A Peer-to-Peer Lending Robo-Advisor

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PeerVest

Problem

Platforms Are Not Aligned With Investors

Peer-to-Peer Lending

- **Big, alternative data**
- **Inclusion:** More Investors + More Borrowers
- **Risk is generalized**

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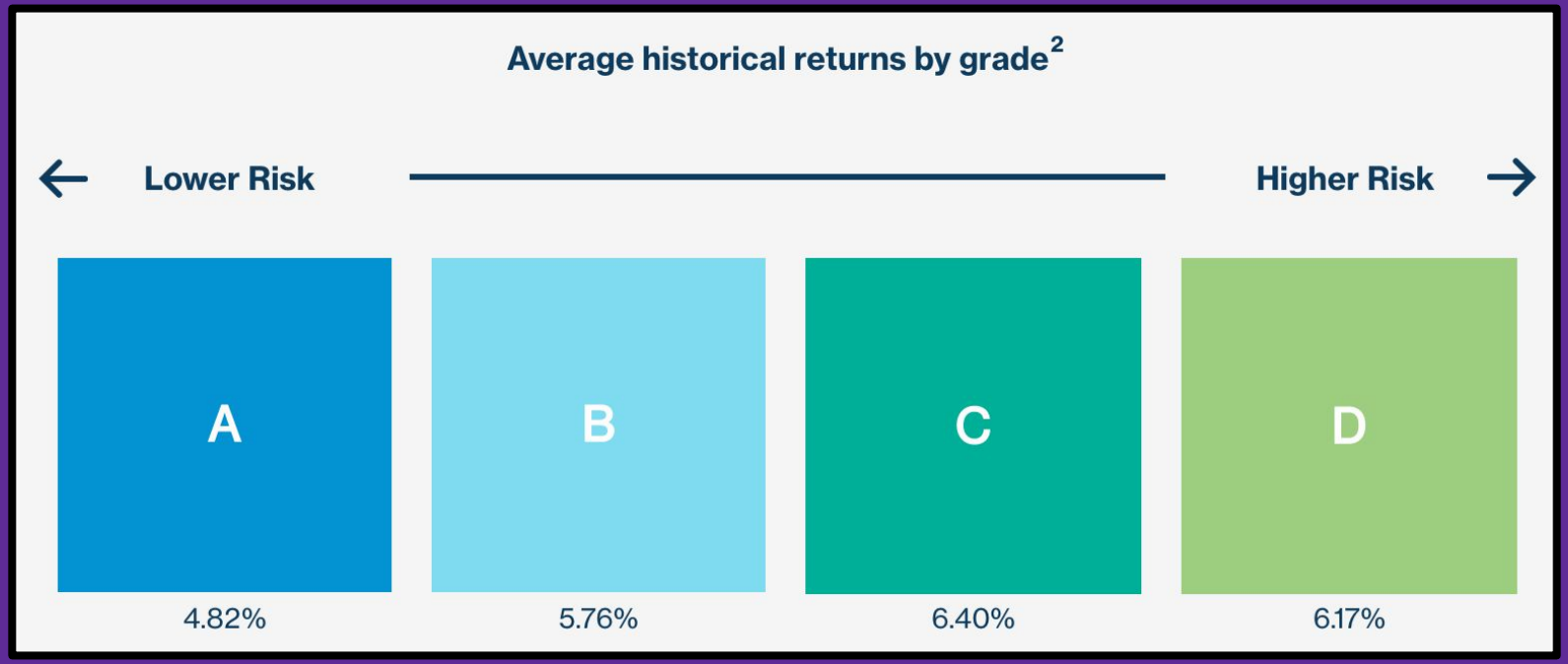
Data

LendingClub.com

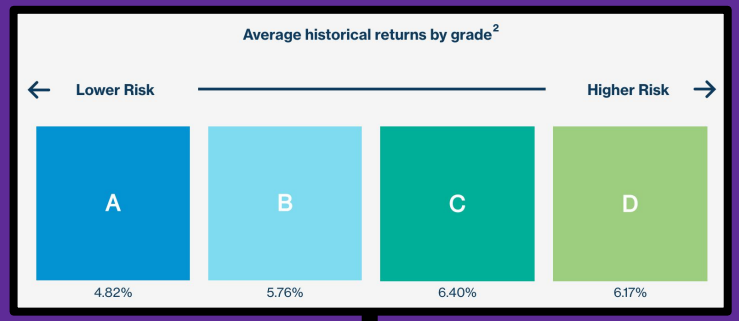
Public CSVs
Investor APIs

- **Training :**
  2007 - 2017 Completed
- **Future Testing:**
  2018-Q1 2019 Completed
- **Recommendations:**
  Investable as of 7.8.19
- **1,101 Features**
- **Class Imbalance**

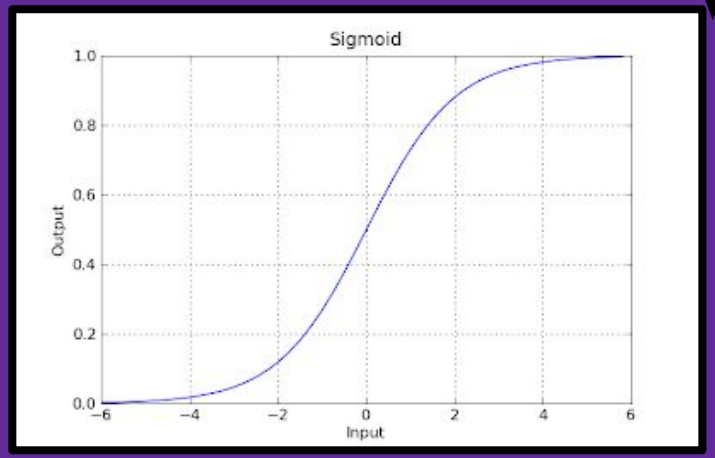
LendingClub Off-the-Shelf Risk Grades Are Inefficient



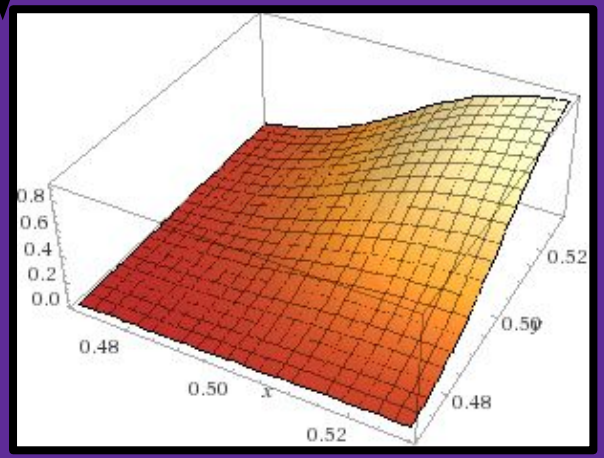
Continuous Risk Scores > Risk Buckets



2D



3D



nD

?

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Modeling

1. Risk

Probability of Default

Classification

0=Default

1=Fully Paid

- **Logistic Regression**
- **Neural Network**

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Evaluation

1. Risk

Probability of Default

- Precision: > 0.9 (both classes)
- Recall: > 0.9 (both classes)
- F1 Score: > 0.9 (both classes)
- ROC-AUC: > 0.9
- Probability Calibration

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Modeling

2. Reward

Annualized Return

Regression

Invest: $X

Receive: $X + (Y% * $X)

- **Linear Regression**
- **Ridge Regression**
- **Random Forest**

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Evaluation

2. Reward

Annualized Return

With Payment History:

- **R-Squared: > 0.9**
- **Mean Squared Error: < 0.002**
- **Root Mean Squared Error: < 0.05**

Without Payment History:

- **R-Squared: > 0.56**
- **Mean Squared Error: < 0.02**
- **Root Mean Squared Error: < 0.16**

PeerVest

http://www.peervest.online/

Deployment

Flask

User Inputs

- Risk Tolerance (0.0-1.0)
- Available $
- Preferences

App Outputs

- Recommended Loans
- Portfolio Summary
- Comparison vs. Benchmark

Let’s Connect!

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