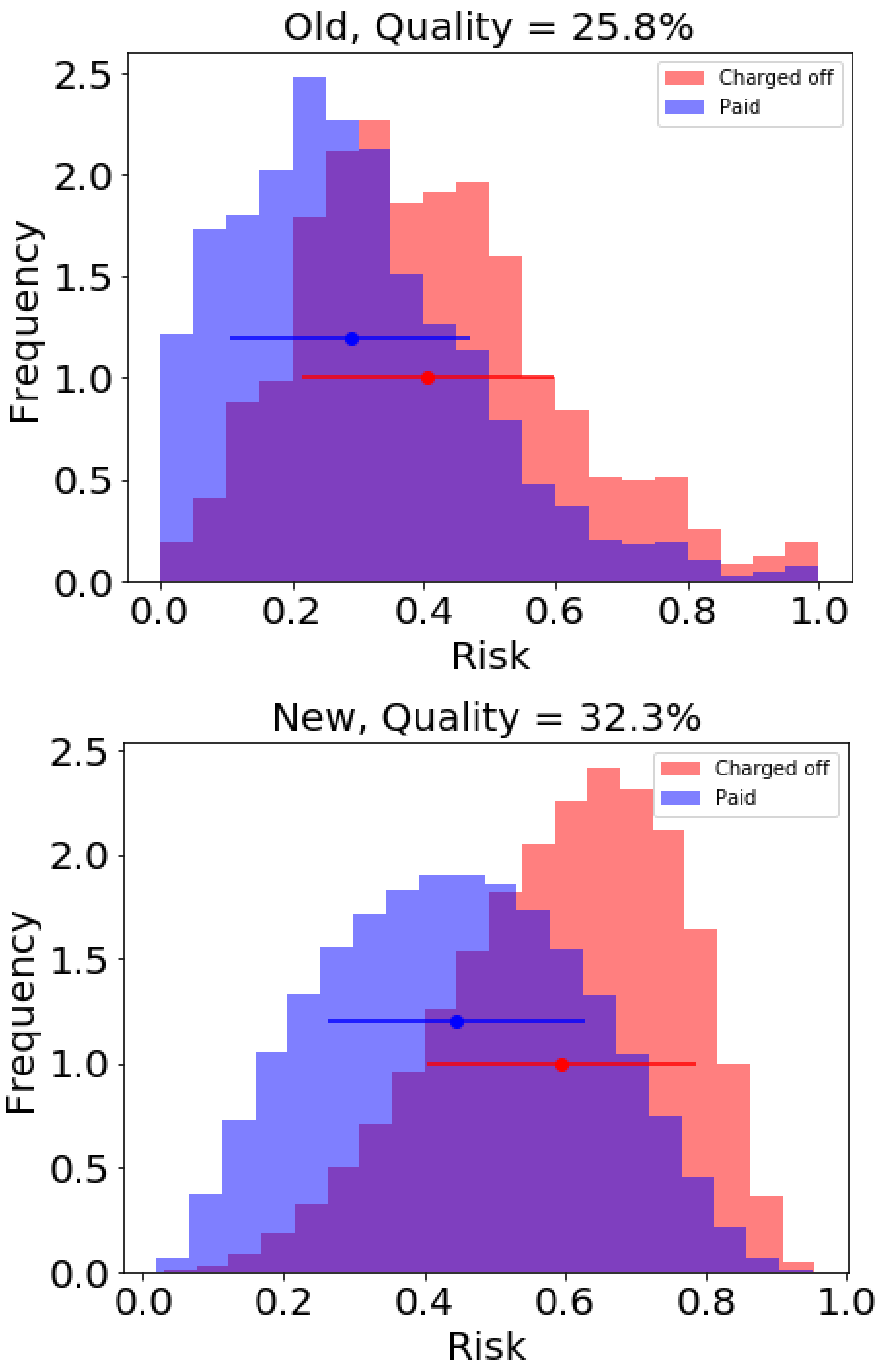
	precision	recall	f1-score	support
paid	0.66	0.68	0.67	134824
not-paid	0.67	0.65	0.66	134843
Avg	0.67	0.67	0.67	269667

AUC: 0.73

Model Comparison

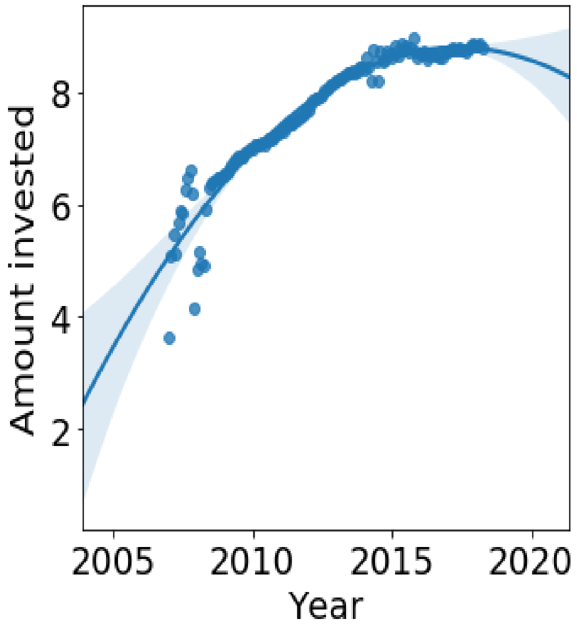
- Estimated the initial risk of Lending club from the interest of loans.

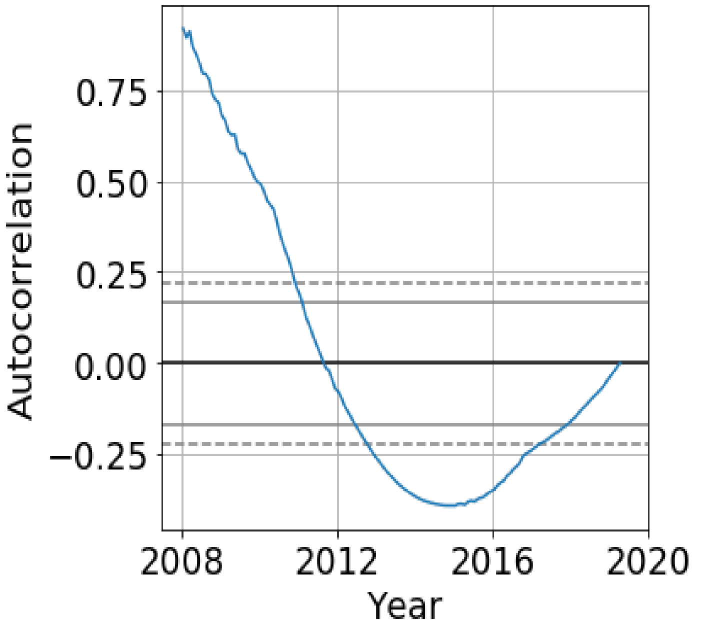
- Our model makes better risk estimation compared to previous Lendingclub approach.



Next Year's business

- Company makes rapid growth until 2015.
- We modelled investments *log(year)*^{3}.
- Predicts that company requires three hundred million investment next year.





Recommendations

- Our model provides a significantly better (25%) risk assessment of loans.
- Shorter term should be promoted to increase loan default rate.
- Loans on ‘Education’ and ‘small business’ can be discouraged.
- Short term history should be given more value compared to the long term credit history.