# LENDING CLUB CASE STUDY

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# Analysis – Default rates by Loan Status

Approximately 14% of loans are defaulted. Any variable that increases percentage of default to higher than 16.5% should be considered a business risk.
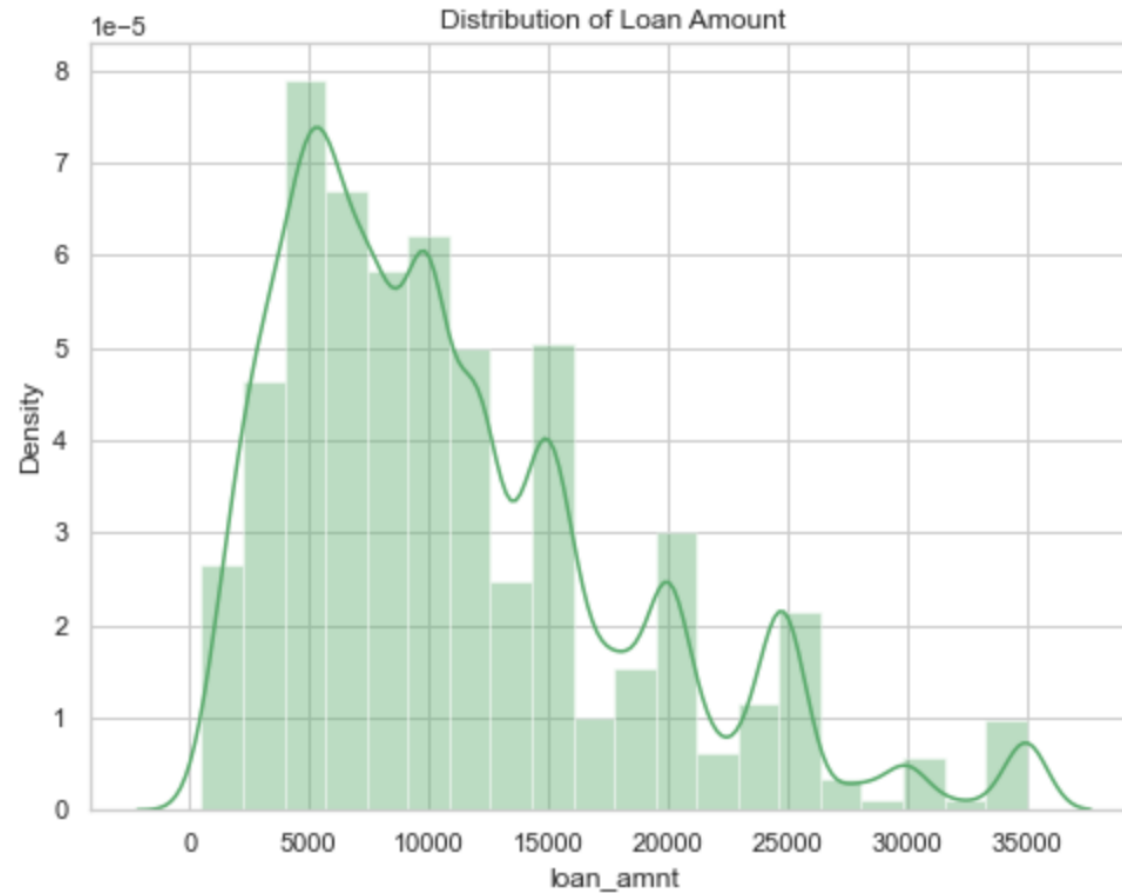
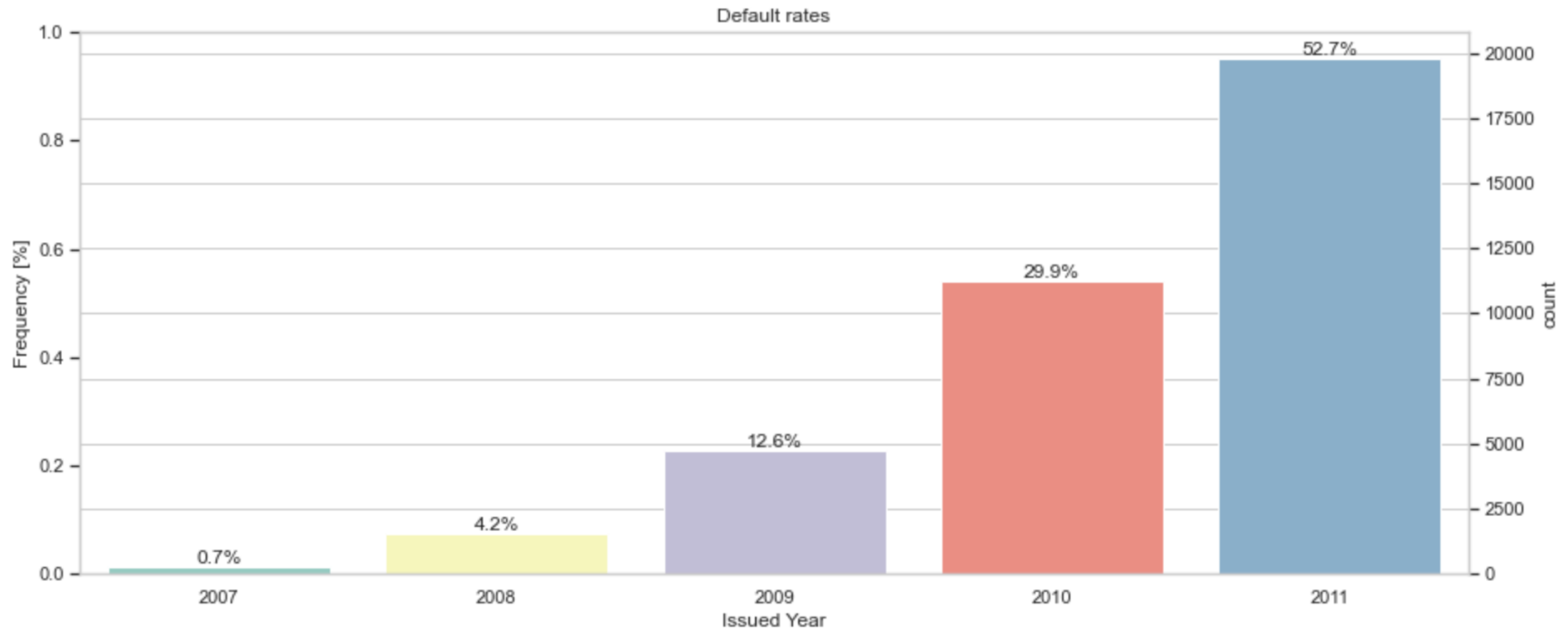# Analysis – Default Rates by Job Rank

Job Rank is derived from "emp_length" column. (if emp_length <3 is **Entry-Level**, between 3 and 7 is **Mid-Level** and greater than 7 is **Senior-Level**
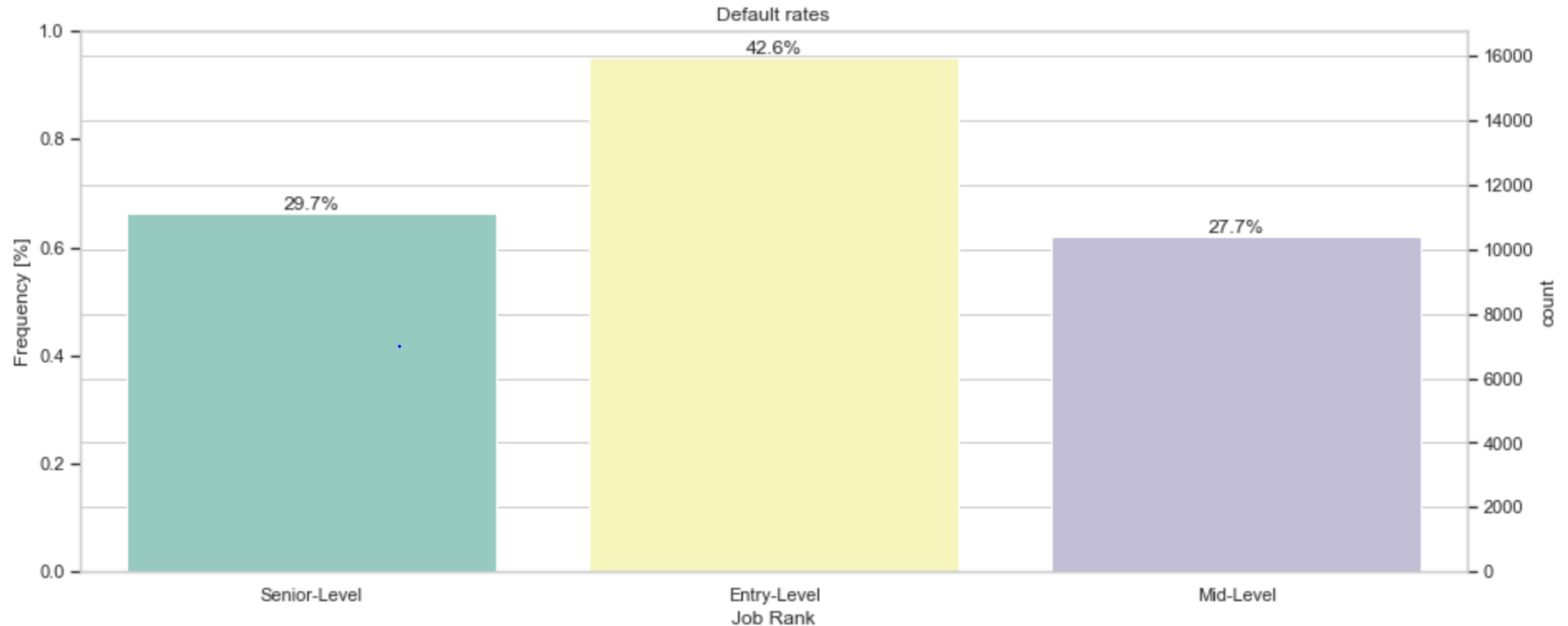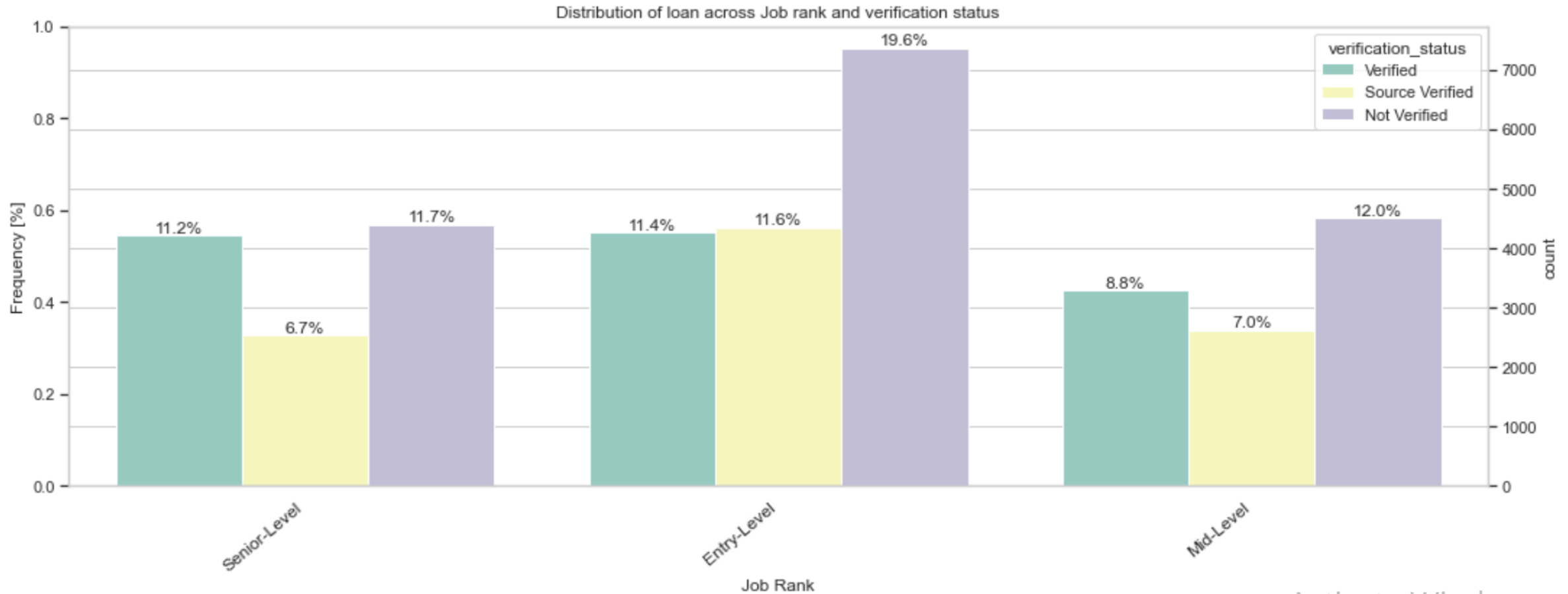
# Analysis – Univariate analysis on Loan amount

# Year wise analysis of Default Rates



Default rates

# Bivariate Analysis on verification status vs Job Rank



Distribution of loan across Job rank and verification status

# Default rate analysis on Grades

**Below graph is interesting. Grades tell us the credibility of a customer which means Grade A is better than Grade B and so on. But in below graph Grade B and C are having comparitively high Default ratio**
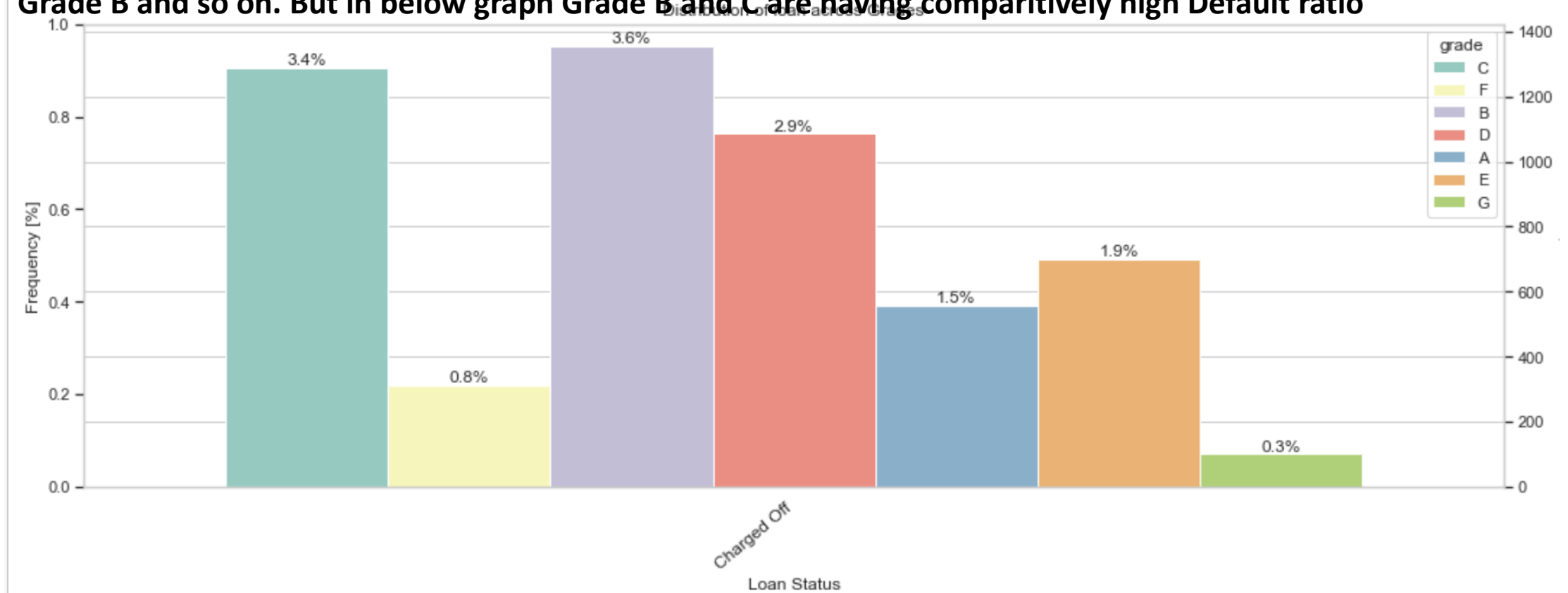
# Analysis based on Home Ownership and Job Ranking
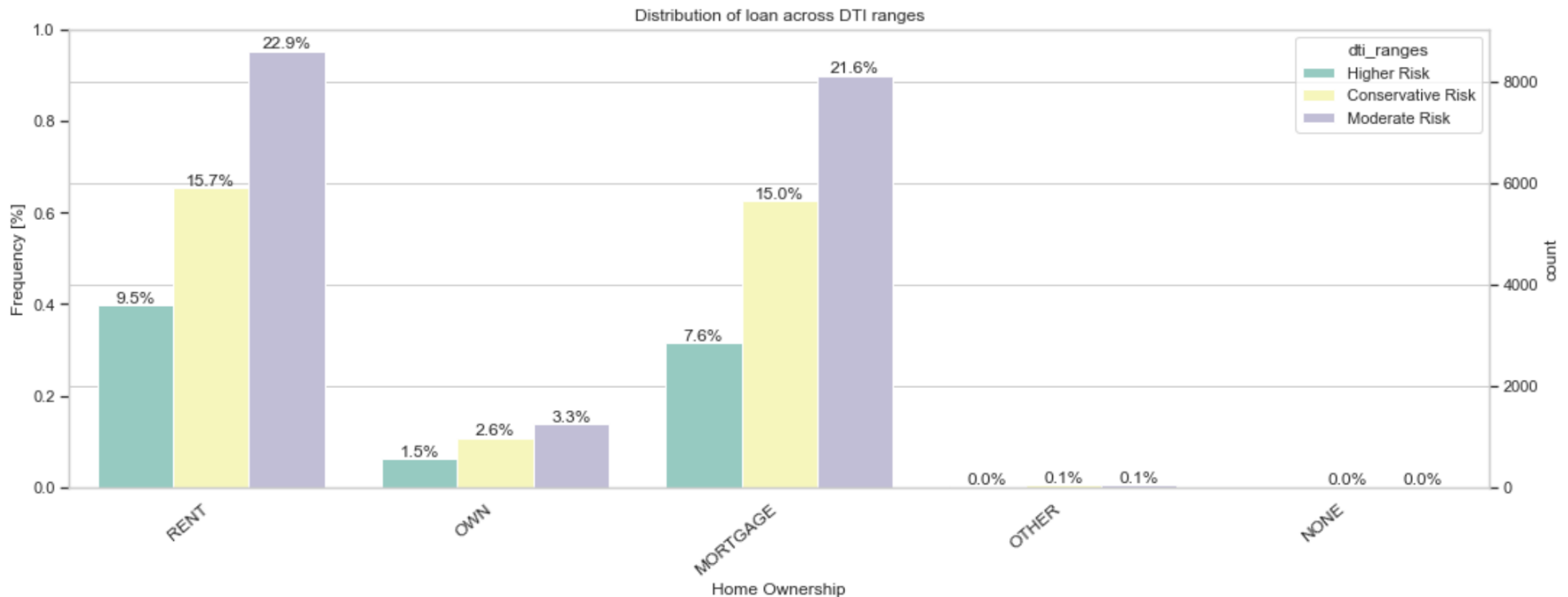


Distribution of loan across Job Rank
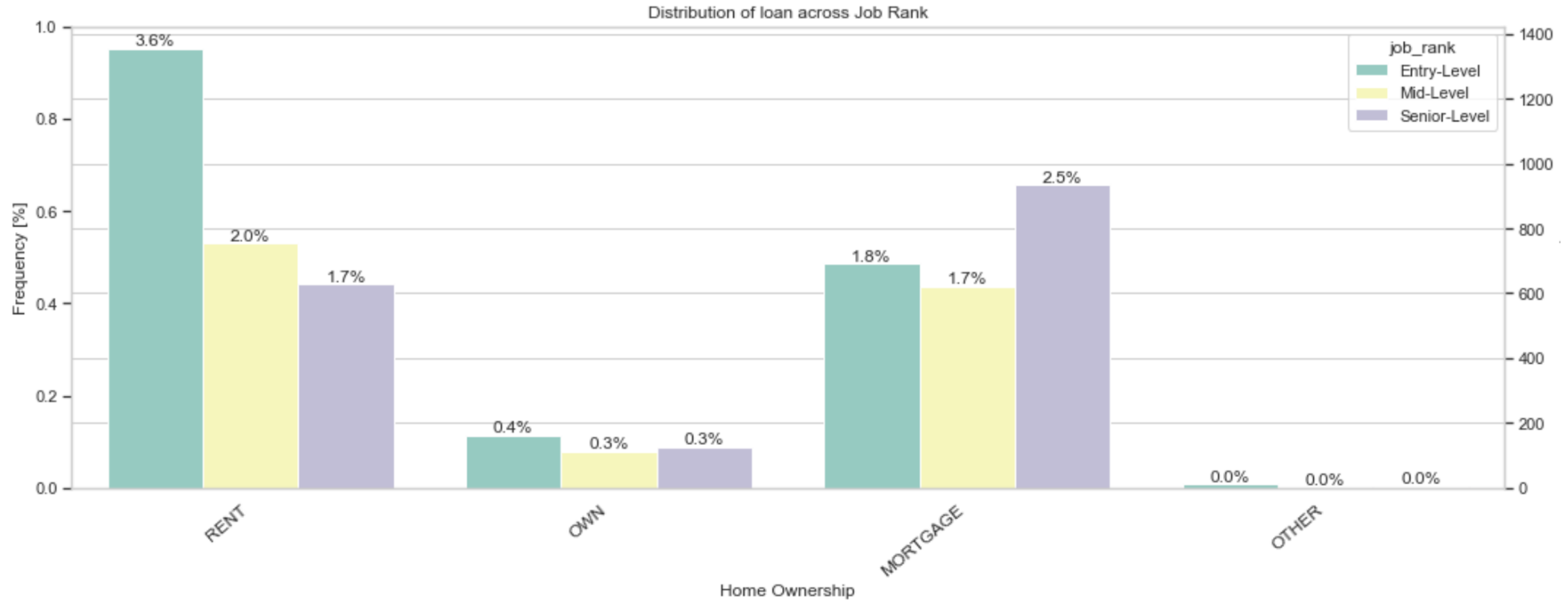
# Analysis based on derived DTI ranges and Home ownership

**Assumption** : dti is available in our dataset, we dont need to calculate from the scratch.Instead we can create a categorical variable
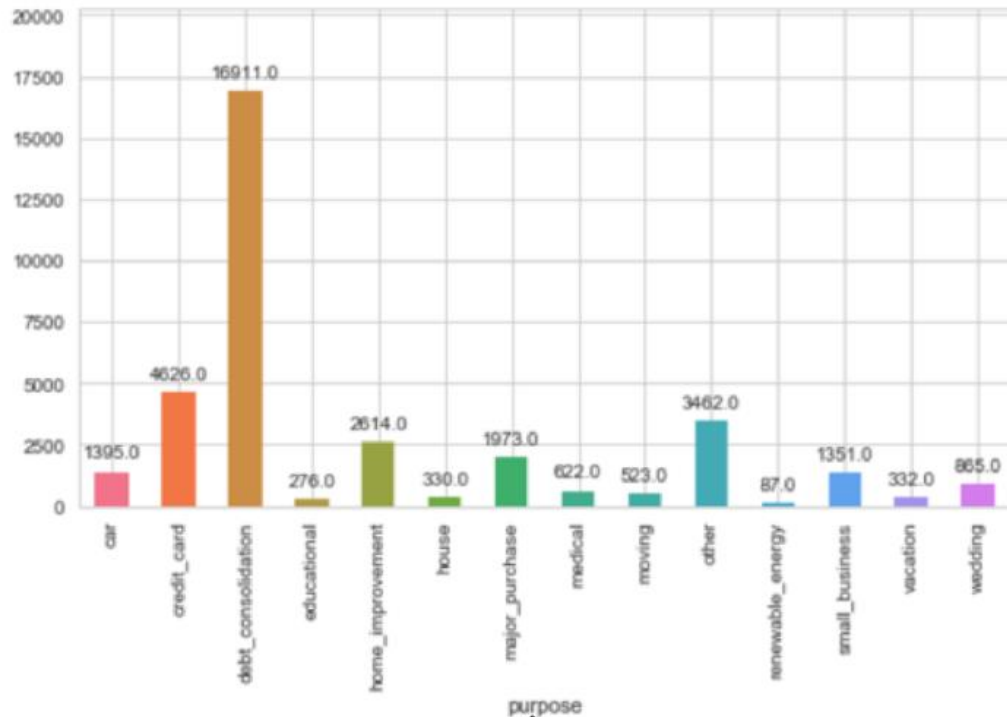
dti <= 10% -- **Conservative Risk**

dti > 10 and dti <= 20 -- **Moderate Risk**

dti > 20 -- **Higher Risk**



Distribution of loan across DTI ranges

# Analysis - Understanding Loans



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

Maximum number of loans are for debt consolidation, followed by credit card
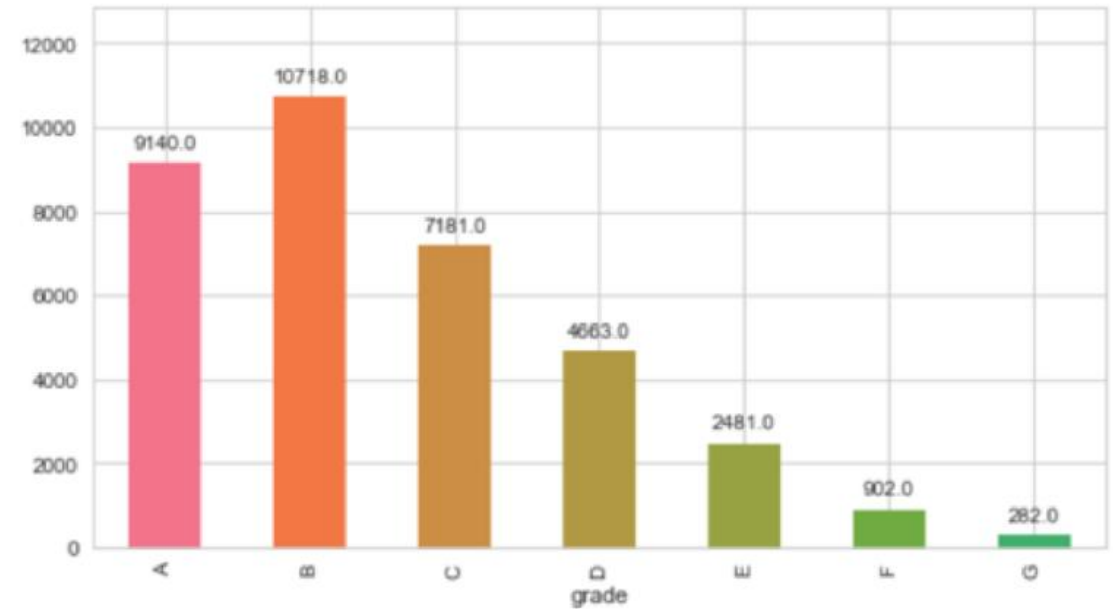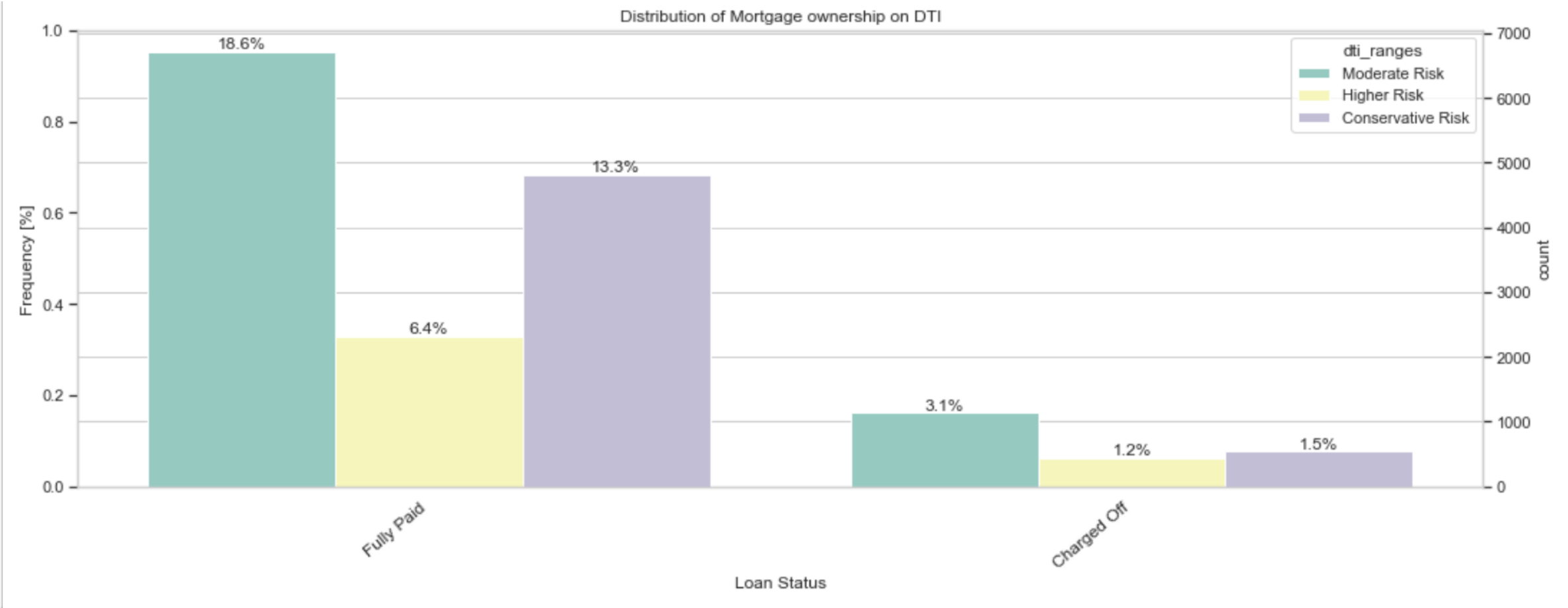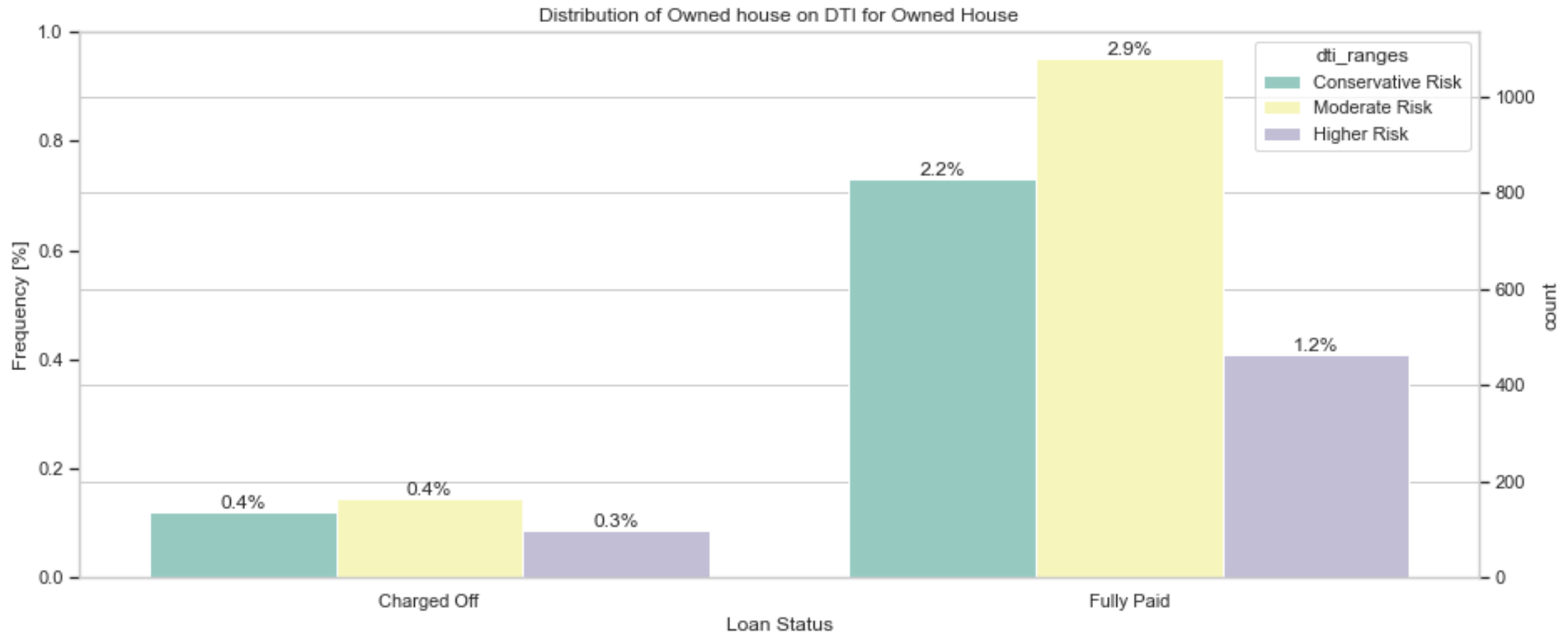
# Analysis – Loan status by DTI Ranges for Mortgage Home

# Analysis – Loan status by DTI Ranges for Mortgage Home



Distribution of Mortgage ownership on DTI
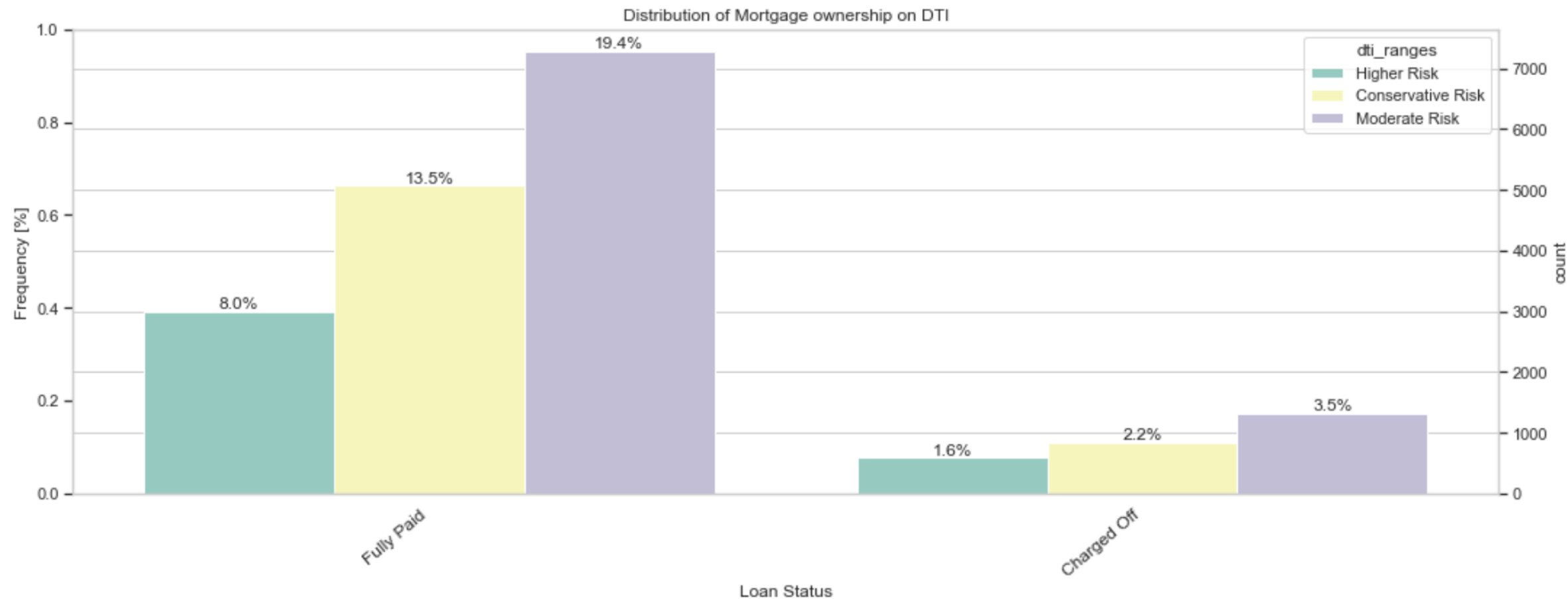
# Analysis – Loan status by DTI Ranges for Owned Home



Distribution of Owned house on DTI for Owned House

# Analysis based on the frequency of employee title
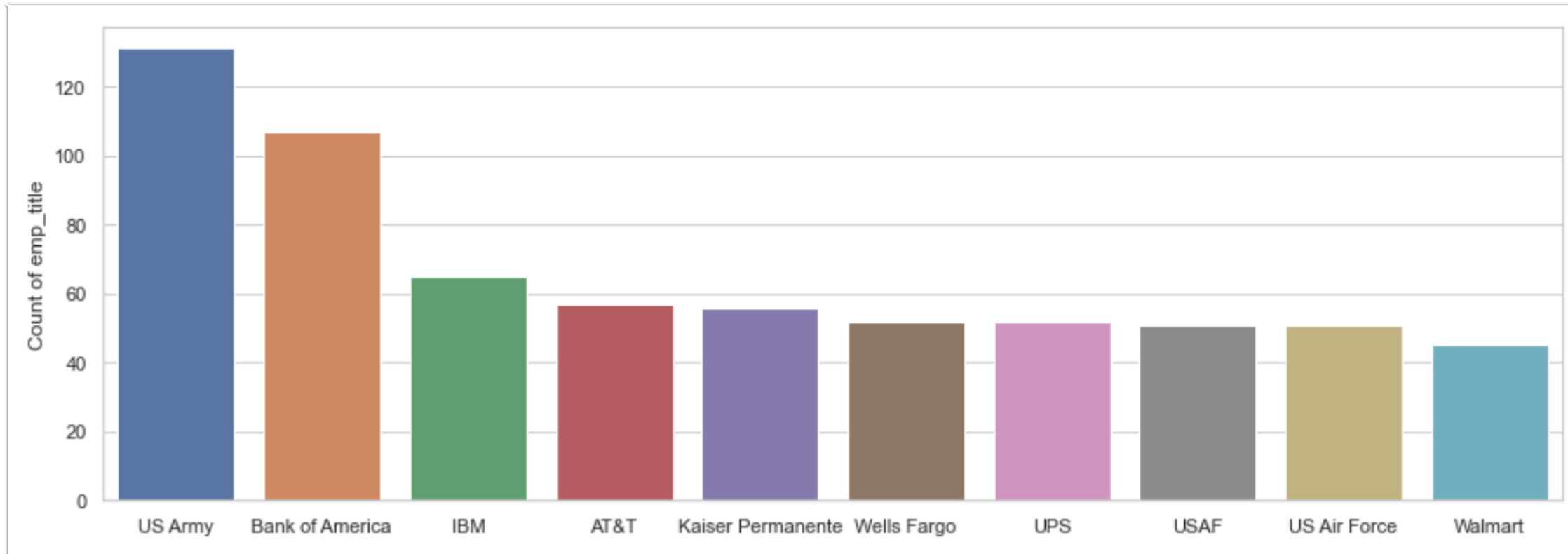


**Observation:**

Max of the customers are from the US Army, Bank of America followed by IBM and AT&T.

Kaiser Permanents, wells Fargo, UPS, USAF, US Air Force and Walmart are also among the top 10 emp_title loans.

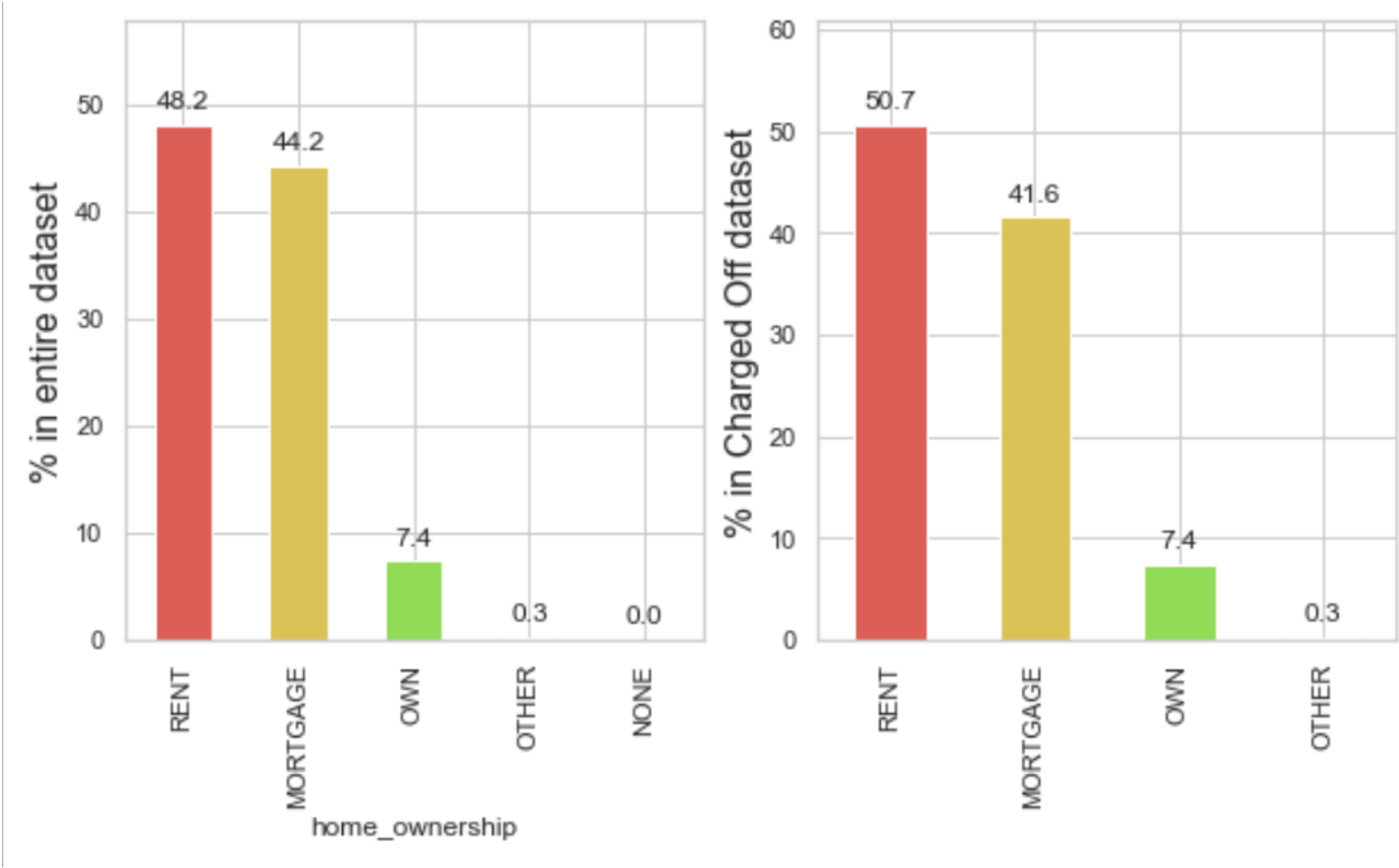# Comparative Analysis between entire dataset and default data set
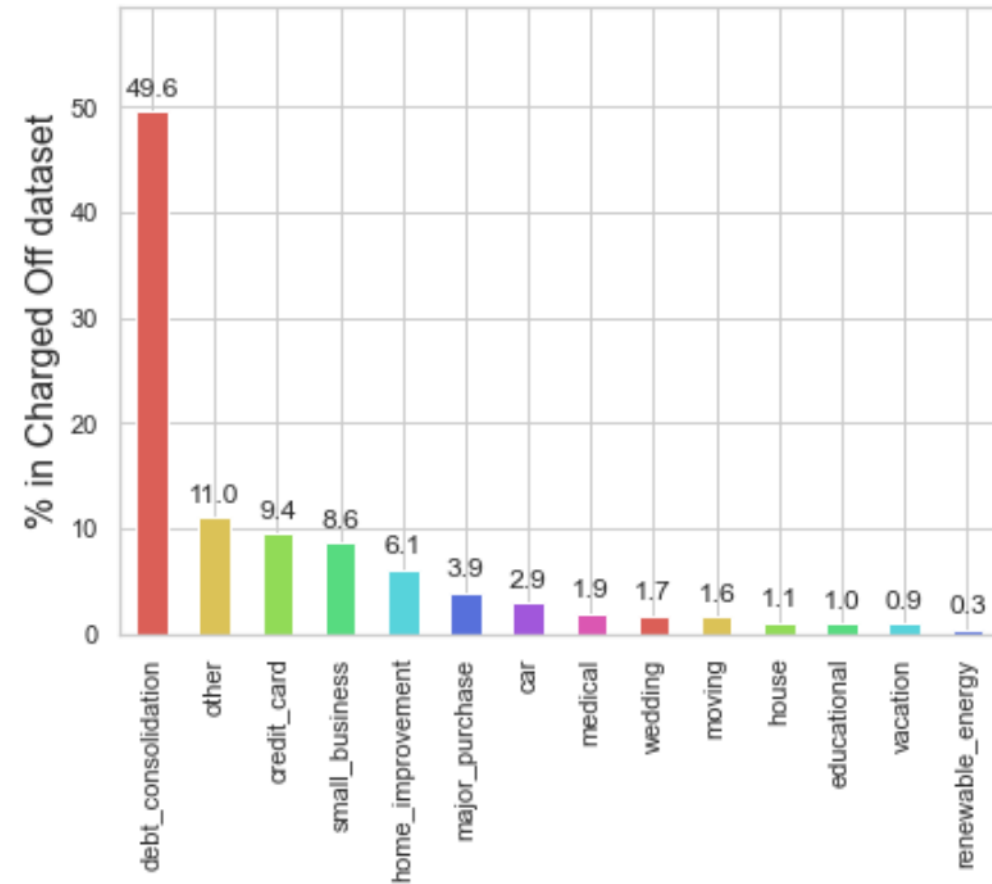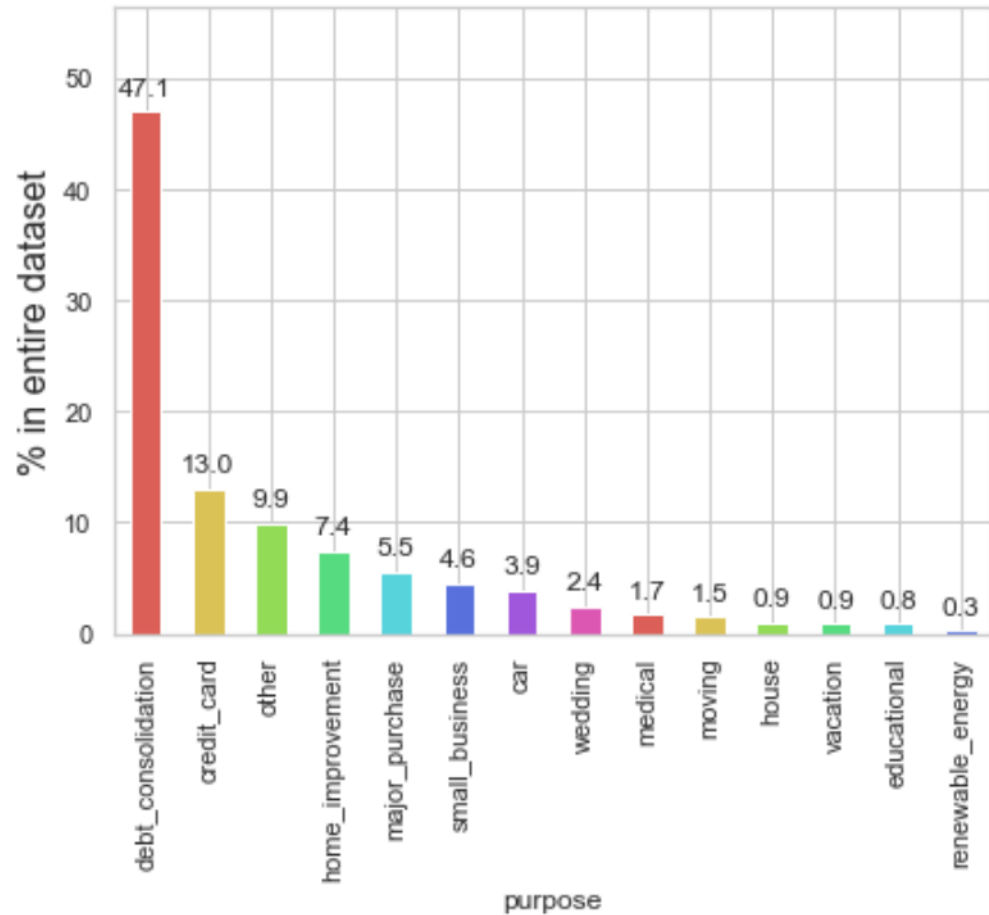
# Analysis based on Loan term : Entire vs Default dataset
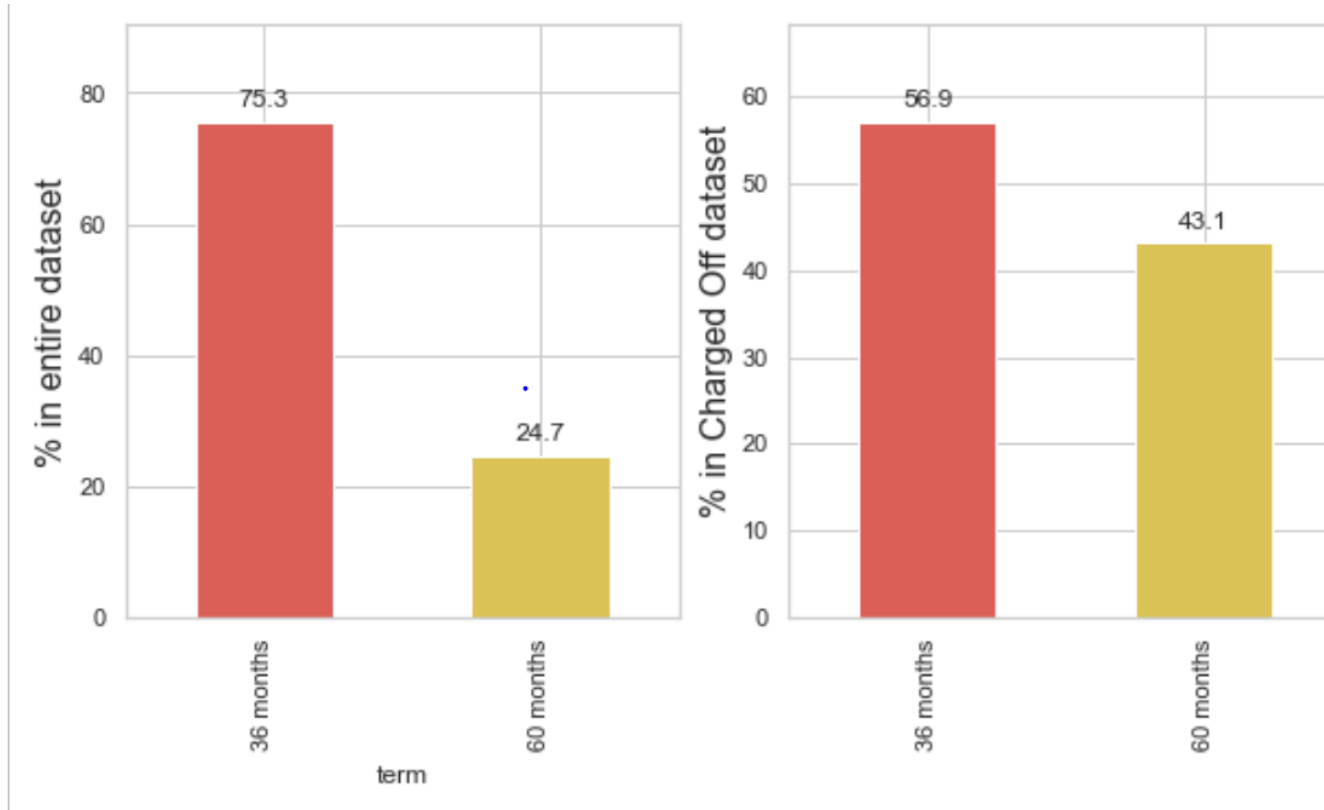


**Observation** : More than half of the defaulters opt for 3 years loan term.

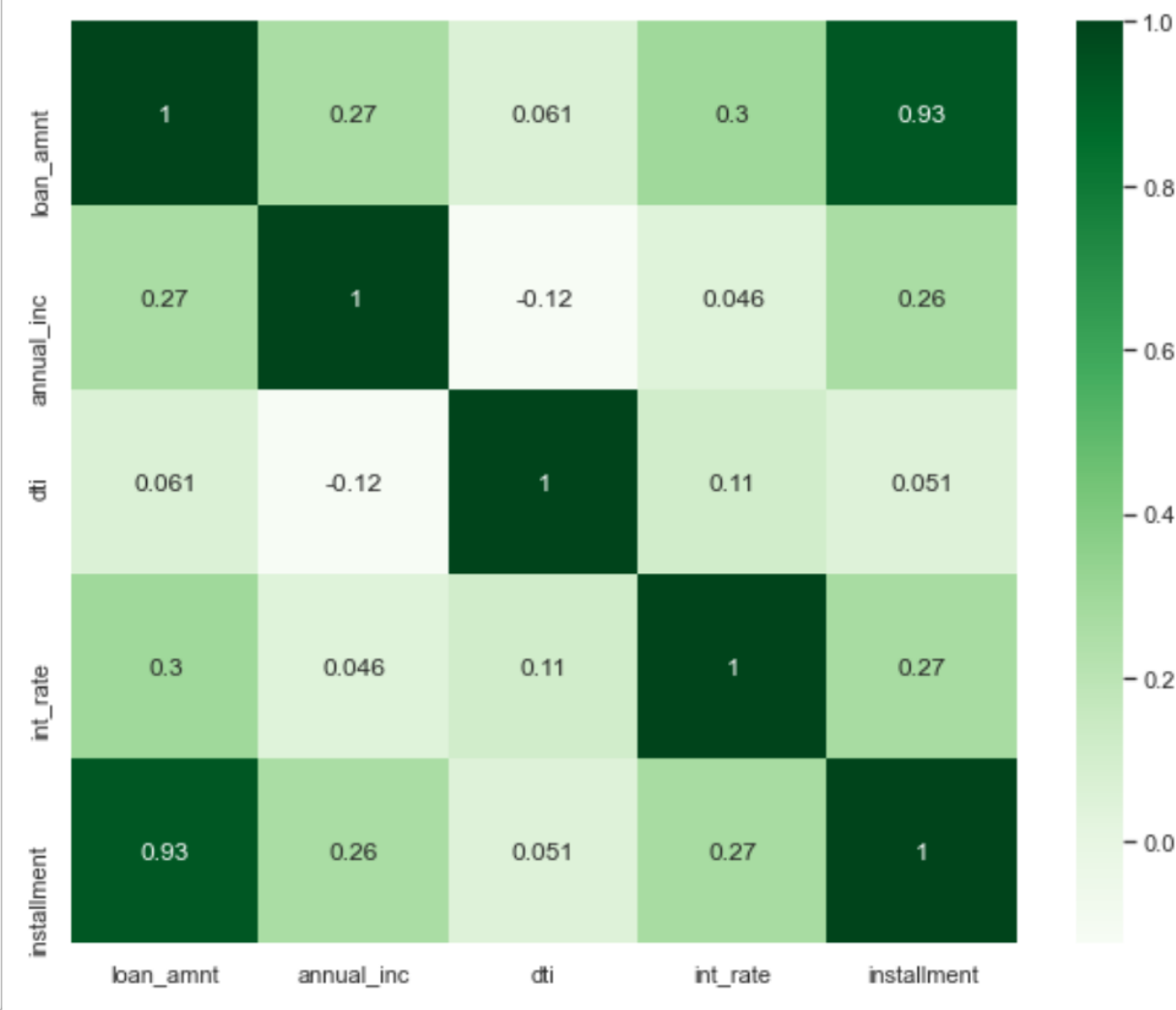# Analysis based on Home Ownership : Entire vs Default dataset

# Analysis based on Loan purpose : Entire vs Default dataset



**Observation** :
1. In both datasets, 'debt_consolidation' category is leading.
2. 'small_business' category almost doubled in case of 'Charged off' datasets.

# Plotting heatmap to understand correlation visually

# Recommendations

- Need to reduce approvals where purpose is small business.

- Start – charging higher interest rates for loans with dti greater than 20.

- Need to stop approving loans where loan amount to income ratio is greater than 30%.

- Need to be strict in terms of verification where home ownership is rental.

# THANK YOU!