

LENDING CLUB CASE STUDY

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OBJECTIVE

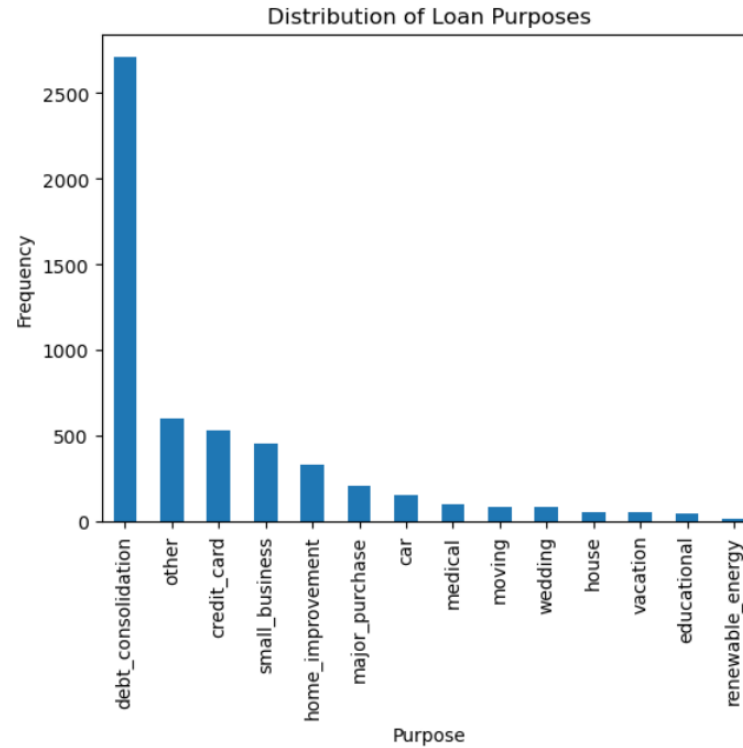
Outline a structured approach to analyze loan applicant data to mitigate the risk of defaults and make informed decisions for the bank's loan portfolio management.

- 1) **Analyze the data:** Examine the data of loan applicants who have defaulted.
- 2) **Identify patterns :** Use Exploratory Data Analysis(EDA) to uncover meaningful patterns in the data.
- 3) **Extract Observations:** Derive observations from the identified patterns.
- 4) **Draw conclusions:** Formulate conclusions based on the observations that will benefit the bank.

Univariate Analysis

Observation

- Majority of the loans taken for debt consolidation



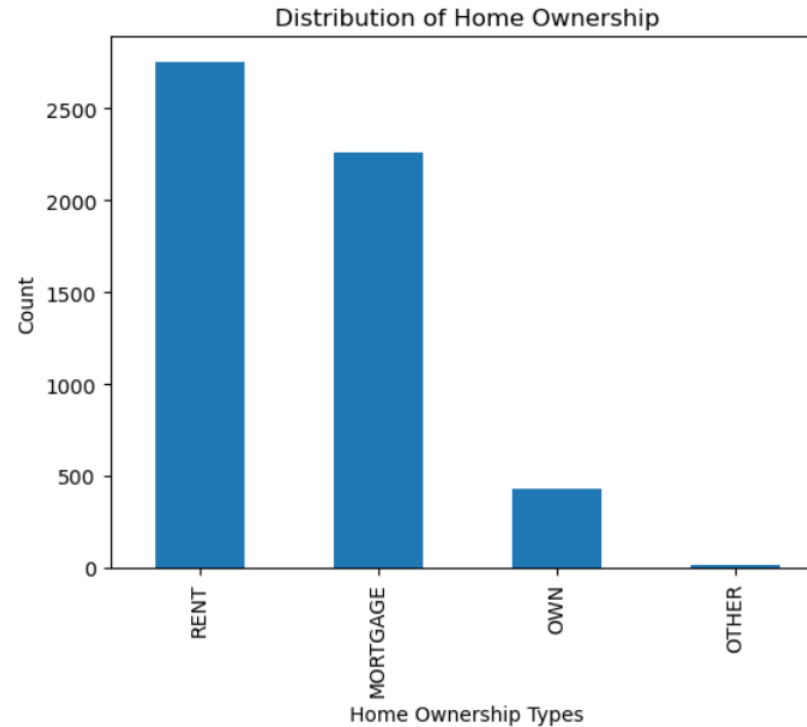
Conclusion

- The bank needs to have a thorough background verification for applicants where the loan purpose is for debt consolidation

Univariate Analysis

Observation

- People with own house are less likely to default



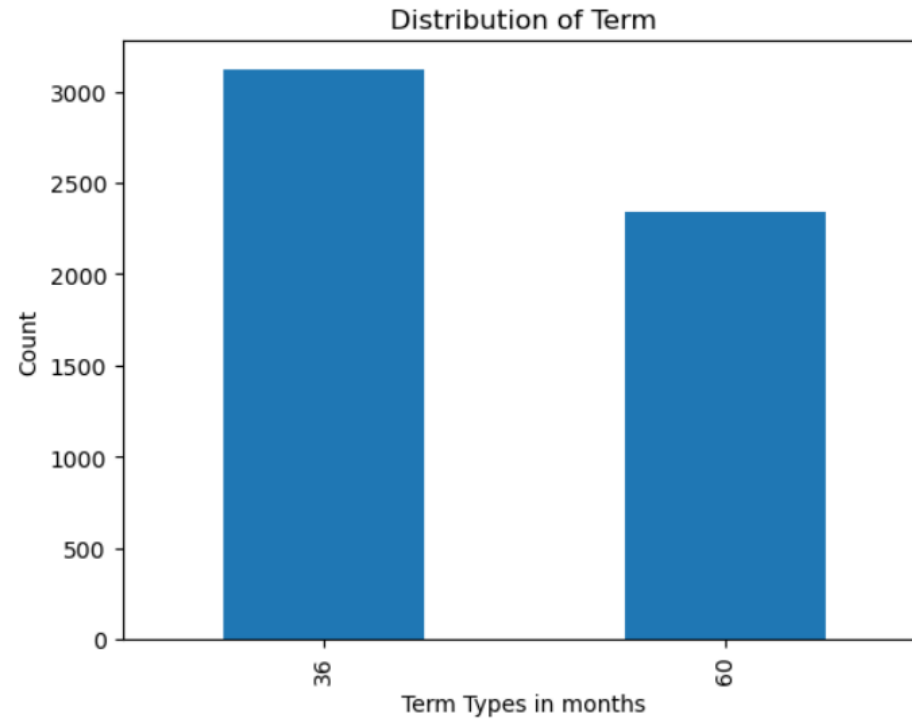
Conclusion

- The bank can confidently give loans to applicants having their own home and do more checks for applicants staying in a rented home or mortgage

Univariate Analysis

Observation

- 3 year loans have more default than 5 year ones



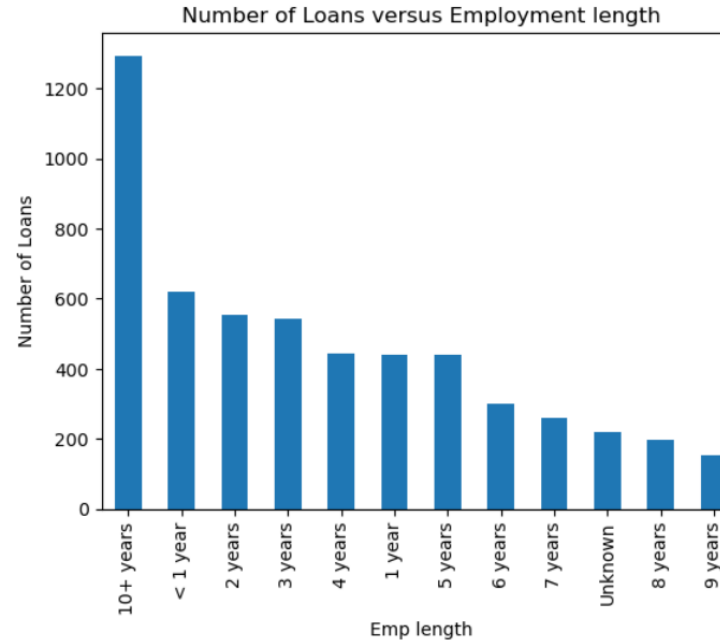
Conclusion

- The bank can do some extra background checks for short duration loan applications

Univariate Analysis

Observation

- Majority of the defaulted loans have been taken by people with 10+ years of employment.
- It is followed with uniform distribution of people with < 1 year, 2 years and 3 years respectively



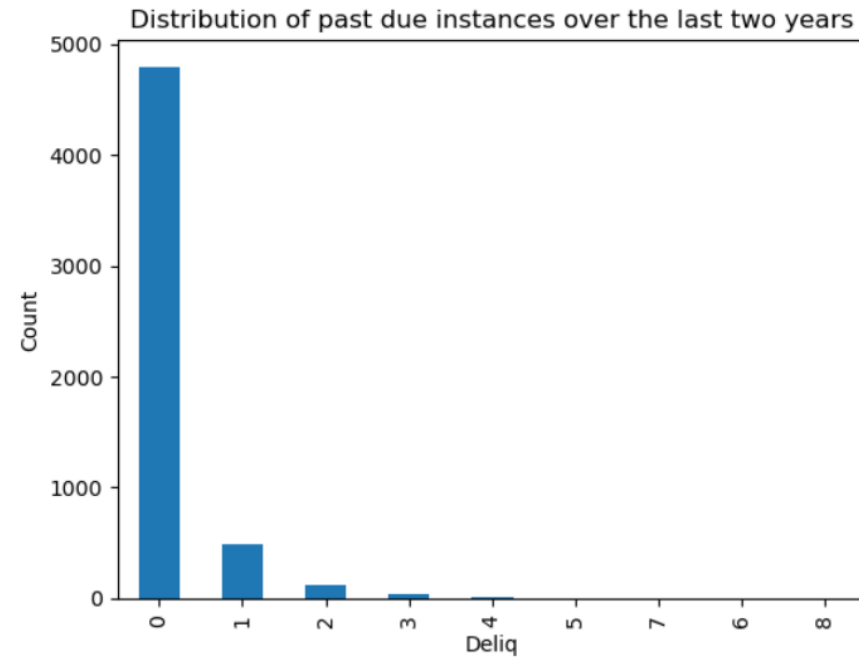
Conclusion

- The bank can do some extra background checks for people with 10+, <1, 2 and 3 years experienced applicants

Univariate Analysis

Observation

- Delinquency is not related to customers who have default



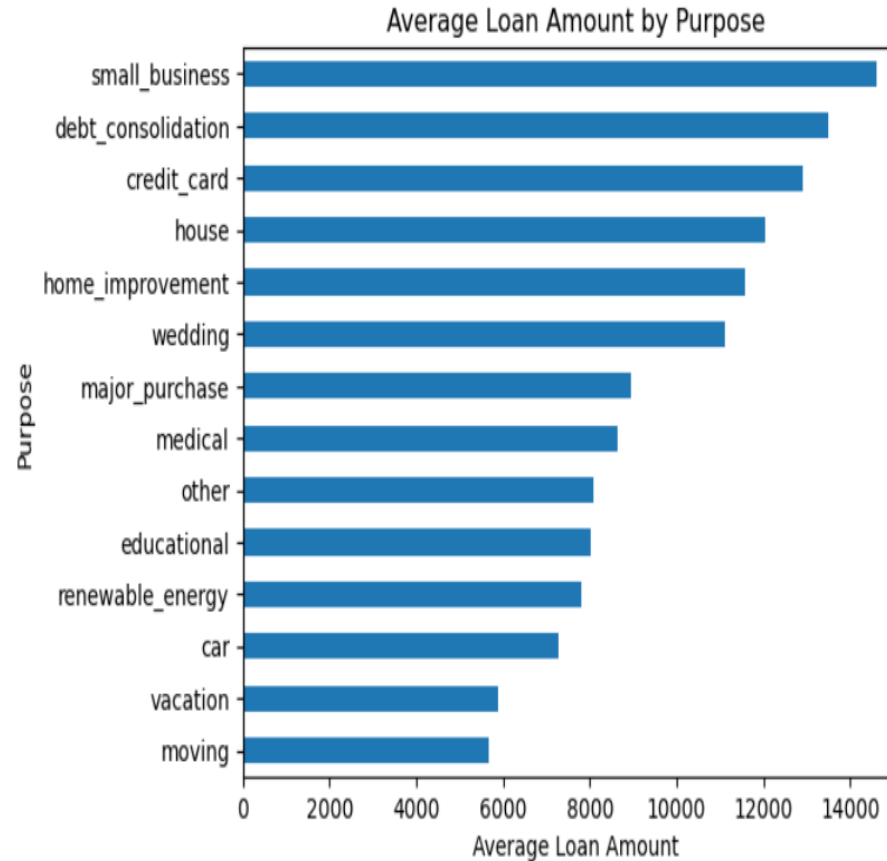
Conclusion

- The bank need not consider no of delinquency count as a major factor for loan approval

Univariate Analysis

Observation

- Average loan amount is higher for small business purpose



Conclusion

- The bank need to be careful in lending high amount for small business

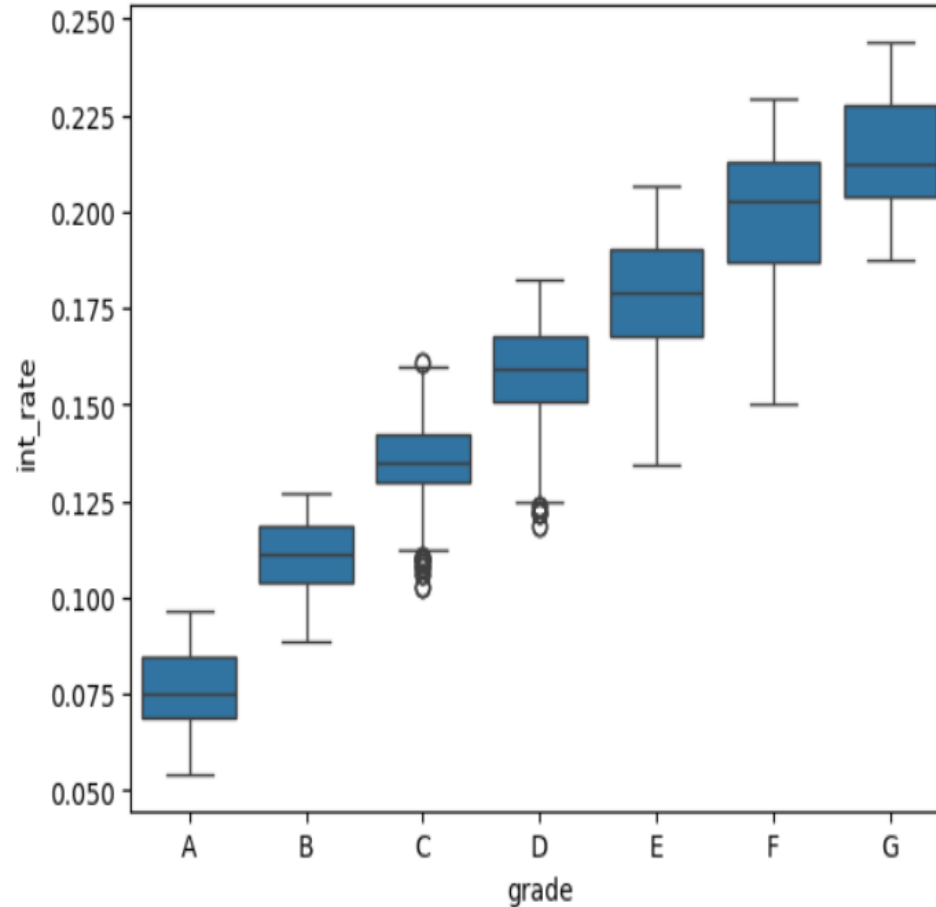
Bivariate Analysis

Observation

- Grade A loans have lowest interest rates and grade G loans have highest interest rates

Conclusion

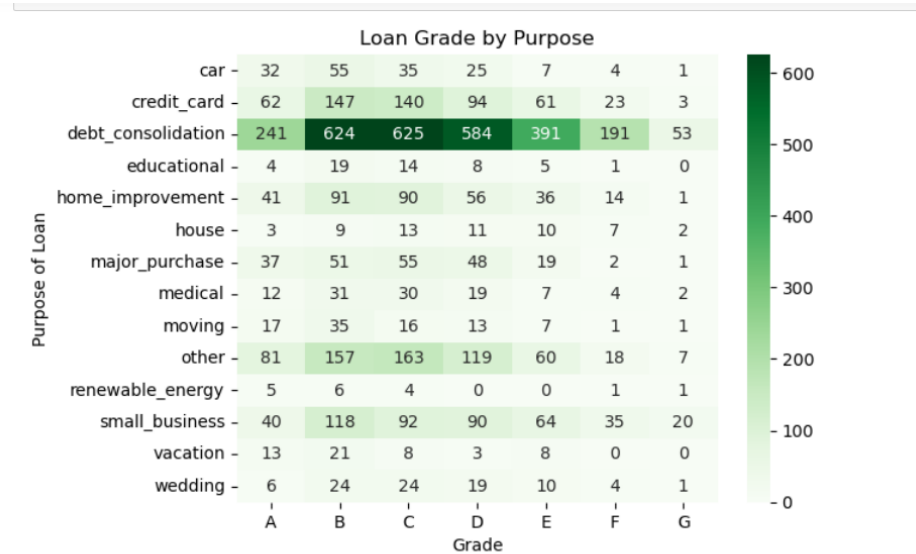
- This trend is expected as Grade A applicants are of lowest risk and hence the interest rate is low



Bivariate Analysis

Observation

- The majority of loans that have defaulted were taken out for debt consolidation and are categorized within the B, C, D, and E credit grades



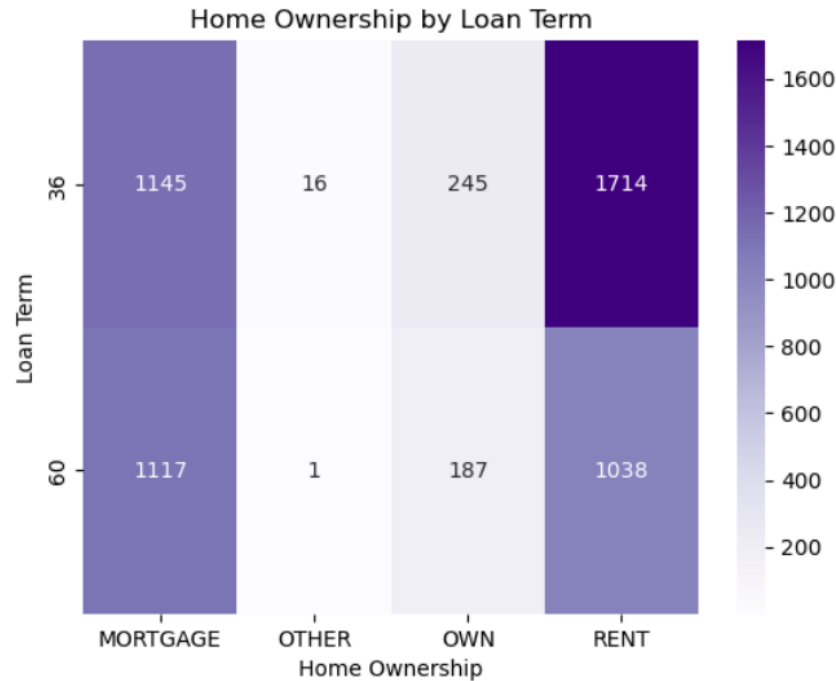
Conclusion

- The bank consider putting more checks on applicants with debt consolidation as loan purpose and belonging to B,C,D and E credit grades

Bivariate Analysis

Observation

- Renters tend to default more on shorter-term loans, while mortgage show a similar default rate across both short and long-term loans.



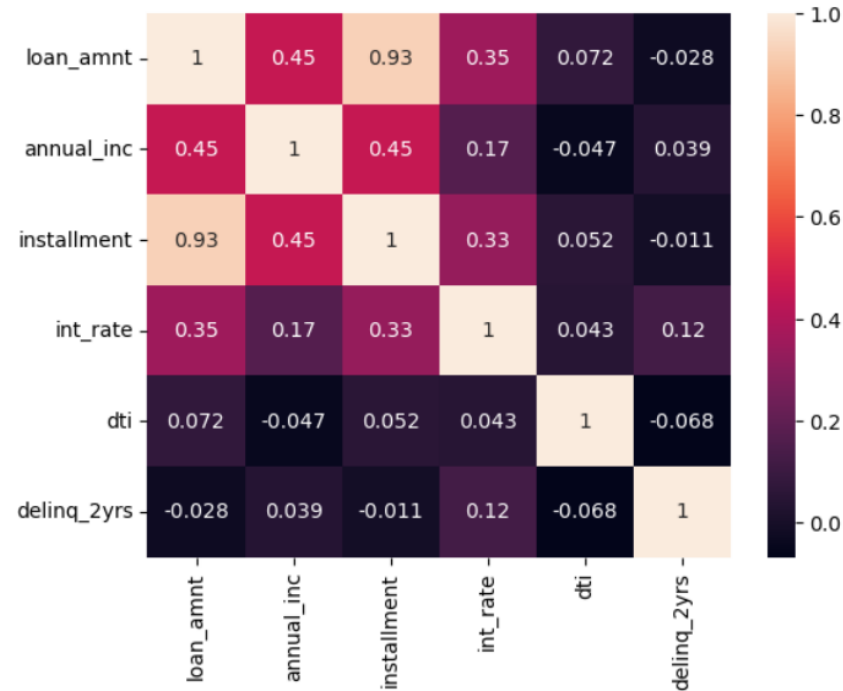
Conclusion

- The bank consider putting more checks on applicants with rented house and looking for short term loan

Multivariate Analysis

Observation

- Annual Income & Loan Amount (0.45): There is a moderate positive correlation here. This indicates that borrowers with higher annual incomes tend to take out larger loan amounts, which could be due to their ability to afford larger repayments



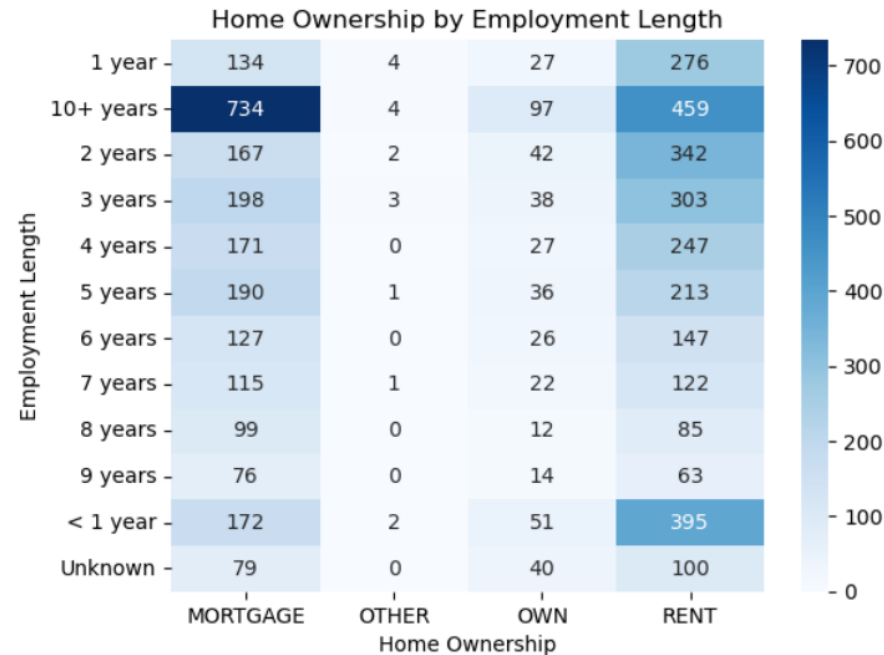
Conclusion

- The bank should not assume that higher loan amount can result in default loan

Bivariate Analysis

Observation

- Individuals with an employment length of over 10 years predominantly live in rented homes or have mortgages, and they tend to have a higher default rate.



Conclusion

- The bank should not assume experience in employment as the sole reason for loan application

OUTCOME

The below are the metrics that Bank needs to consider before approving a loan so that its not default in future

- ▶ **Background Checks:** thorough background check for applicants where the loan purpose is for debt consolidation
- ▶ **Home Ownership:** It's easier for banks to lend to homeowners, but they should be more cautious with those who rent or have a mortgage.
- ▶ **Loan Duration:** Extra verification is needed for loans that need to be paid back over a short time.
- ▶ **Work Experience:** Banks should also verify applicants with different levels of work experience, especially those with very little or many years of experience.
- ▶ Additionally, banks shouldn't rely too heavily on past bill payment issues or the amount of the loan when deciding to give a loan. They also shouldn't use employment experience as the only factor for loan approval. For applicants with lower credit grades (B to E) and those seeking debt consolidation, banks should be more thorough in their checks.