Predicting rate of return

at inception

Ezzeri Esa

 savarin/rateflask   **www.rateflask.com**

Peer-to-peer lending platform

Loan sub-grade as risk-reward
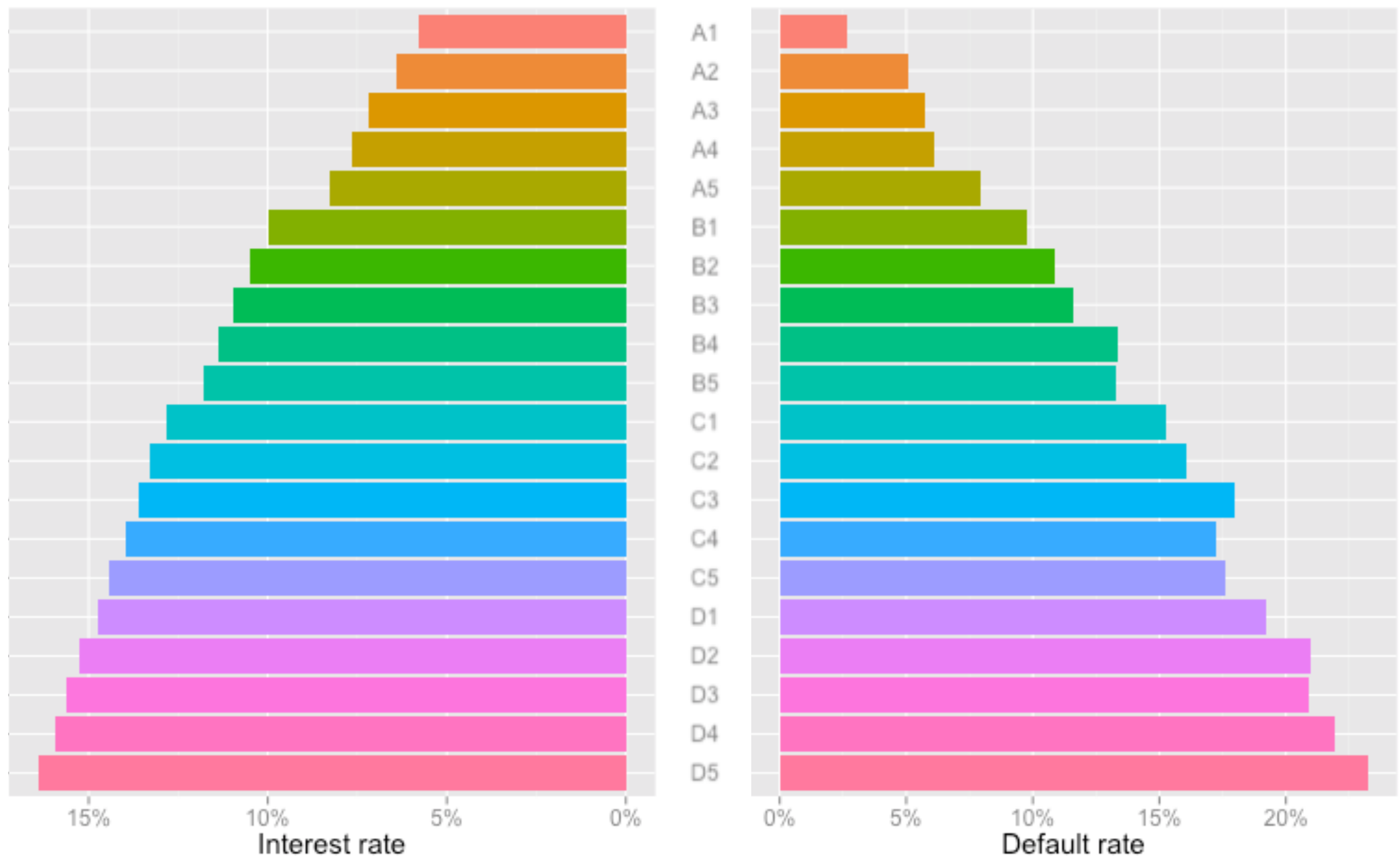
Can we invest on autopilot?

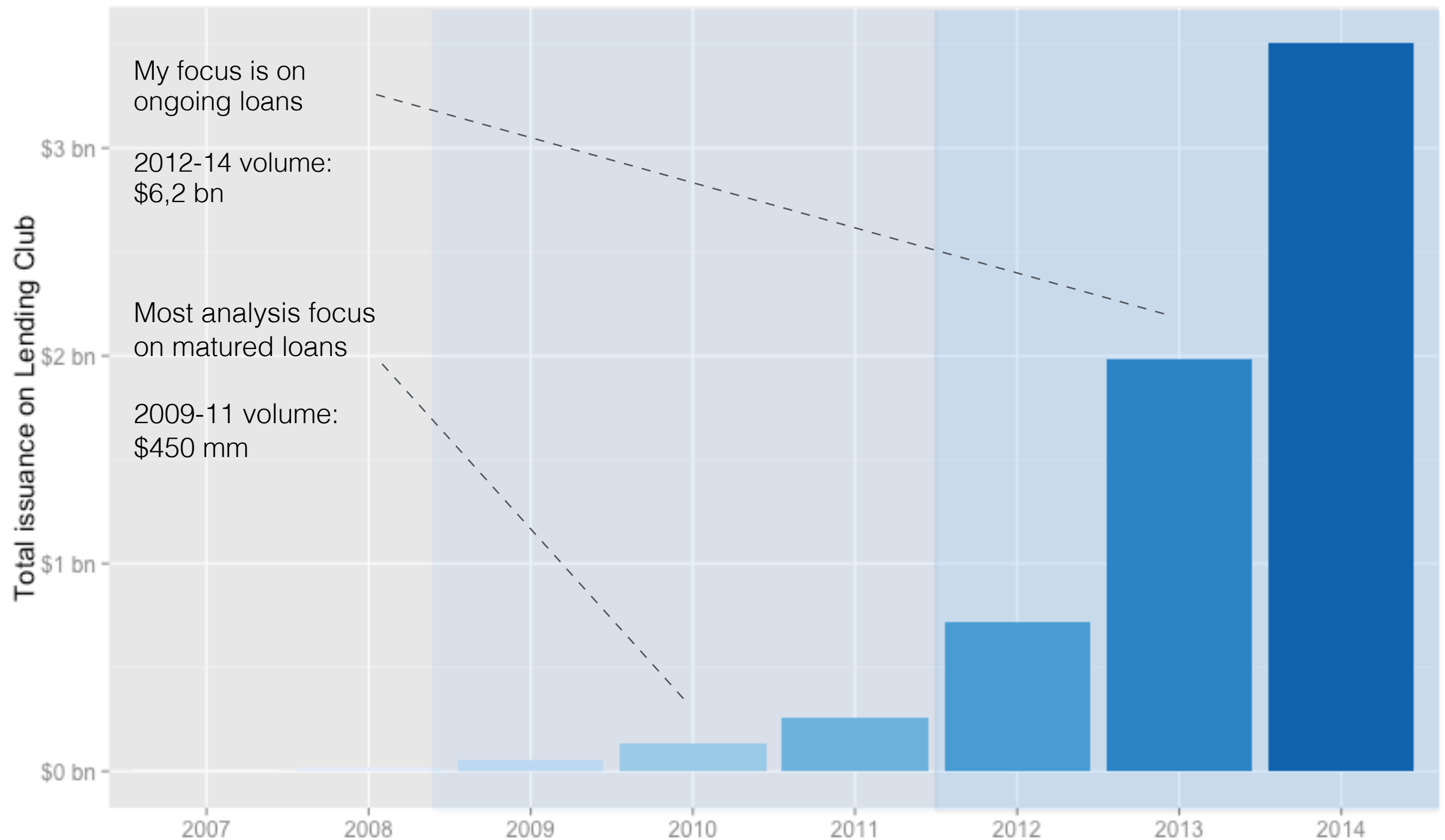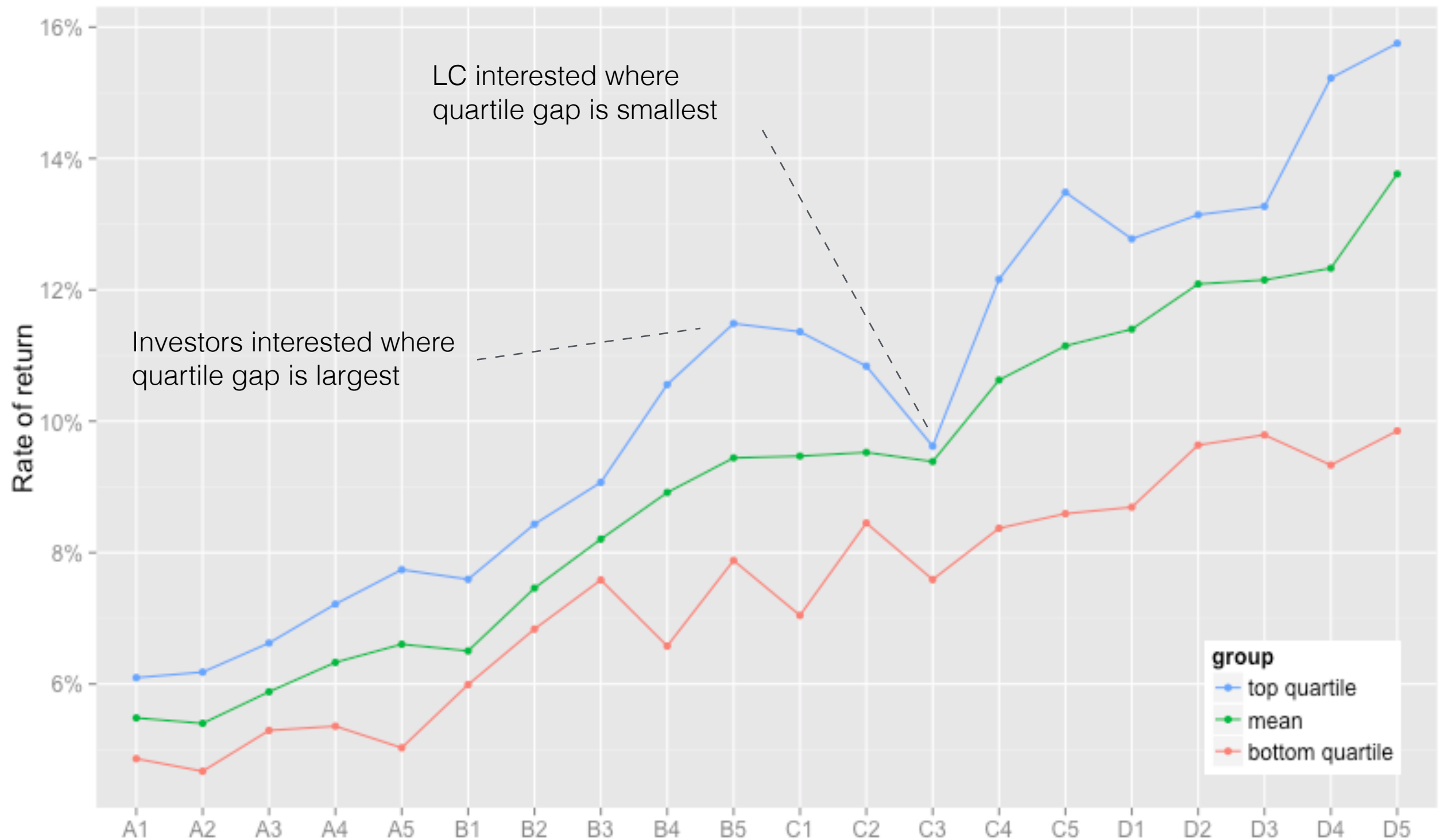| Investment	Rate ▾	Term	FICO®	Amount	Purpose	% Funded	Amount / Time Left
☐ $0	B 2 9.17%	36	710-714	$20,675	Loan Refinancing & Consolidation	24%	$15,650 13 days
☐ $0	B 2 9.17%	36	685-689	$10,000	Credit Card Payoff	43%	$5,650 13 days
☐ $0	B 2 9.17%	36	690-694	$15,000	Loan Refinancing & Consolidation	25%	$11,225 13 days
☐ $0	B 2 9.17%	36	675-679	$12,000	Loan Refinancing & Consolidation	22%	$9,300 13 days
☐ $0	B 2 9.17%	36	665-669	$12,000	Loan Refinancing & Consolidation	22%	$9,250 13 days
☐ $0	B 2 9.17%	36	675-679	$7,000	Loan Refinancing & Consolidation	25%	$5,200 13 days
☐ $0	B 2 9.17%	36	680-684	$9,000	Home Improvement	27%	$6,525 13 days

Predicting return at inception

My focus is on
ongoing loans

2012-14 volume:
$6,2 bn

Most analysis focus
on matured loans

2009-11 volume:
$450 mm

Total issuance on Lending Club

$3 bn

$2 bn

$1 bn

$0 bn

2007   2008   2009   2010   2011   2012   2013   2014

Does the model work?

Average return across all sub-grades: 9.1%

Average return w/ active strategy: 10.4%
Improvement vs passive: 1.3%
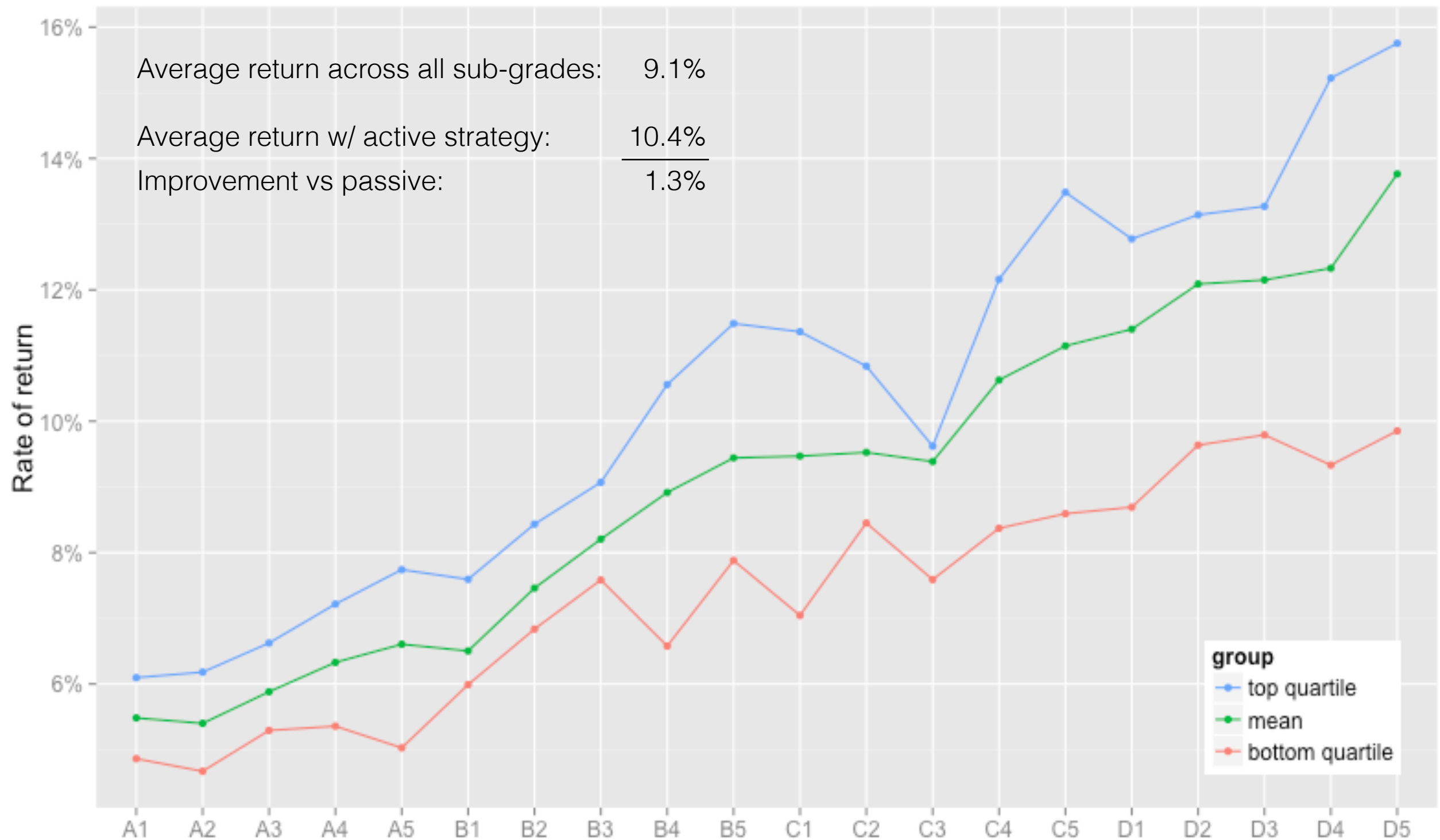
Why should I care?

Screenshot
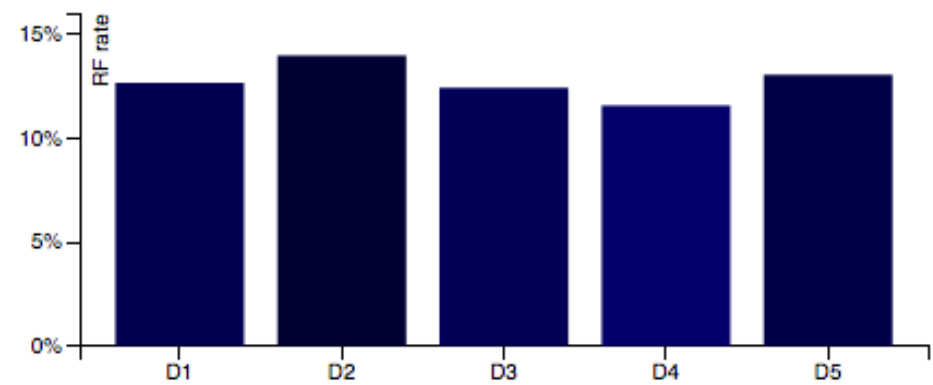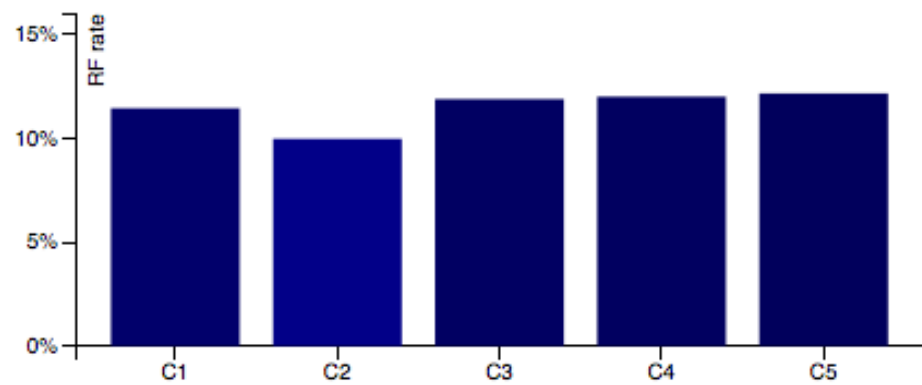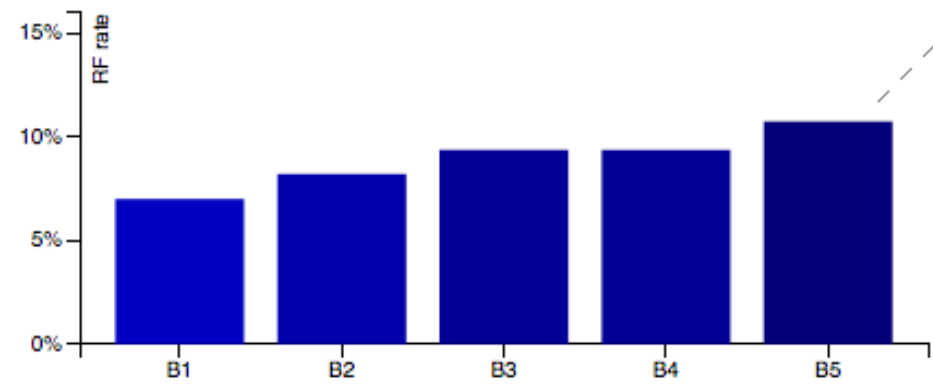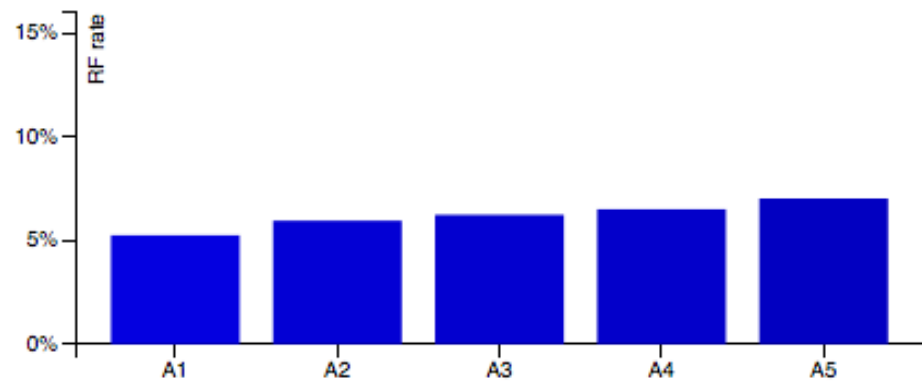
RF rate details here, last update Mar 18 2015 07:34 UTC

Smallest difference b/w
LC rate and RF rate
indicate best risk-reward

Show 10 entries   Search: B2

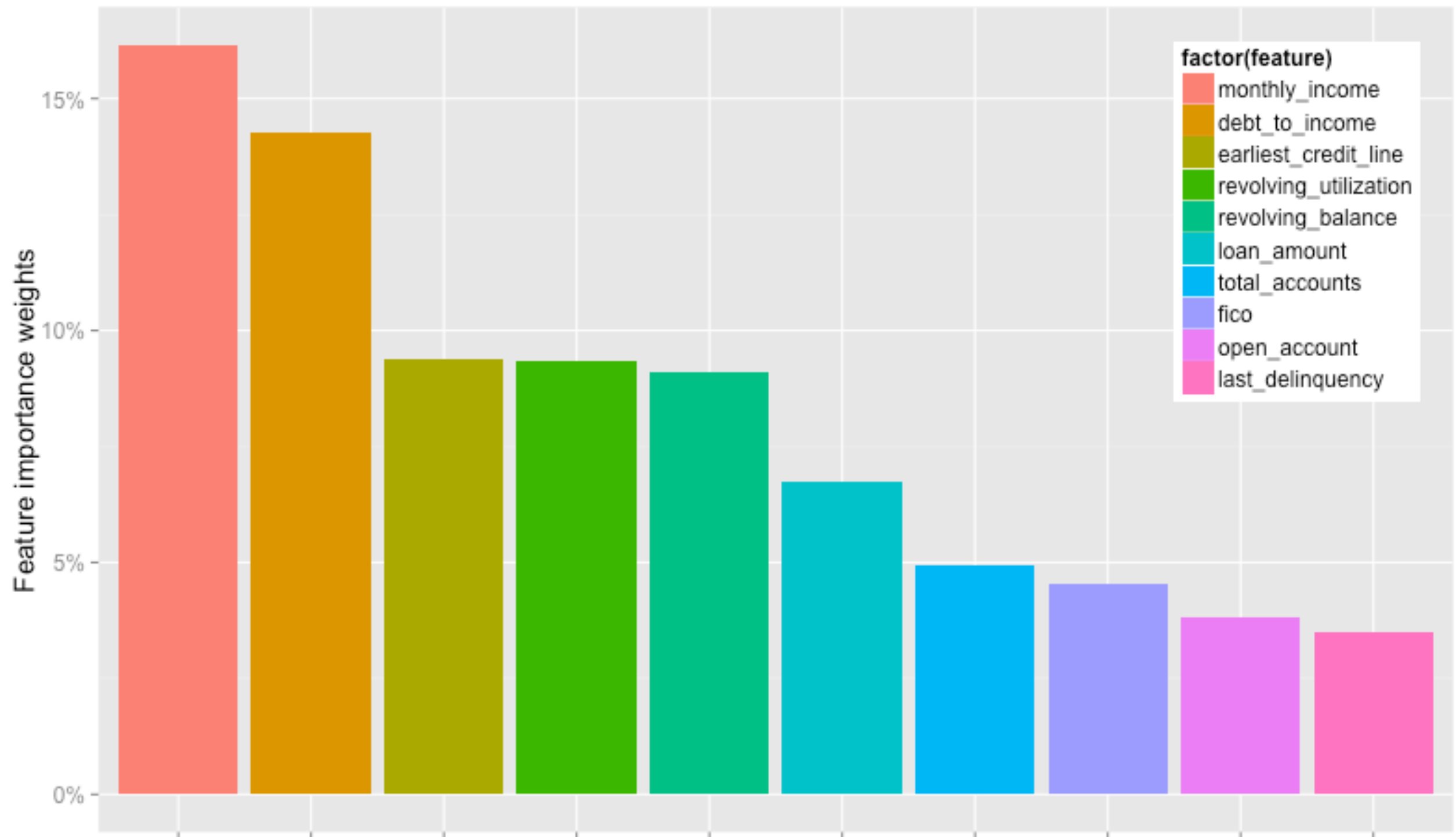| Loan ID	Sub-grade	Term	Amount	% Funded	LC rate	RF rate	% Difference
40970873	B2	36 mth	$24,000	26.0	9.17%	7.47%	19.0
41640246	B2	36 mth	$7,800	27.0	9.17%	4.01%	56.0
42495199	B2	36 mth	$6,500	30.0	9.17%	6.32%	31.0
42984485	B2	36 mth	$30,000	22.0	9.17%	4.95%	46.0
43076162	B2	36 mth	$6,000	53.0	9.17%	2.54%	72.0

Pipeline of data product

Random Forests Regressor
4 x 36 sub-models

Parameter tuning:
max_depth: 10 (out of 36)

PostgreSQL

processed data
+ results

API

API call

MongoDB

pre-processed data

Scikit-learn

results

Flask

visualization: D3.js, Bootstrap
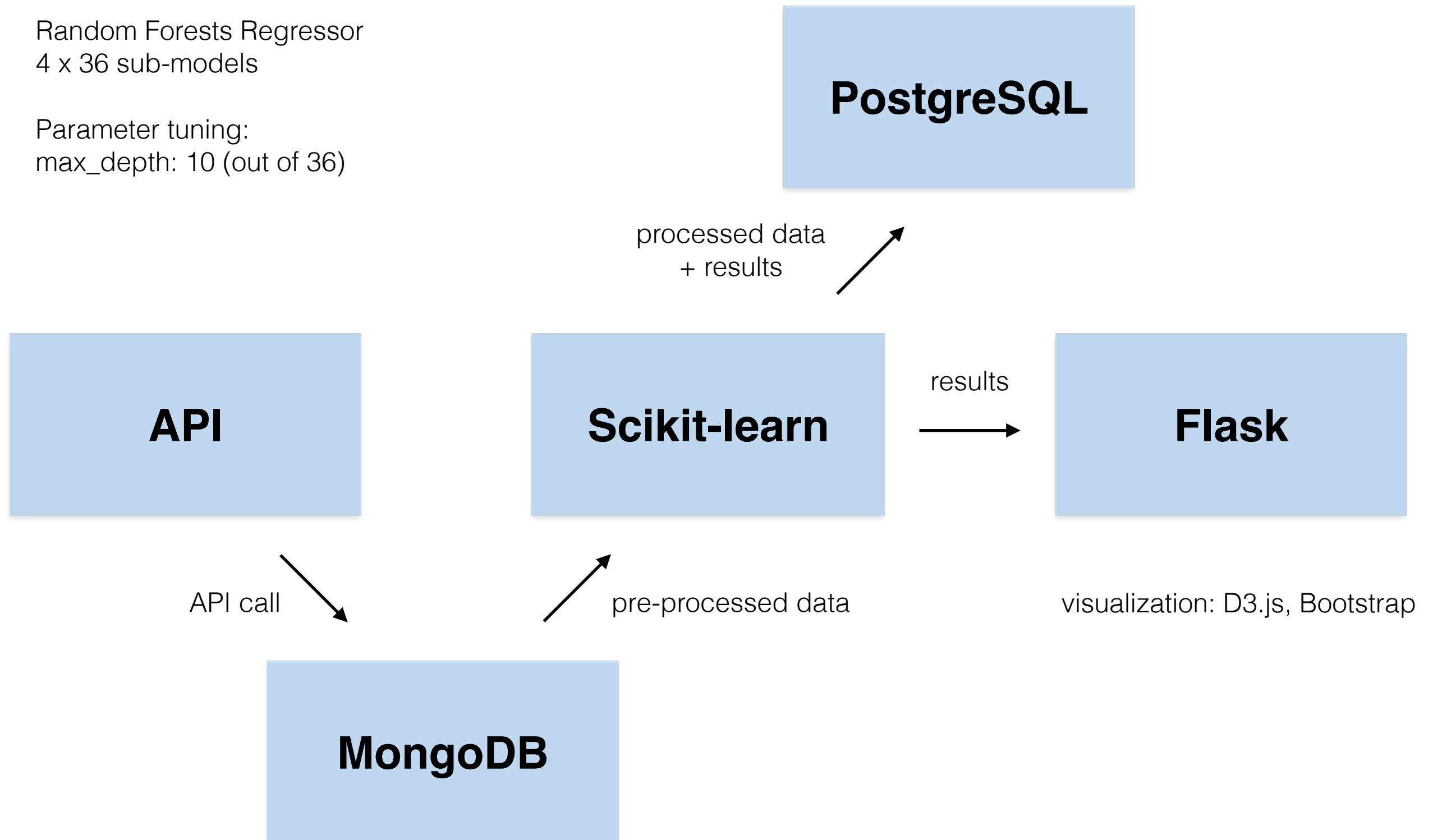
Feature importance

Thank you for listening!

Ezzeri Esa
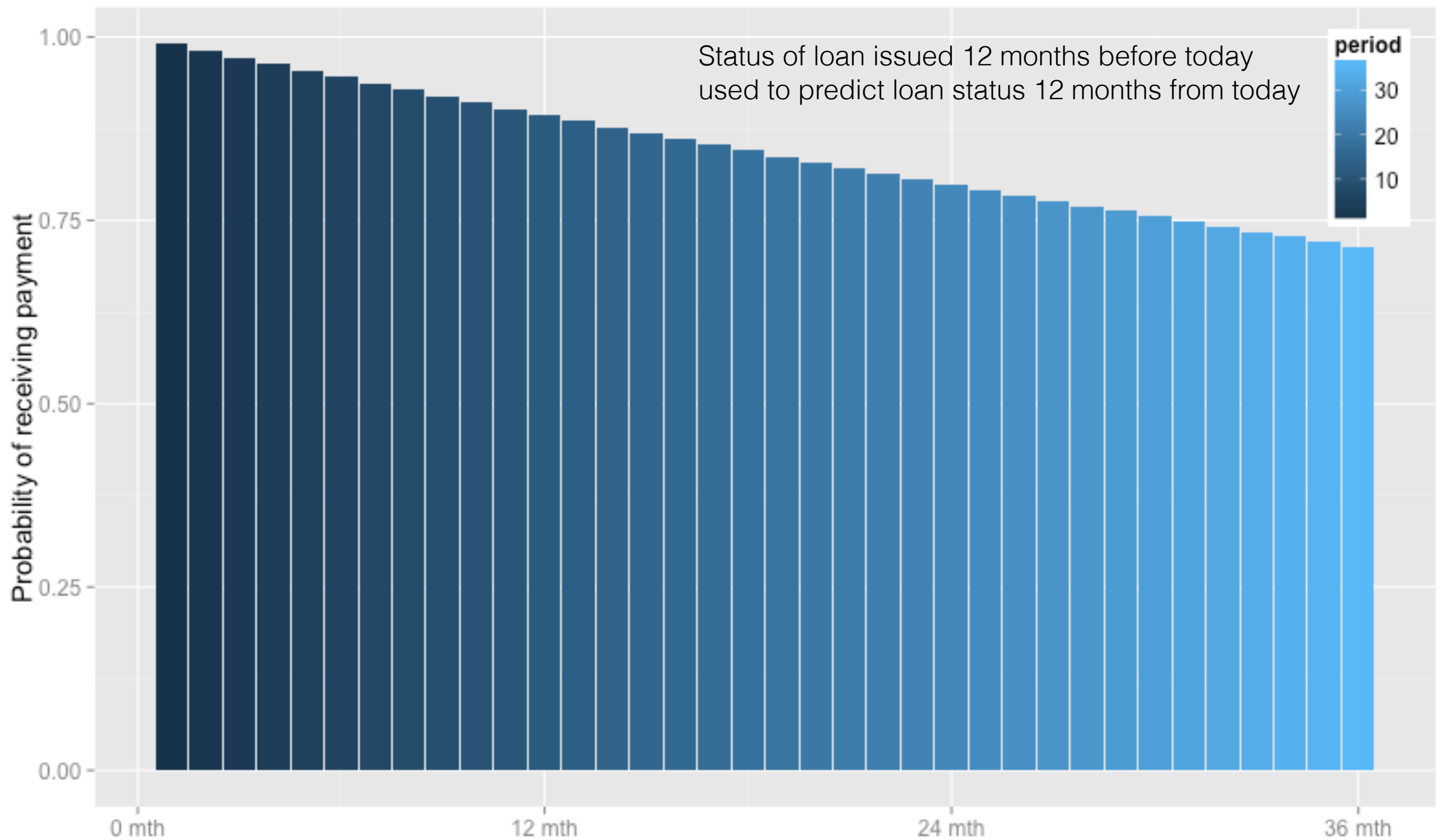
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What can we learn?

Expected vs actual return