Analysis of LendingClub Portfolio Performance in 2018

Author:

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Outline
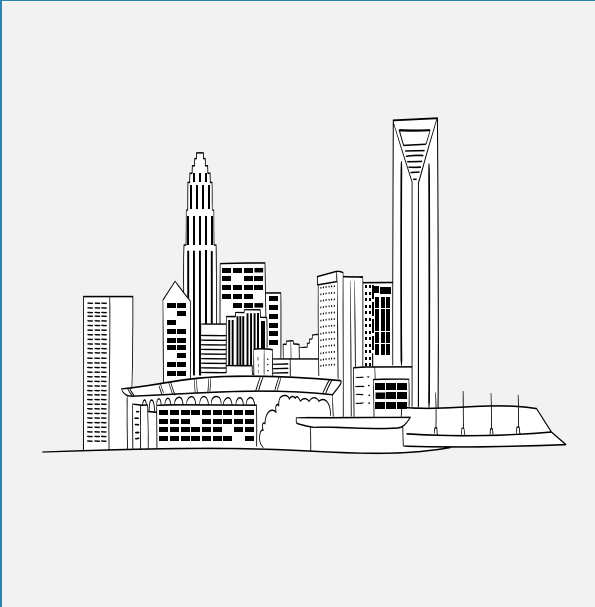
- Executive Summary
- Introduction
- Methodology
- Results
- Conclusion
- Appendix

Executive Summary

- In 2018, LendingClub funded a total of 57,160 loans amounting to $1,138.2M.

- 12.6% of loans were charged off; total losses amounted to $90.8M.

- Average interest rate was 14.75%; DTI ratio averaged 20.97%.

- Key insights revealed trends and disparities in lending performance impacting profitability and risk management.

Introduction

- The objective of this report is to analyze LendingClub's 2018 loan data reviewing key metrics and performance trends such as, total loan metrics, quality of loans, borrower profiles, regional performance, and financial health.

- The significance of understanding lending performance is to inform strategic decisions for improved profitability and operational efficiency.

Methodology

- Data was extracted from a subset of the year 2018 of a real-world multi-year dataset sourced from LendingClub, including geographic details, borrower demographics, and repayment behavior metrics

- Analytical Techniques:
  - Descriptive statistics for trends and performance metrics.
  - Comparative analysis for loan status (Good vs. Bad).
  - Contingency table to explore borrower profiles and repayment patterns.

- Tools Used:
  - Database software for data analysis (SQL).
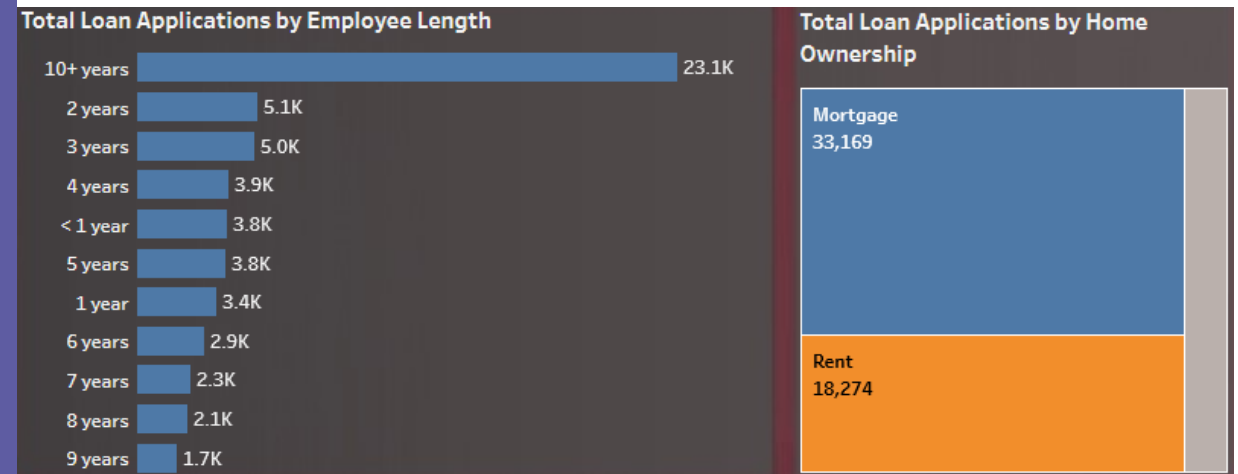 - Visualization software for dashboard (Tableau).

Results

Total Loans and Financials

- 57,160 loans issued at an average interest rate of 14.7% in 2018

- Loaned $1,138.2M total to approved loan applicants

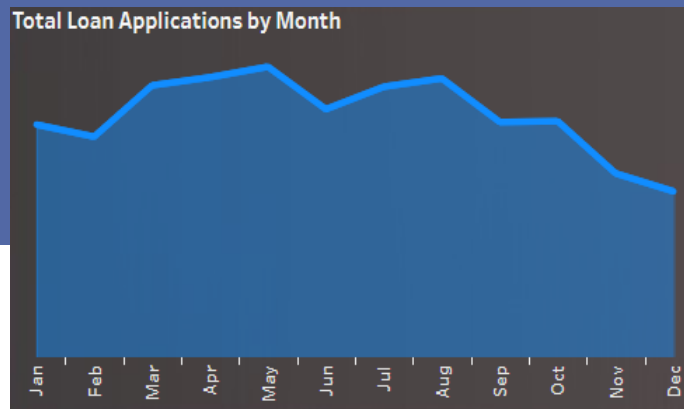- Payments received totaled $840M on fully paid, current, and charged off loans.

Loan Performance and Borrower Profiles

- 87.4% of loans are current or fully paid; 12.6% charged off equating to $90.8 million loss.

- Grading criteria reveals 38% of borrowers are A and B (low risk), while 62% are C – G (moderate to very high risk).

- Employment history shows 40% of borrowers had 10+ years of experience; 58% had mortgages.

- Borrower inclination towards shorter-term (3 Yr) vs medium-term (5 Yr) loans

Total Loan Applications by Employee Length

Employee Length	Applications
10+ years	23.1K
2 years	5.1K
3 years	5.0K
4 years	3.9K
< 1 year	3.8K
5 years	3.8K
1 year	3.4K
6 years	2.9K
7 years	2.3K
8 years	2.1K
9 years	1.7K

Total Loan Applications by Home Ownership

Mortgage
33,169

Rent
18,274

Findings & Implications

Total Loan Applications by Month

Total Loan Applications by State

© 2024 Mapbox © OpenStreetMap

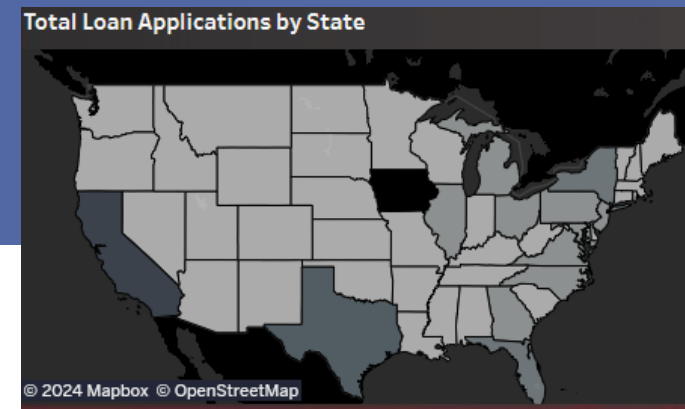## Findings

- Applications peaked in May; December saw the least activity.

- Grand majority (80%) of loans were for debt consolidation and credit cards

- California, Texas, and Florida are top states for loans; opportunity identified in underserved states.

- Profit on fully paid loans (12%) is less than interest rates (14.6%); charge-offs present major losses (-62.5%).

Implications

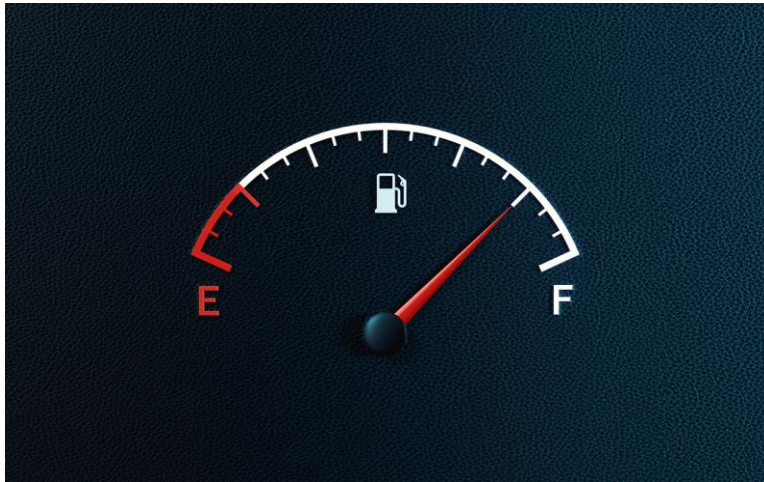- Strategic focus on early-year lending opportunities could drive growth

- Borrowers in these categories may be facing financial difficulties and these loan purposes may increase lending risk despite manageable DTI levels

- Targeted marketing strategies in high-performing and underserved regions can enhance loan distribution.

- Refining risk assessments and redesigning loan offerings to minimize defaults is essential.

Dashboard

2018 LendingClub Loan Report

Tableau Dashboard

https://public.tableau.com/app/profile/alexander.j.porter/viz/2018LendingClubDashboard/Summary

Total Loan Applications	Total Funded Amount	Total Amount Received	Average Interest Rate	Average Debt to Income
57.2K	$1,138.2M	$840.0M	14.7%	21.0%

This project uses a subset (57,160 loans from year 2018) of a real-world multi-year dataset sourced from LendingClub available on Kaggle.

Assumptions:

- The 57,160 loan sample represents all of LendingClub's loans for the entire year of 2018. This assumption is placed to minimize the size of the subset as the approach and methodologies used would remain consistent even if the size of the subset were augmented further.

- For the purposes of this project, LendingClub is to be interpreted in the context of a traditional lending institution (like a bank), rather than as a peer-to-peer lending platform (as it is in the real world).

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Field explanations (full list on GitHub repository):

Debt to income: A ratio calculated using the borrower's total monthly debt payments on the total debt obligations, excluding mortgage and the requested loan, divided by the borrower's self-reported monthly income.

Grade: The risk classification of the loan (A = lowest, G = highest)

Installment: The monthly payment owed by the borrower

Term: The number of payments on the loan. Values are in months and can be either 36 or 60.

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Author: Alexander Porter

Loan Status	Total Loan Applications	Total Funded Amount	Total Amount Received	Received	Amount	Average Interest Rate	Average Debt to Income
Charged Off	7.2K	$145.34M	$54.52M	$1.61M	$6.18M	17.4%	
Current	32.5K	$668.94M	$422.60M	$21.94M	$45.21M	14.2%	21.1%
Fully Paid	17.5K	$323.93M	$362.90M	$14.95M	$13.65M	14.6%	20.7%
Grand Total	57.2K	$1,138.20M	$840.02M	$38.51M	$65.05M	14.7%	21.0%

Filter

Purpose
(All)

Loan Status
(All)

Grade
(All)

2018 LendingClub Loan Report | SUMMARY

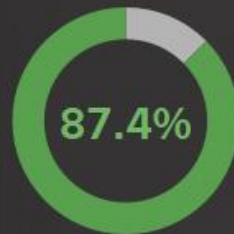| Total Loan Applications	Total Funded Amount	Total Amount Received	Average Interest Rate	Average Debt to Income
57.2K	**$1,138.2M**	**$840.0M**	**14.7%**	**21.0%**
MTD 3.3K / MoM -9.79%	MTD $65.0M / MoM -12.2%	MTD $38.5M / MoM -15.4%	MTD 14.3% / MoM 0.3%	MTD 20.8% / MoM -0.2%

12.6%

Applications: 7.2K
Funded Amount: $145.3M
Amount Received: $54.5M

87.4%

Applications: 50.0K
Funded Amount: $992.9M
Amount Received: $785.5M

Loan Status by Grade

- Bad Loans
- Good Loans

- A 15.19%
- B 20.34%
- C 26.83% / 3.98%
- D 18.95% / 4.22%
- E 5.06%
- F
- G

Filter

Purpose (All)

Loan Status (All)

Grade (All)

LOAN STATUS

Loan Status	Total Loan Applications	Total Funded Amount	Total Amount Received	MTD Total Amount Received	MTD Total Funded Amount	Average Interest Rate	Average Debt to Income
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2018 LendingClub Loan Report | OVERVIEW | Click item to filter

Total Loan Applications	Total Funded Amount	Total Amount Received	Average Interest Rate	Average Debt to Income
57.2K	**$1,138.2M**	**$840.0M**	**14.7%**	**21.0%**
MTD 3.3K	MTD $65.0M	MTD $38.5M	MTD 14.3%	MTD 20.8%
MoM -9.79%	MoM -12.2%	MoM -15.4%	MoM 0.3%	MoM -0.2%

Total Loan Applications by Purpose
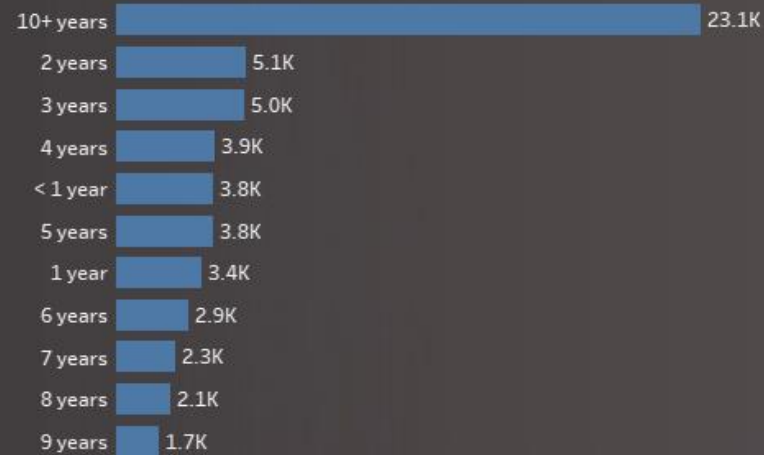
Purpose	Value
Debt Consolidation	33.4K
Credit Card	12.3K
Other	3.9K
Home Improvement	3.3K
Major Purchase	1.1K
Medical	0.7K
House	0.6K
Moving	0.6K
Small Business	0.6K
Car	0.4K
Vacation	0.3K
Renewable Energy	0.1K
Wedding	0.0K

Total Loan Applications by Employee Length

Employee Length	Value
10+ years	23.1K
2 years	5.1K
3 years	5.0K
4 years	3.9K
< 1 year	3.8K
5 years	3.8K
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6 years	2.9K
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9 years	1.7K

Total Loan Applications by Home Ownership

Mortgage 33,169

Rent 18,274

Select KPI
Total Loan Applications

State
(All)

Grade
(All)

Filter

Total Loan Applications by State

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Total Loan Applications by Month

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Total Loan Applications by Term

36 months 60 months

42.02%   57.98%
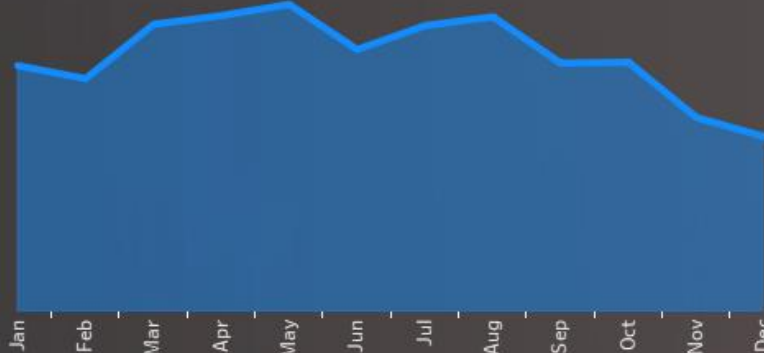
2018 LendingClub Loan Report | DETAILS

	Total Loan Applications	Total Funded Amount	Total Amount Received	Average Interest Rate	Average Debt to Income
	57.2K	**$1,138.2M**	**$840.0M**	**14.7%**	**21.0%**
MTD / MoM	3.3K / -9.79%	$65.0M / -12.2%	$38.5M / -15.4%	14.3% / 0.3%	20.8% / -0.2%

Id	Month of Issue Date	Purpose	Home Ownership	Grade	Sub Grade	Loan Amount	Interest Rate	Installment	Total Payment
118187703	January	Credit Card	Mortgage	A	A3	$40,000.00	6.7%	$1,229.97	$34,424.23
120640856	January	Small Business	Mortgage	A	A1	$40,000.00	5.3%	$1,204.60	$41,776.56
121263466	January	Debt Consolidation	Mortgage	A	A5	$25,000.00	8.0%	$783.07	$27,557.92
123882130	January	Debt Consolidation	Mortgage	A	A3	$40,000.00	6.7%	$1,229.97	$32,992.27
124080589	January	Home Improvement	Mortgage	A	A2	$35,000.00	6.1%	$1,066.04	$37,859.50
124436013	January	Other	Mortgage	A	A2	$40,000.00	6.1%	$1,218.33	$42,100.88
125018825	January	Debt Consolidation	Rent	A	A3	$4,000.00	6.7%	$123.00	$3,442.51
125040873	January	Debt Consolidation	Rent	A	A4	$22,000.00	7.4%	$439.27	$23,981.58
125062676	January	Home Improvement	Mortgage	A	A3	$15,000.00	6.7%	$461.24	$16,453.53
125276090	January	Credit Card	Mortgage	A	A1	$10,000.00	5.3%	$301.15	$8,426.29
125350142	January	Other	Rent	A	A5	$10,000.00	8.0%	$313.23	$9,055.74
125563314	January	Debt Consolidation	Mortgage	A	A3	$38,000.00	6.7%	$1,168.48	$41,607.84
125622357	January	Credit Card	Mortgage	A	A5	$20,000.00	8.0%	$405.25	$11,338.14
125657276	January	Debt Consolidation	Mortgage	A	A5	$20,000.00	8.0%	$626.46	$8,778.05
125677962	January	Credit Card	Mortgage	A	A1	$40,000.00	5.3%	$1,204.60	$33,716.98
125690603	January	Home Improvement	Mortgage	A	A4	$10,000.00	7.4%	$310.38	$8,686.56
125711003	January	Debt Consolidation	Rent	A	A4	$11,000.00	7.4%	$341.42	$9,869.74
125713090	January	Debt Consolidation	Mortgage	A	A3	$40,000.00	6.7%	$1,229.97	$34,424.23
125723058	January	Debt Consolidation	Mortgage	A	A2	$34,000.00	6.1%	$1,035.58	$34,769.36
125768338	January	Debt Consolidation	Mortgage	A	A5	$10,000.00	8.0%	$313.23	$8,766.01
125786015	January	Debt Consolidation	Own	A	A2	$20,000.00	6.1%	$609.17	$20,628.08
125791677	January	Debt Consolidation	Rent	A	A2	$25,000.00	6.1%	$761.46	$25,351.74
125801978	January	Credit Card	Mortgage	A	A5	$15,000.00	8.0%	$469.84	$5,591.91
125834252	January	Other	Rent	A	A2	$10,000.00	6.1%	$304.59	$8,525.14
125849149	January	Other	Mortgage	A	A3	$10,000.00	6.7%	$307.50	$8,606.27
125854831	January	House	Mortgage	A	A5	$30,000.00	8.0%	$939.68	$26,256.35
125857350	January	Debt Consolidation	Mortgage	A	A2	$21,000.00	6.1%	$639.63	$8,493.10
125857765	January	Debt Consolidation	Mortgage	A	A3	$33,875.00	6.7%	$1,041.64	$29,153.27

Sidebar Filters

Filter

Month of Issue Date
(All)

Grade
(All)

Sub Grade
(All)

Conclusion

- Charge-offs predominantly arise from C-G graded loans, highlighting a critical area for risk assessment.

- The first half of the year is more favorable for loan issuance, while trends suggest caution in the latter half.

- Need for Enhanced Risk Models: Focus on improving assessment mechanisms for grading and potential charge-off predictors.

- The analysis reveals significant issues with loan performance and a minimum net loss of approximately 3.9% is expected for 2018

Grade	Total_ChargeOffs	Total_Loans_%	Avg_Interest_Rate
A	332	0.5808	0.0735
B	1007	1.7617	0.1109
C	2274	3.9783	0.1481
D	2412	4.2197	0.1971
E	900	1.5745	0.2546
F	204	0.3569	0.2948
G	48	0.0840	0.3082

Actionable Insights for LendingClub

Refine risk management and implement stricter criteria for C-G graded borrowers to curb charge offs

Consider restructuring underwriting to attract and approve only A and B graded borrowers to minimize risk and ensure net profitability.
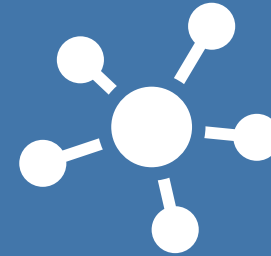
Develop targeted marketing strategies during peak lending periods, particularly in high-performing states.

Explore opportunities for diversification into underserved regions and marginalized loan purposes to capture market share and reduce risk.
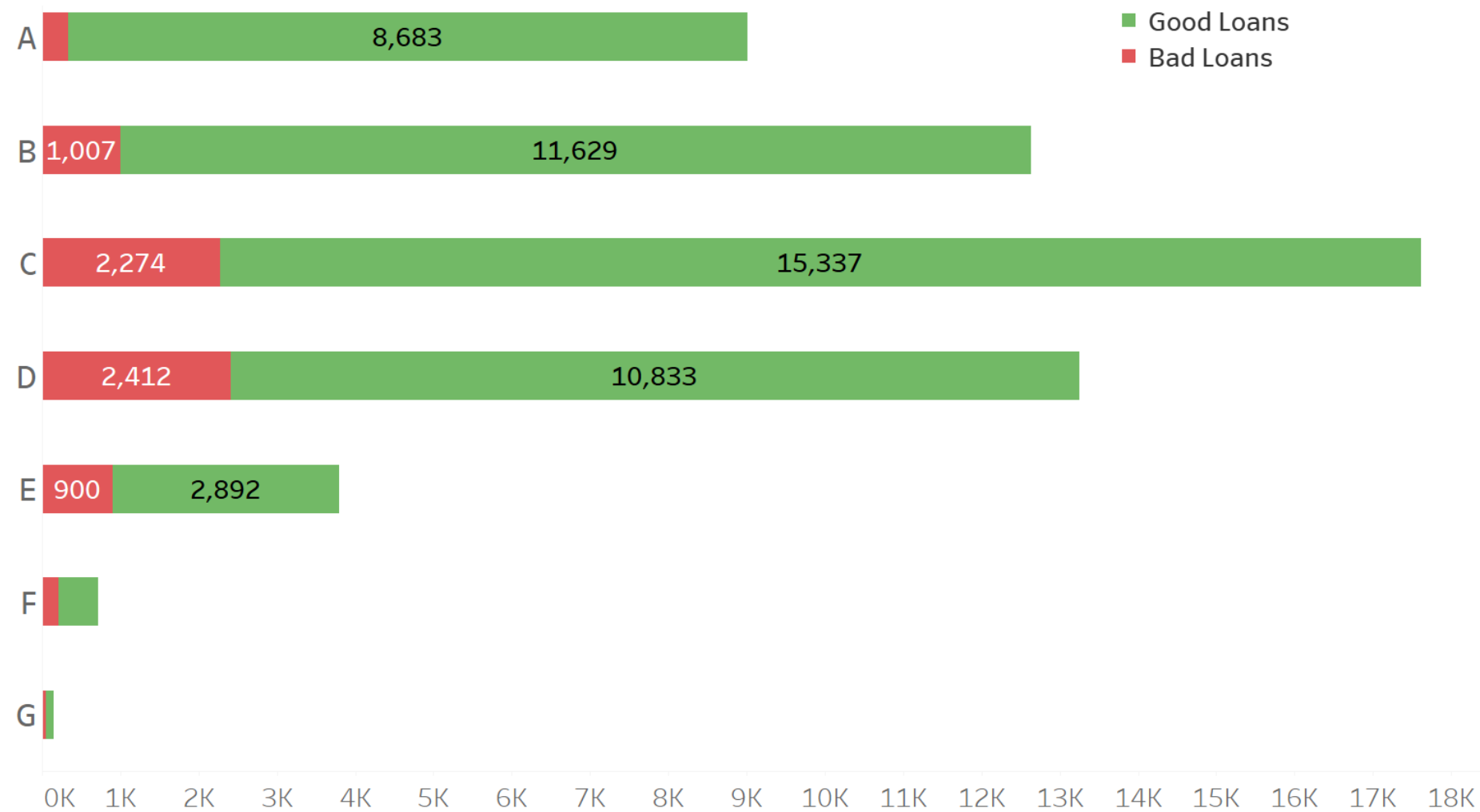
Appendix

Profit: Fully Paid vs. Charge-offs

Loan_Status	Profit_Multiple	Profit
Fully Paid	0.1203	$38,973,290
Charged Off	-0.6249	-$90,820,023

Contingency Table

Grade		Loan_Status (grouped)		
		Bad_Loans	Good_Loans	Total
	A	332 (0.58%)	8683 (15.19%)	9015 (15.77%)
	B	1007 (1.76%)	11629 (20.34%)	12636 (22.11%)
	C	2274 (3.98%)	15337 (26.83%)	17611 (30.81%)
	D	2412 (4.22%)	10833 (18.95%)	13245 (23.17%)
	E	900 (1.57%)	2892 (5.06%)	3792 (6.63%)
	F	204 (0.36%)	513 (0.90%)	717 (1.25%)
	G	48 (0.08%)	96 (0.17%)	144 (0.25%)
	Total	7177 (12.56%)	49983 (87.44%)	57160 (100.00%)