# Lending Club Case Study

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Recommendations

- LC grading system to be improved and made representative on the quality of the loan instead of just the loan amount itself.

- DTI should be considered strongly when approving higher loan amounts

- Revolving credit utilization should be considered strongly when approving higher loan amounts

Analysis: delinquencies_2yrs
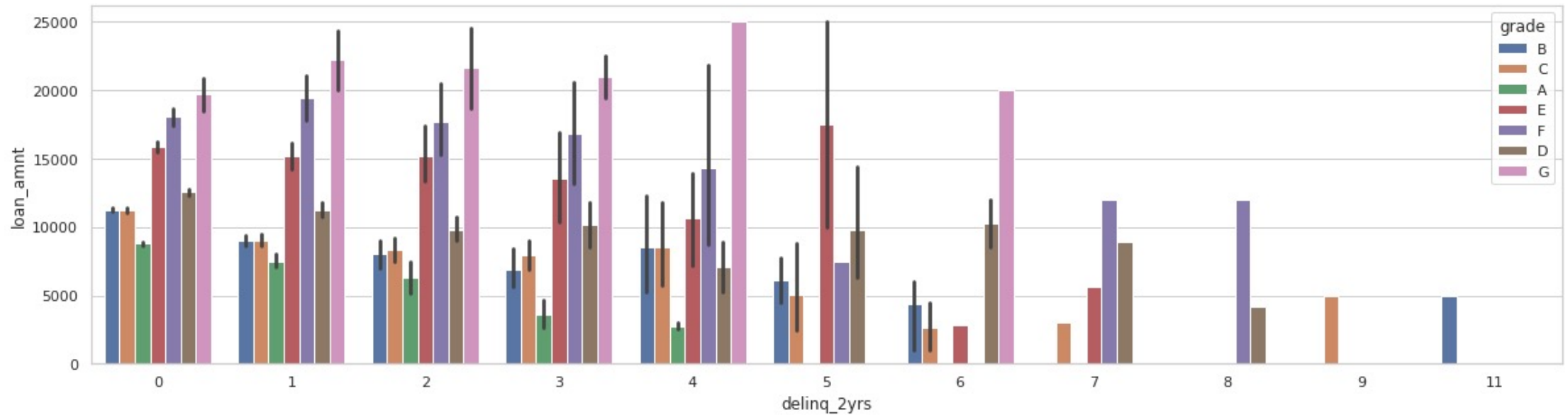
- Past delinquencies are not a factor in the LC grade system. Grade C, B should not have higher # of delinquencies.

- Past delinquencies beyond 3 should quickly become a factor in loan amount determination and not wait till 8. This has to be revised.

Analysis: DTI vs loan amount
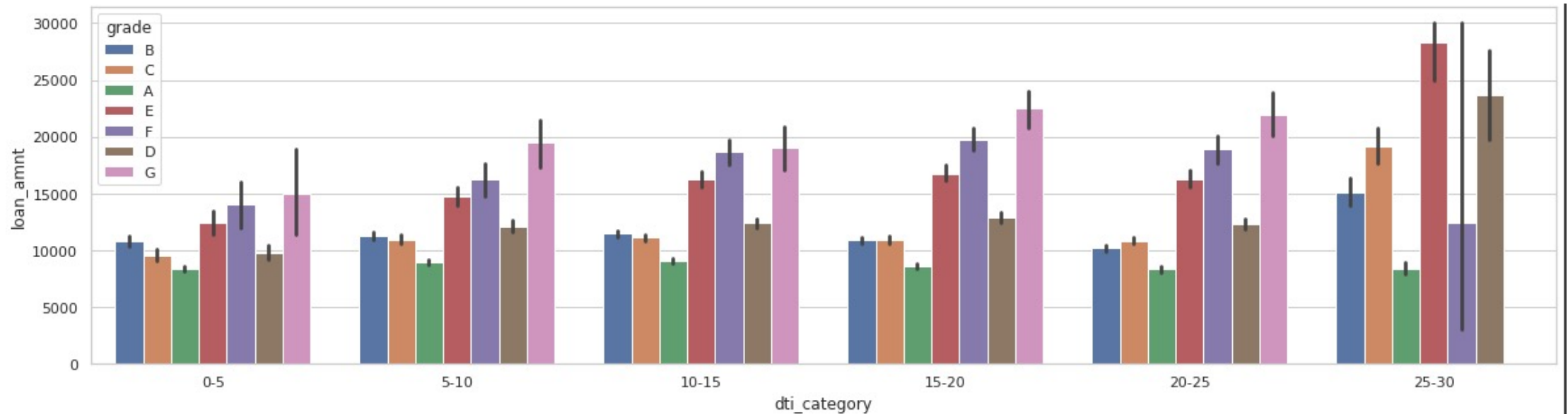
- As DTI increases, loan amount should ideally be much lower. This however is not the case.
- The grading system is nearly irrelevant as to how it grades. The only correlation seems to be on the loan amount itself and not on the quality of the loan.

Analysis: int_rate vs DTI
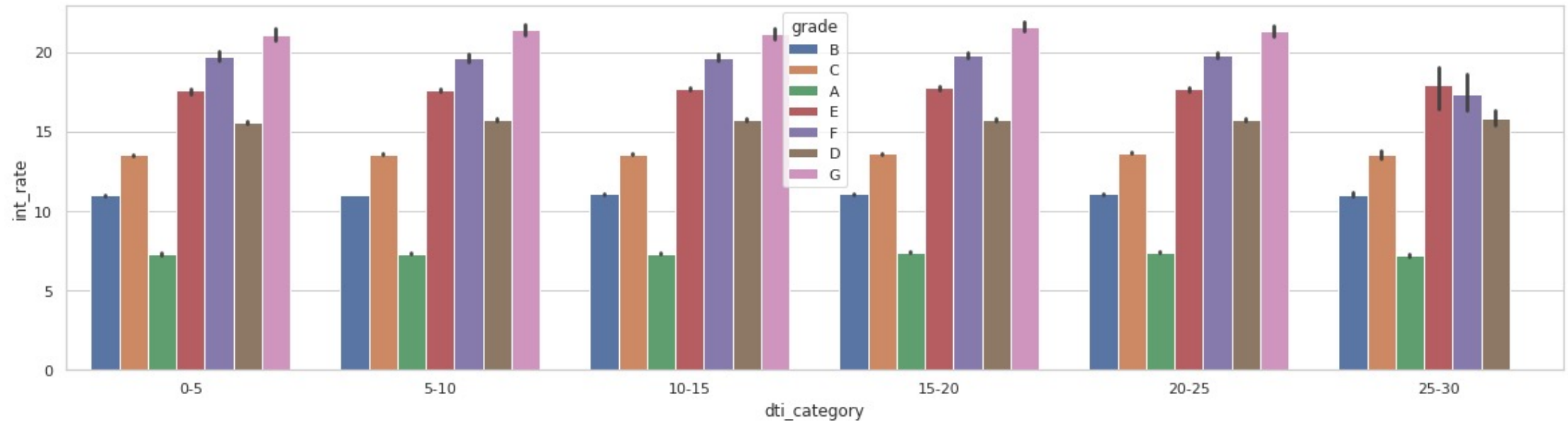
- Interest Rates are lowest for Grade A and highest for Grade G – however loans that are in 25-30 DTI are not graded G at all.

- DTI in general should have an impact on the interest rates rewarding those borrowers who have a higher likelihood of repaying with lower interest

Analysis: Loan Amount Category

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loan_amnt_category    loan_status
0-5K                  Fully Paid      86.840309
                      Charged Off     13.159691
5-7.5K                Fully Paid      88.334530
                      Charged Off     11.665470
7.5-10K               Fully Paid      86.797029
                      Charged Off     13.202971
10-12.5K              Fully Paid      87.149918
                      Charged Off     12.850082
12.5-15K              Fully Paid      86.129458
                      Charged Off     13.870542
15-17.5K              Fully Paid      81.966187
                      Charged Off     18.033813
17.5-20K              Fully Paid      83.609718
                      Charged Off     16.390282
20-30K                Fully Paid      81.171670
                      Charged Off     18.828330
30-40K                Fully Paid      75.938804
                      Charged Off     24.061196
```

- Higher the loan amount, greater the chances of the loan being charged off / written off.

Analysis: Revolving Credit Utilization
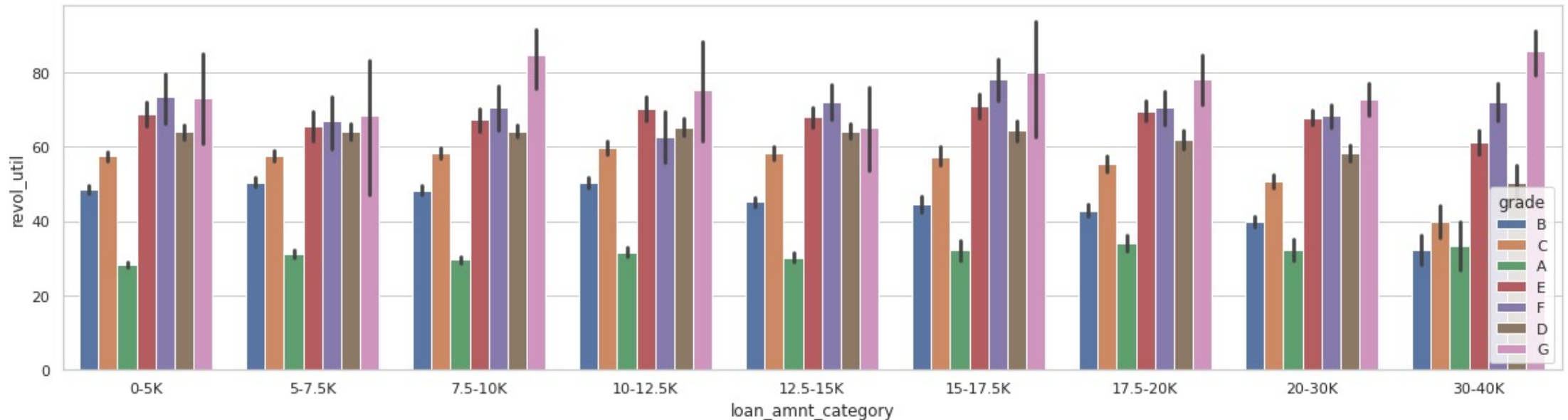
- When the revolving credit utilization is higher, we certainly do not want to approve higher loan amounts.

Approach Taken

- Data Clean Up
  - Missing Values
  - Standardize formats
  - Replace Values
  - Introduce DTI category, Loan Amount category
- Univariate Analysis over Charged Off Loans and Fully Paid Loans
- Bivariate and Multi-Variate analysis over categorical variables in the data set