Peer-To-Peer
Lending

G R E A T Y I E L D S
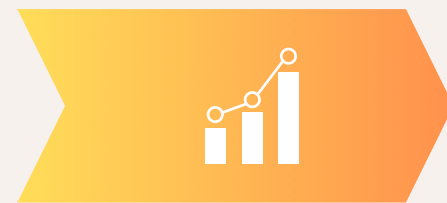
Prepared By: Shelly Levy, Tom Saacks and Or Liberman

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Staying Ahead of the Curve
Our Goal

P2P loan viability assessment

Improving loan selection model

Optimizing Returns (over 2%)

- Outdated data
- Limited investment options

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Step Guidelines:
Key Findings

- Progress Overview

- Responding to Questions

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Step Guidelines:
Key Findings

- **Progress Overview**

- Responding to Questions

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PROGRESS OVERVIEW

1- Data Preparation

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A snapshot of the data

434,407 Instances

151 Features

326,403 Instances

55 Features
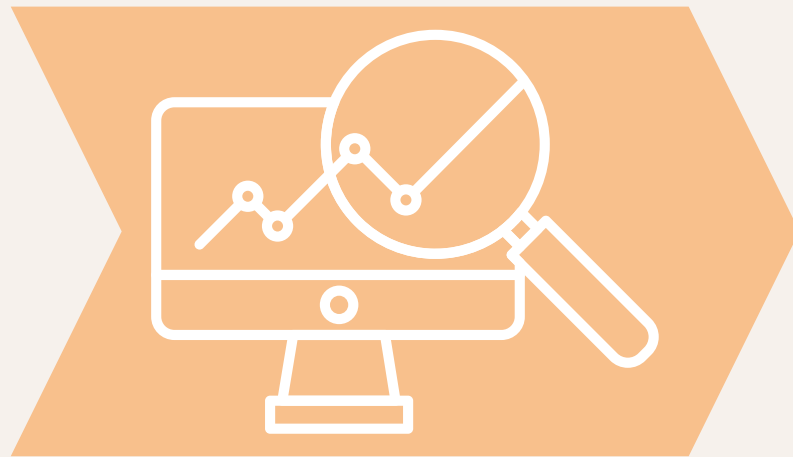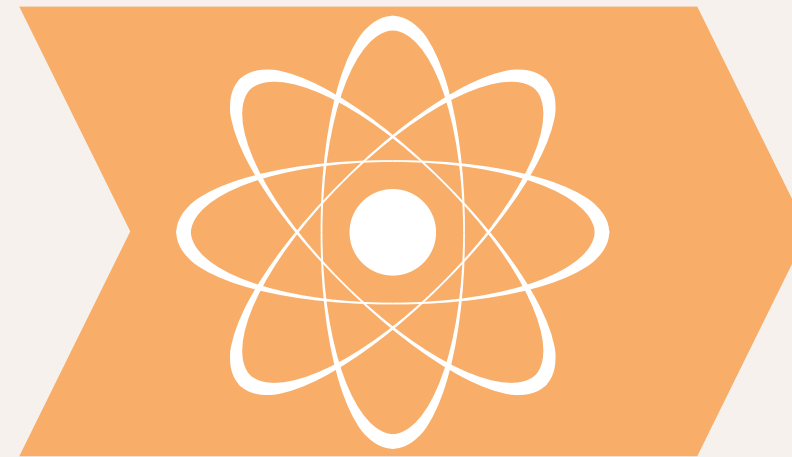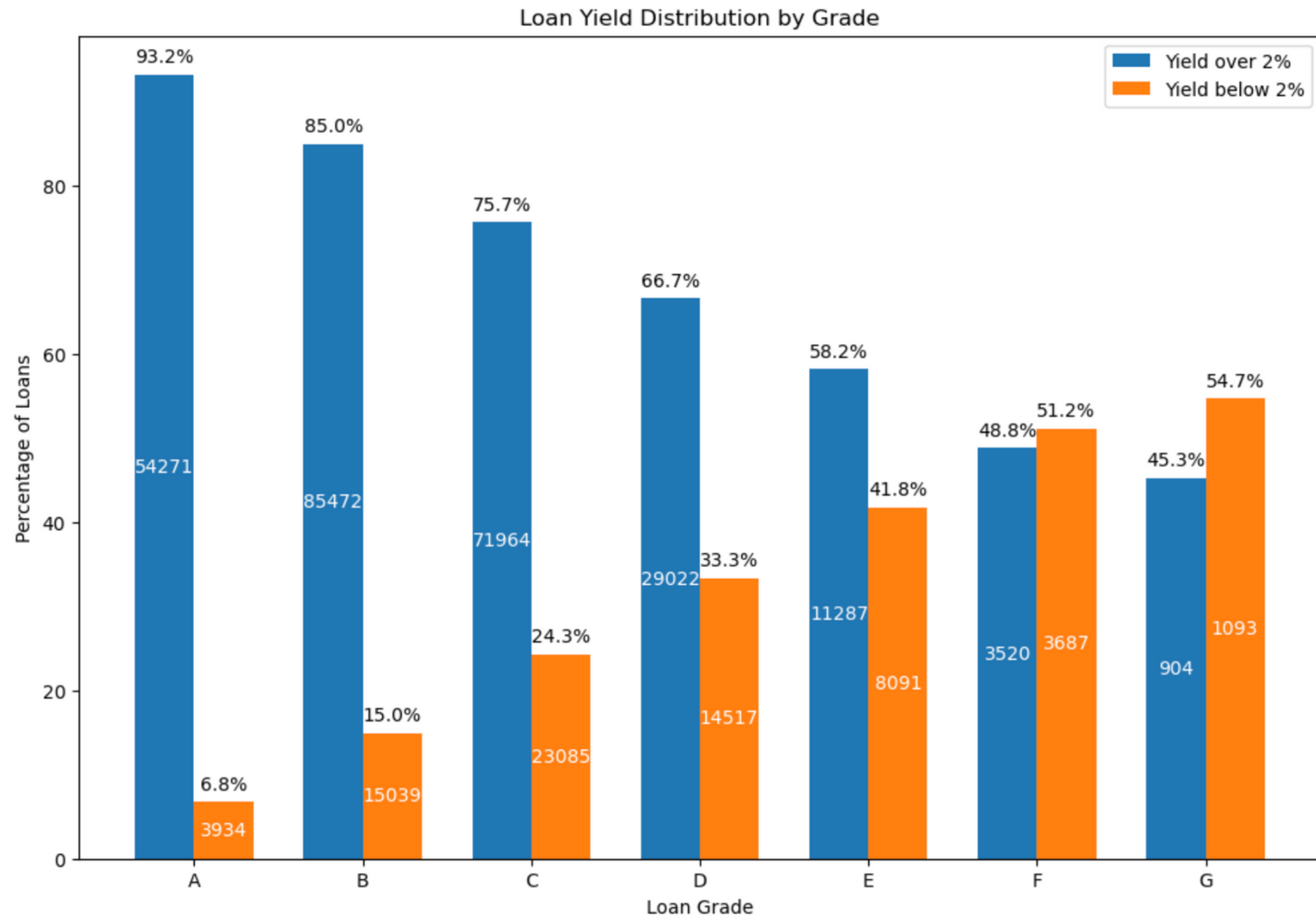
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PROGRESS OVERVIEW

1- Data Preparation

2 - Modeling

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Modeling

Loan Yield Distribution by Grade

Legend:
- Yield over 2%
- Yield below 2%

Loan Grade	Yield over 2%	Yield below 2%
A	93.2% (54271)	6.8% (3934)
B	85.0% (85472)	15.0% (15039)
C	75.7% (71964)	24.3% (23085)
D	66.7% (29022)	33.3% (14517)
E	58.2% (11287)	41.8% (8091)
F	48.8% (3520)	51.2% (3687)
G	45.3% (904)	54.7% (1093)

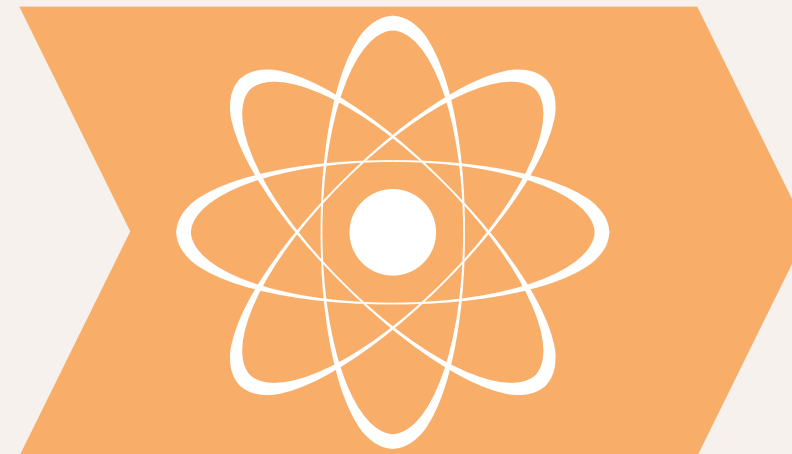Y-axis: Percentage of Loans

X-axis: Loan Grade

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PROGRESS OVERVIEW

1- Data Preparation

2 - Modeling

3 - Evaluation

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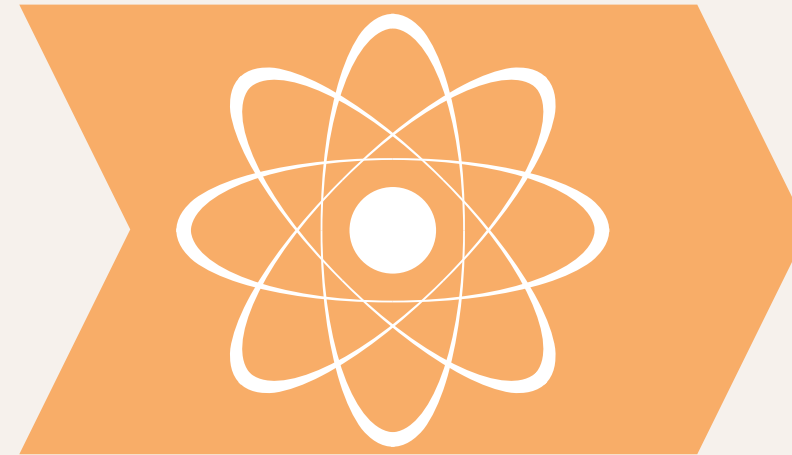
PROGRESS OVERVIEW

1- Data Preparation

2 - Modeling

3 - Evaluation

4 - Model Selection

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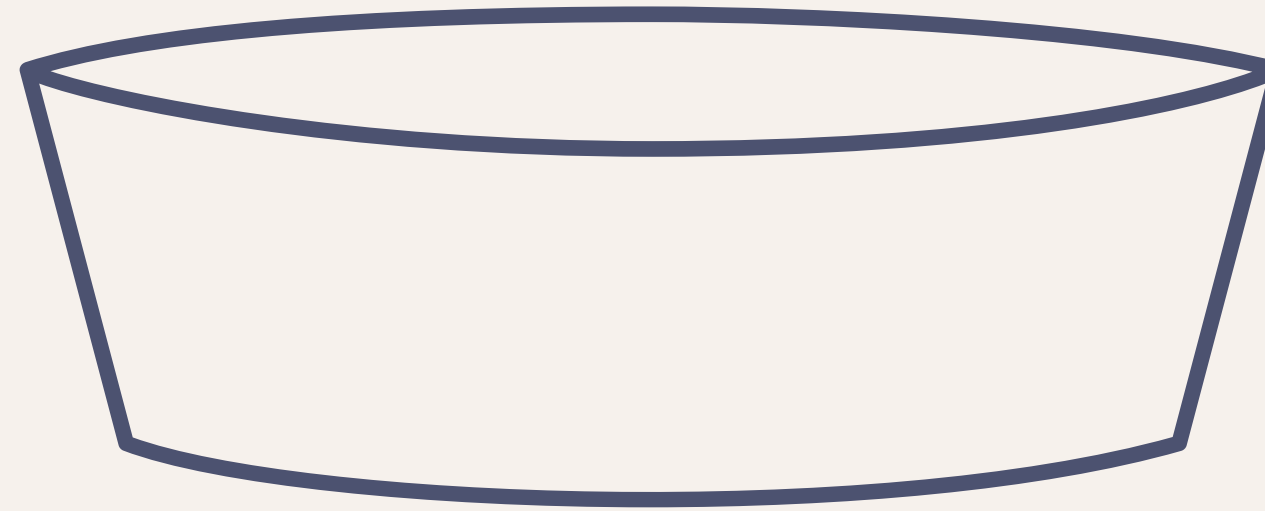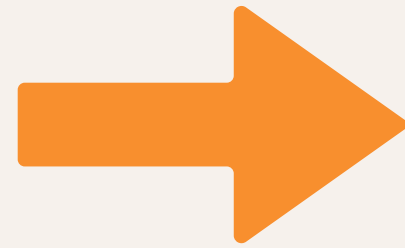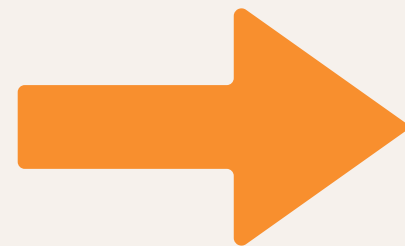PORTFOLIO SOLUTIONS

Model Selection

Loan Classification Model:
Above and Below 2%

Loans with Predicted
Rates Above 2%

Regression Model:
Numerical Yield

Loan Return
Prediction %

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Step Guidelines:
Key Findings

- Progress Overview

- **Responding to Questions**

Expected Realized Returns and Distribution **by Loan Grade**

$$E(x) = \frac{12}{T} * \frac{1}{f} \left\{ \left[\frac{p}{m} \left(\frac{1\text{-}(1+i)^m}{1-(1+i)} \right) \right] * (1+i)^{t\text{-}m} - f \right\}$$
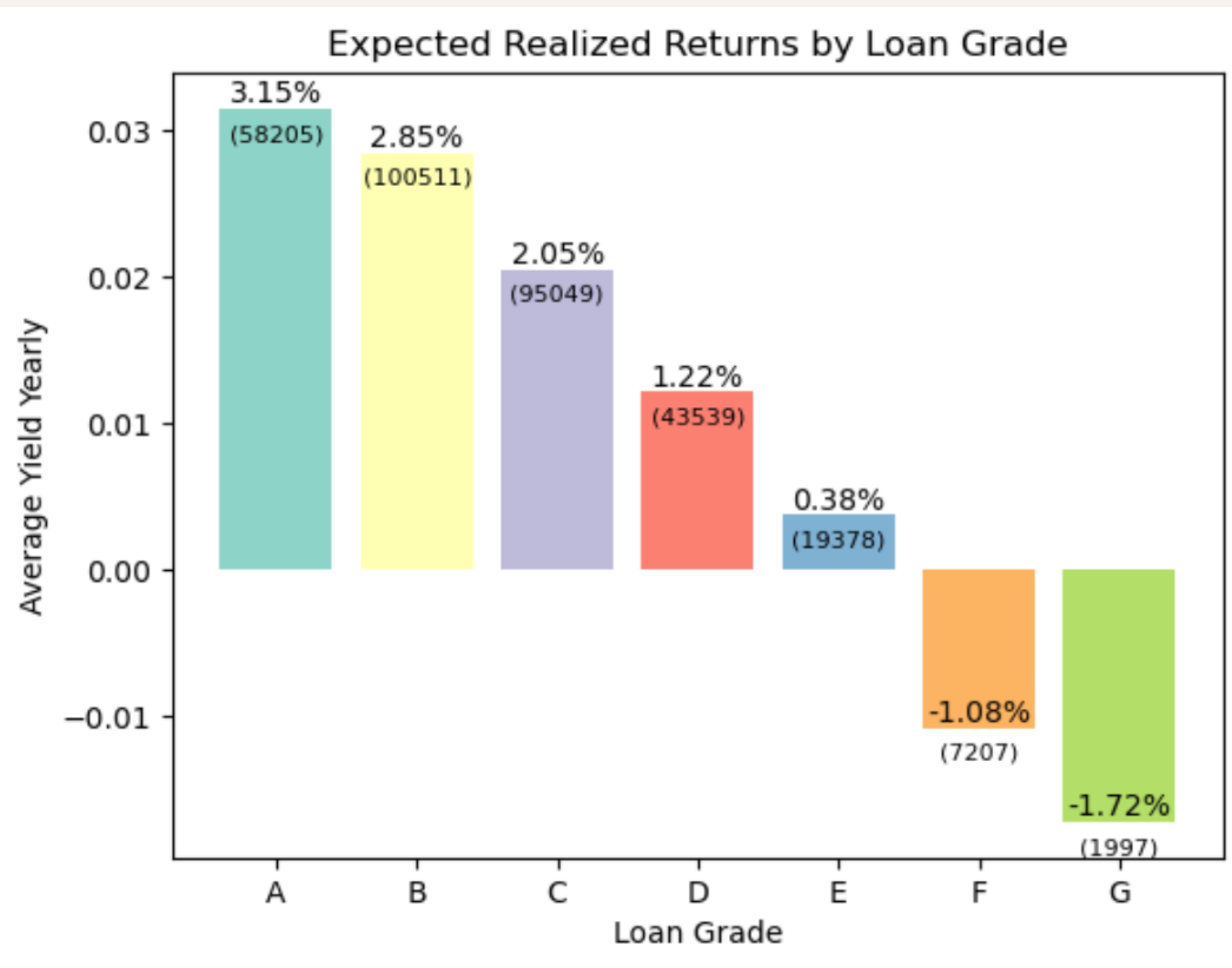
T — *Fixed time horizon in months*

F — *Funded amount*

P — *Payments recoveris*

M — Actual duration (issued date to last payment)

I — *Interest rate for reinvest the money*

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Expected Realized Returns and Distribution **by Loan Grade**

Expected Realized Returns by Loan Grade

Loan Grade	Average Yield Yearly
A	3.15% (58205)
B	2.85% (100511)
C	2.05% (95049)
D	1.22% (43539)
E	0.38% (19378)
F	-1.08% (7207)
G	-1.72% (1997)

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Expected Realized Returns and Distribution by Loan Grade

Standard Deviation of Yield Yearly by Loan Grade

Values by Loan Grade:
- A: 4.71%
- B: 7.22%
- C: 9.19%
- D: 10.82%
- E: 11.30%
- F: 11.39%
- G: 11.77%

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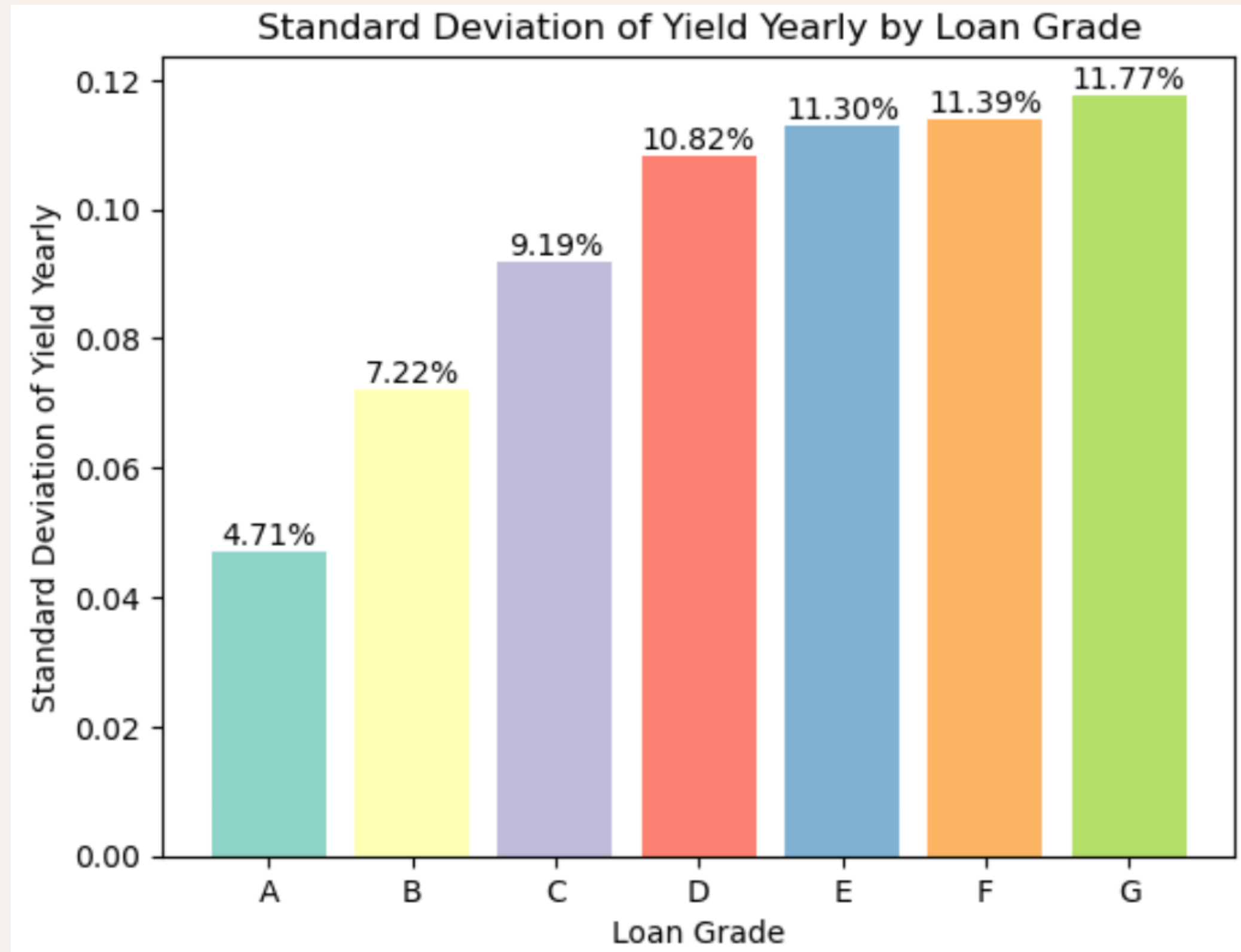
Potential Pitfalls:

- Ignoring macroeconomic factors.

- Over-reliance on past performance.

- Making assumptions in yield calculations.

- Disregarding investment size

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Risk Levels and Volatility of peer-lending by loan grades

- Traditional calculation of volatility not possible.

- Use SD of loan grades

- Use weighted standard deviation

Potential Pitfalls:

- Lack of external benchmarks for risk assessment

- Impact of data quality on analysis validity

- Market conditions not explicitly considered

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Risk Levels and Volatility of peer-lending by loan grades

Standard Deviation of Yield by Grade

Risk Levels and Volatility of peer-lending by loan grades

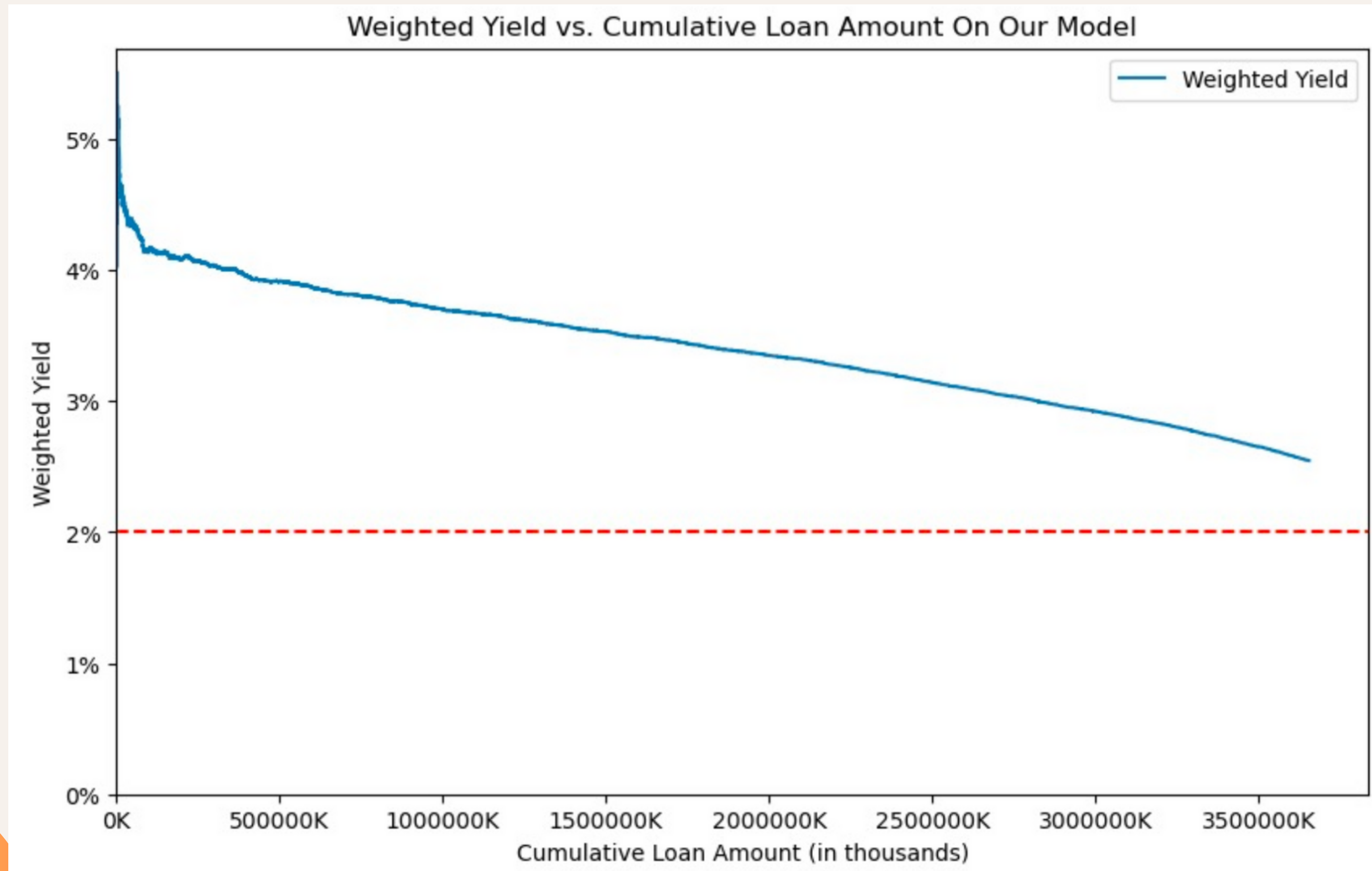Standard Deviation of Weighted Yield by Grade
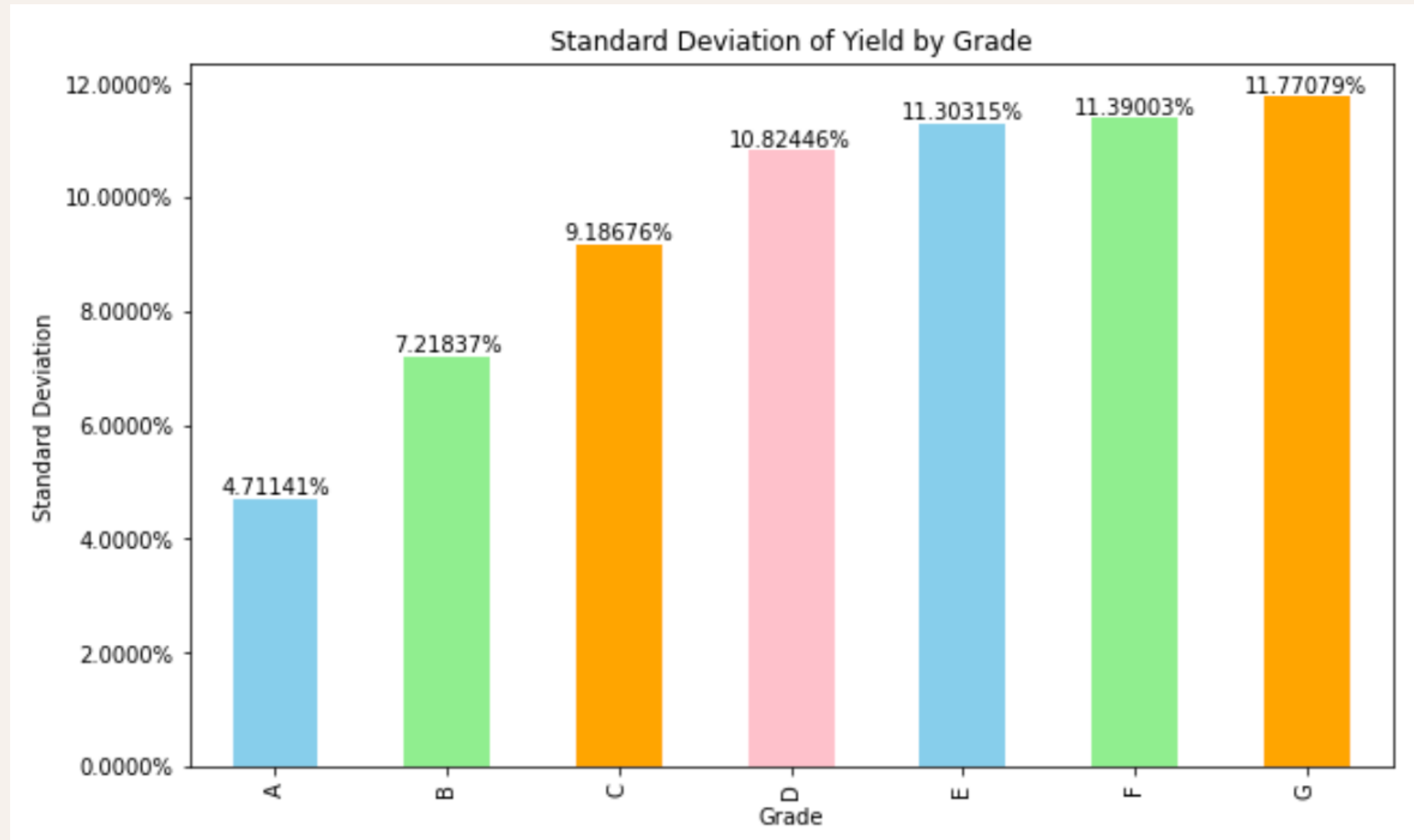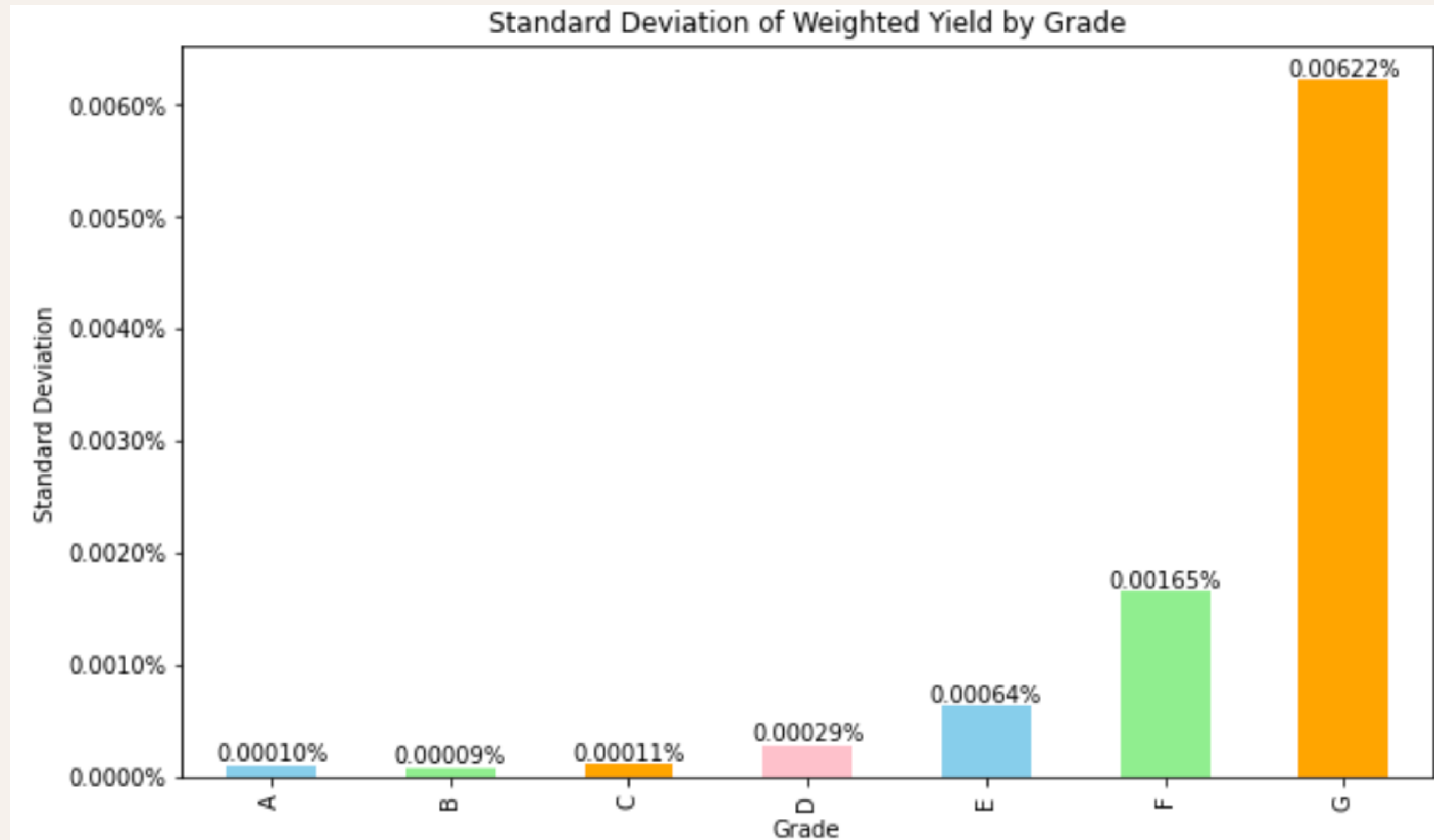
Exploring Average Returns

in Peer Lending Investments

- Importance of investment size

- Weighted annual returns analysis

- Model surpasses 2% benchmark

Potential Pitfalls:

- Data sourced in 2019

- Assumptions and model limitations

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Exploring Average Returns

Weighted Yield vs. Cumulative Loan Amount On Our Model

Performance Impact of
Informative Data on Loan Selection

Loan Amount vs Weighted Yield grades and Our Model
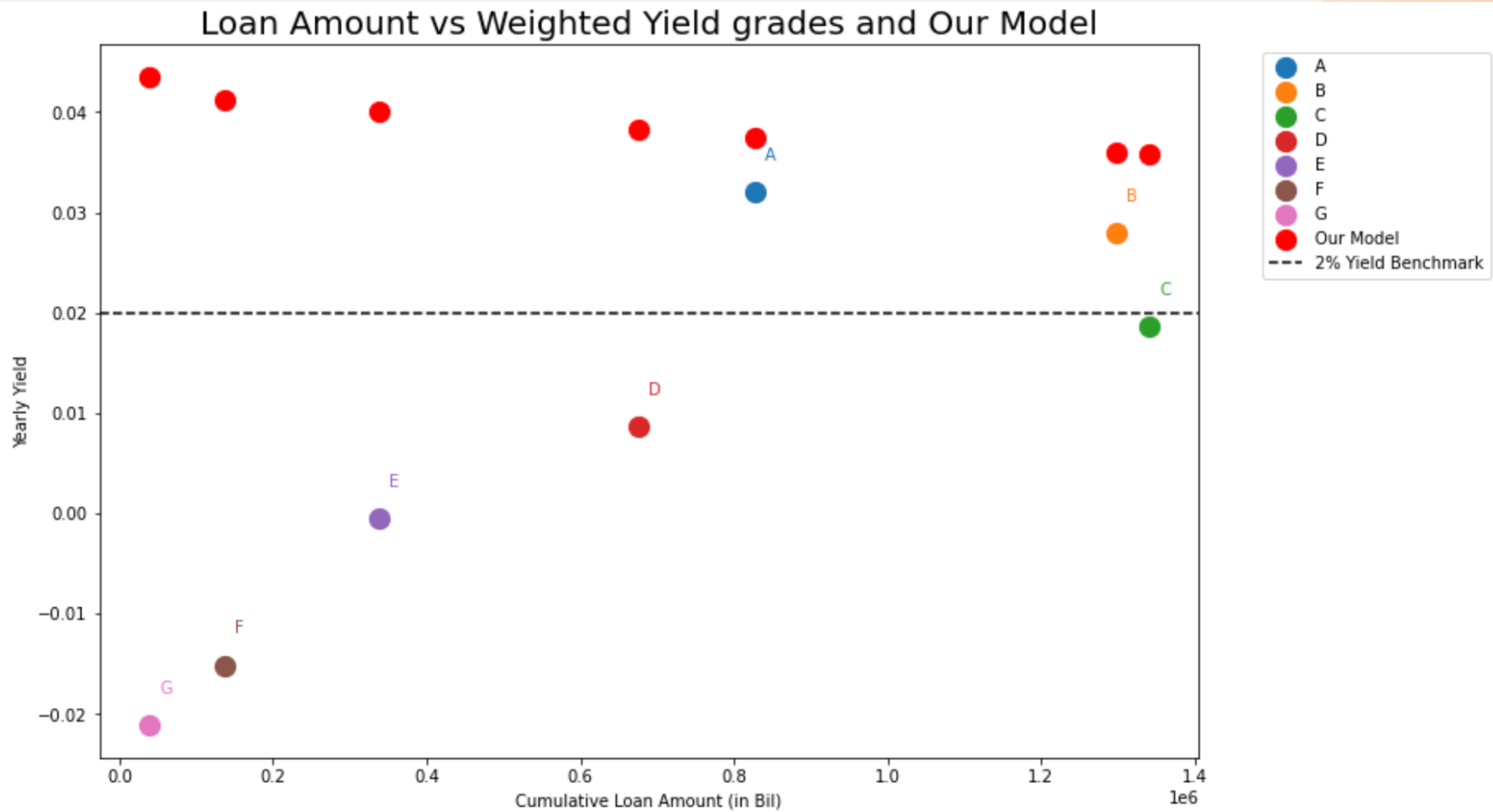
Performance Impact of
Informative Data on Loan Selection

loan_amount	Increased Performance	Sharpe Ratio model	Sharpe Ratio grades
38,856,500	6.47%	1351.82	-654.93
136,699,850	5.65%	4933.24	-470.80
338,367,400	4.06%	13427.03	-15.91
674,768,850	2.96%	26776.15	268.01
827,136,325	0.55%	32122.63	992.53
1,297,360,550	0.79%	47636.28	869.09
1,340,526,675	1.71%	48959.46	579.19

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Performance Impact of
Informative Data on Loan Selection

loan_amount	our_model_Yearly_Yield	our_model_STD
3,000,000,000.00	2.93%	0.00007%
1,340,527,000.00	3.58%	0.00007%
1,297,361,000.00	3.59%	0.00008%
827,136,300.00	3.75%	0.00012%
674,768,800.00	3.83%	0.00014%
338,367,400.00	4.01%	0.00030%
136,699,800.00	4.13%	0.00084%
38,856,500.00	4.36%	0.00322%

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Loan data: Informative for investment selection?

- Outperforms grade-based model

- Surpasses 2% benchmark

- Enhanced investment portfolio returns

- Data-driven loan selection advantage

Potential Pitfalls:

- Assumptions and Simplifications
- Prone to overfitting with the data

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Concluding Remarks and Q&A

THANK YOU

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