Making your Portfolio

Team 18: Nikita Suryawanshi, Bhavesh Jain, Zarmeen

Agenda

1 Data Overview
2 Determining Loan Default
3 Determining Returns & Recoveries
4 Cluster & Conquer
5 Designing the Portfolio

Data Overview

We combined **borrower profile, financial health, loan terms, timing** to accurately assess each loan's risk and return potential.

- Borrower Profile: Home-ownership, Employment Length, Purpose of Borrowing
- Financial Health: Debt-to-Income Ratio, Banckcard Utilization, Credit-line Loan Gap
- Loan Terms: Amount, Interest Rate, Verification Status, Installments
- Time: Duration, Issue Date and Month
- Used to calculate which loans will default, the returns and recoveries and group loans into categories

Which loans will default?

The hybrid model catches the **most number of risky loans (5.4%)** and gives us the highest return on each dollar we put into loans it calls “safe.”

Step 1: We split the loans into buckets by asking simple questions (forming a decision tree) and each final brach will be grouped according to similar profiles.

Step 2: For each loan group, we fine-tune the predictions (logistic regression) to see the chances of the loans defaulting.

- This is beneficial as the the tree finds a natural group of loans and the fine-tuning makes it easier to catch more risky loans.
- Essentially, using the best of both world approaches, we get a robust model that performs better than others.

What are the returns & recoveries?

By building two specialized models—one for profitable loans and one for defaulted loans—we get clear, data-driven estimates of what each loan will return, no matter what happens.

Return Model:

- Loans that did not default
- Train a “smart calculator”
- Learns patterns that lead to higher/lower profit

Recovery Model:

- Loans that did default
- Train a different “calculator”
- Predict what fraction of the invested amount can be recouped

Birds of a Loan Feather Flock Together

By splitting loans into these five groups with similar characteristics, we can tailor our investment strategy—favoring safer clusters when needed or reaching for higher returns in others—while keeping risk under control .

Cluster	Mean Return	Risk (Std Dev)	Mean Default	Profile
0	12.38%	0.81%	15.40%	Moderate returns, lowest risk
1	12.19%	0.92%	20.24%	Lower returns, higher risk
2	12.18%	0.84%	18.89%	Lower returns, higher risks
3	12.97%	1.14%	21.56%	Highest returns, highest risk
4	12.47%	0.98%	19.62%	Balanced return and risk

Building the Portfolio What you tell us

What we need from you to find the best set of investment opportunities for your needs

Your Budget

Tell us what your budget is, i.e. how much are you willing to invest in P2P Lending.

Number of Loans

A maximum number of loans that you have in mind, to make it easy to manage and track.

We suggest this between 5 & 25

Maximum amount a loan gets out of budget

What portion of the budget can at-max be given to a single loan

We suggest you keep it under 0.3 to diversify properly

Maximum part of a loan that you want to cover

What portion of a loan's total amount do you want to cover

We suggest that you keep it under 0.25 so the risk is shared.

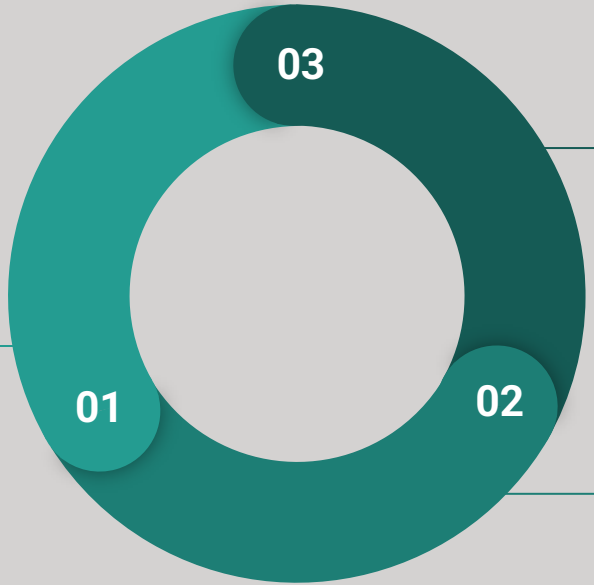
Base Riskiness

What should be the max default probability of selected loans

We suggest this be under 15%

Building the Portfolio How we go ahead

We allot some loans within a subset a random amount.



We then track its expected return

Chance it pays back x (your original amount + profit)
+
Chance it fails x recovery

We check if it meets the criteria in all cases, like total budget not being exceeded etc

The cycle runs till we find the highest possible expected return that cannot be mathematically exceeded, while maintaining all constarints

Building the Portfolio What we provide

Loan Selection

Which loans to invest in

Allocation per Loan

How much to invest in each loan

Average Default Risk

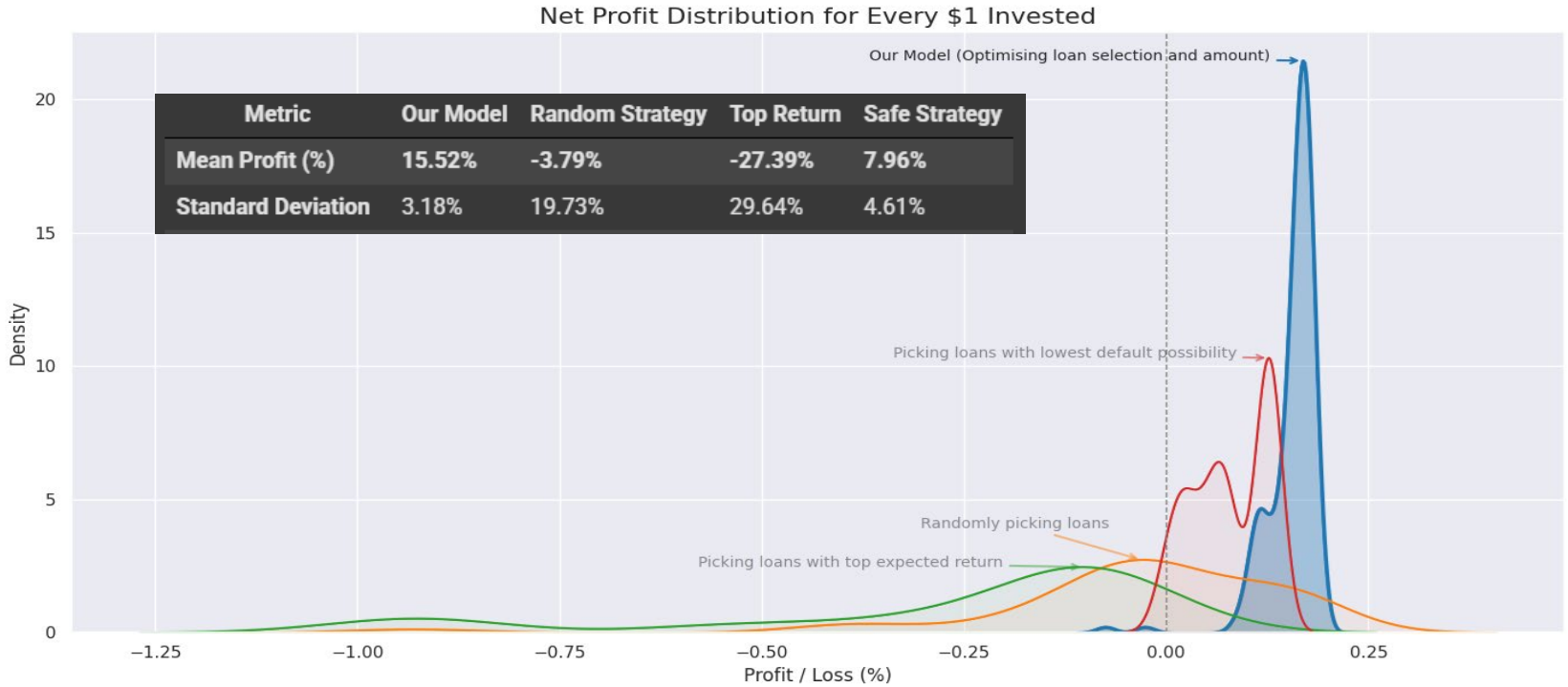
Average chances of no repayment

Expected Total Return

All-in dollar value you can expect back

Building the Portfolio Why this works

Our optimized strategy delivers the highest and most consistent profit per dollar while dramatically reducing the chance of loss compared to any simple loan –picking method.



Metric	Our Model	Random Strategy	Top Return	Safe Strategy
Mean Profit (%)	15.52%	-3.79%	-27.39%	7.96%
Standard Deviation	3.18%	19.73%	29.64%	4.61%

*As tested on the real returns of a subset of loans issued from 2014-15

Expected Annual Return of

15.5%

±3% Standard Deviation

Which is higher than the 3 Year CAGR of S&P 500 at 11.2%.

It also beats all other tested methods like picking safest loans or the best expected ones.

*As tested on the real returns of a subset of loans issued from 2014-15

THANK YOU.

AND HAPPY INVESTING.