Fintech Lending: Financial Inclusion, Risk Pricing, and Alternative Information

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This is Wells Fargo's home page - Banking is Being Unbundled

Growth in Fintech Lending

- Fintech Lending Growth (Source: Survey conducted by University of Cambridge and University of Chicago):
  - Consumer loans -- reached $28.5 Billion in 2015
  - Business loans -- reached $5.6 Billion in 2015,
- Fintech lenders challenge incumbent banks with technologically advanced product offerings that are cheaper, faster, and more transparent – and they are not subject to the same rigorous oversight.
- Fintech has been playing an increasing role in shaping the new financial landscapes.

Research Motivation

- From previous research Jagtiani and Lemieux (2016):
  - Technology has enabled lending -- increased the ability of large banks to provide small dollar loans to consumers and businesses.
  - Found an increase in bank lending in areas where larger banks do not have a physical presence
- In this paper, we explore the advantages/ disadvantages of Consumer loans made by a large Fintech lender and similar loans that were originated through traditional banking channels – risk, pricing, credit decision, credit access, etc.

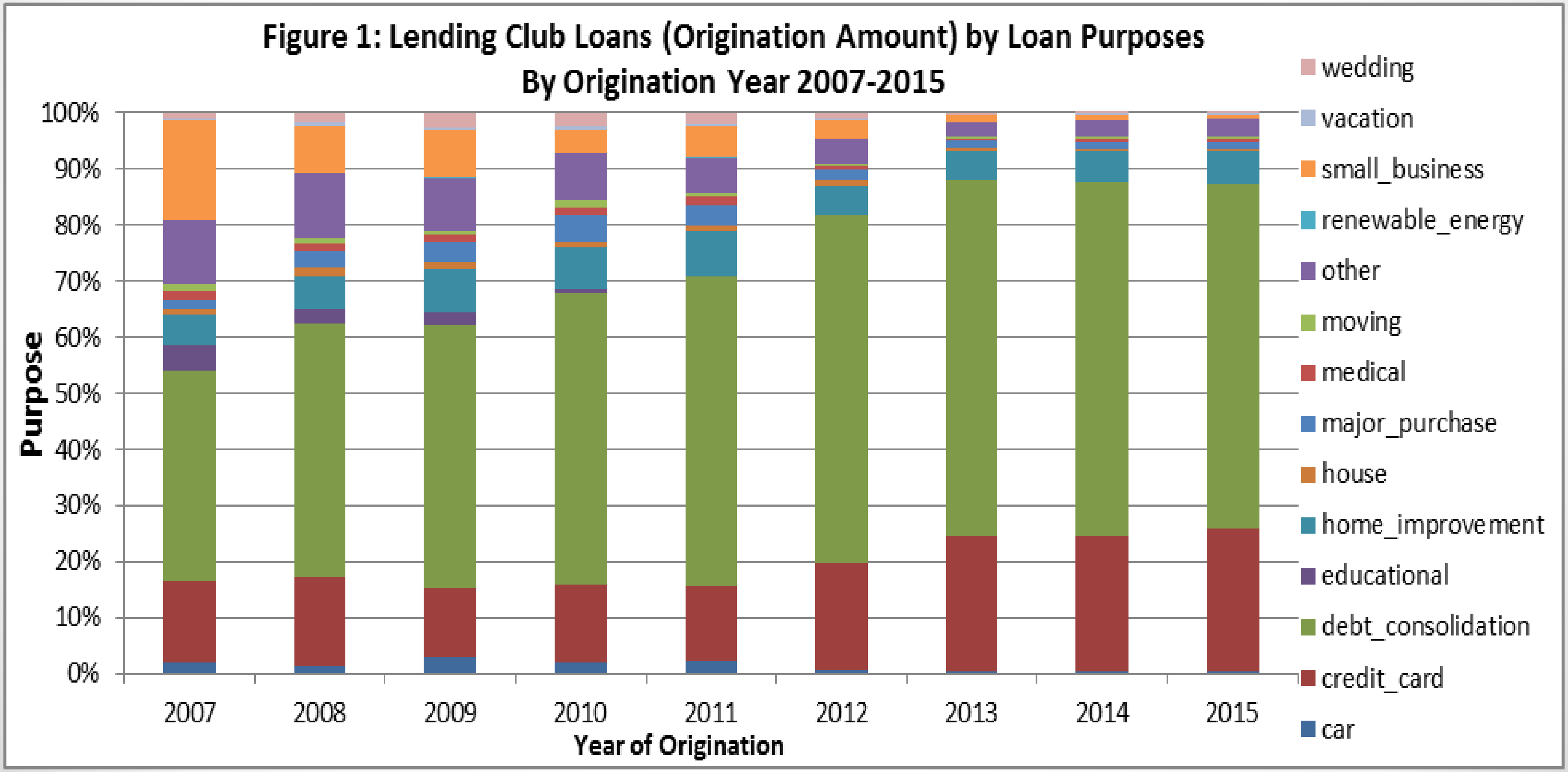
The Data

Data

- Fintech Loans -- Loan-level consumer loan data from the LendingClub (consumer loan platform) – focusing on cards & debt consolidation purposes
- Traditional Loans -- Loan-level credit cards data (Revolvers Only) from the Y-14M Stress Test data – submitted to FRB monthly by CCAR banks.
- FRBNY Equifax Consumer Credit Panel – all consumers with credit records
- Other Data -- FDIC Summary of Deposits – for banking market concentration and bank branch information, economic factors (from the Haver Analytics database)

Composition of LendingClub Consumer Loan Origination (2007-15)

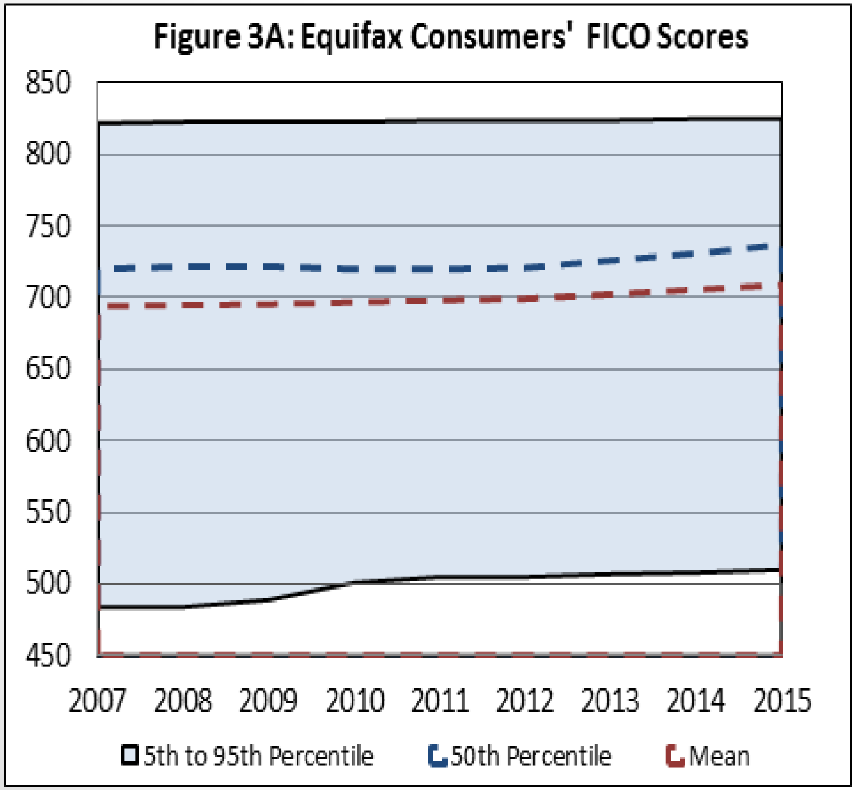
Mostly Cards and Debt Consolidation Purposes



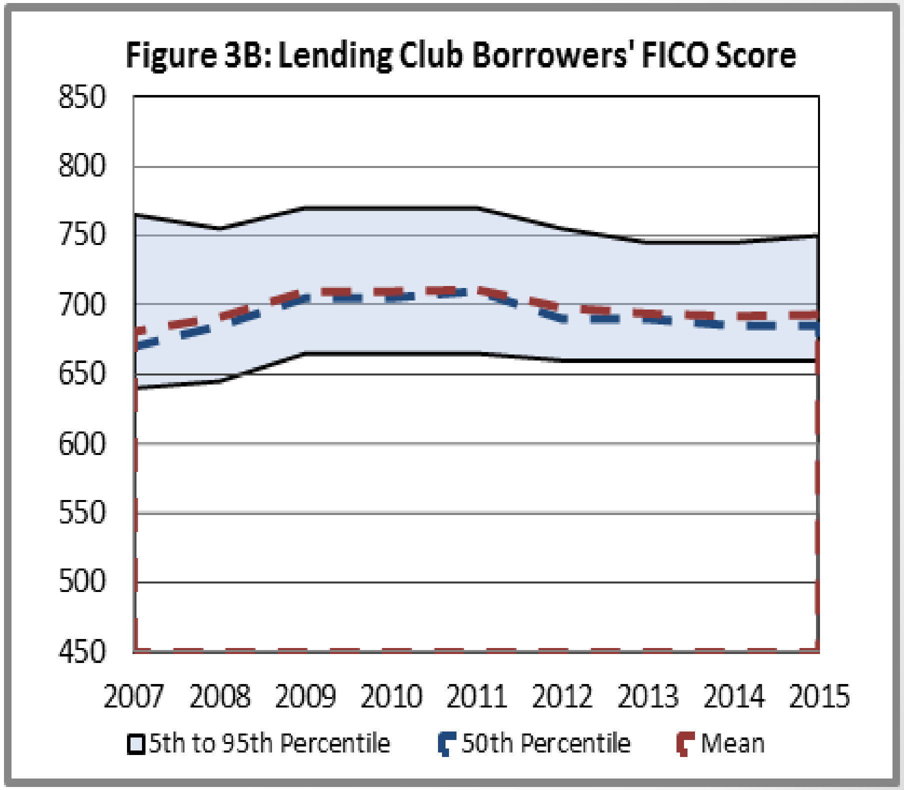
Who Are LendingClub's Customers?

LendingClub Borrowers vs. FRBNY Equifax CCP Population: FICO Scores

Equifax

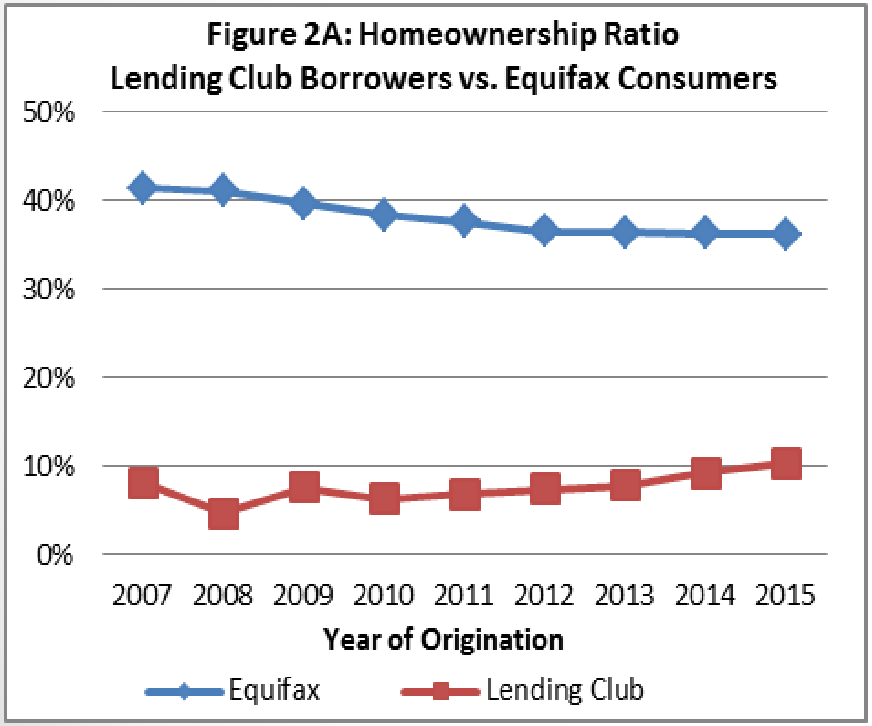


Lending Club

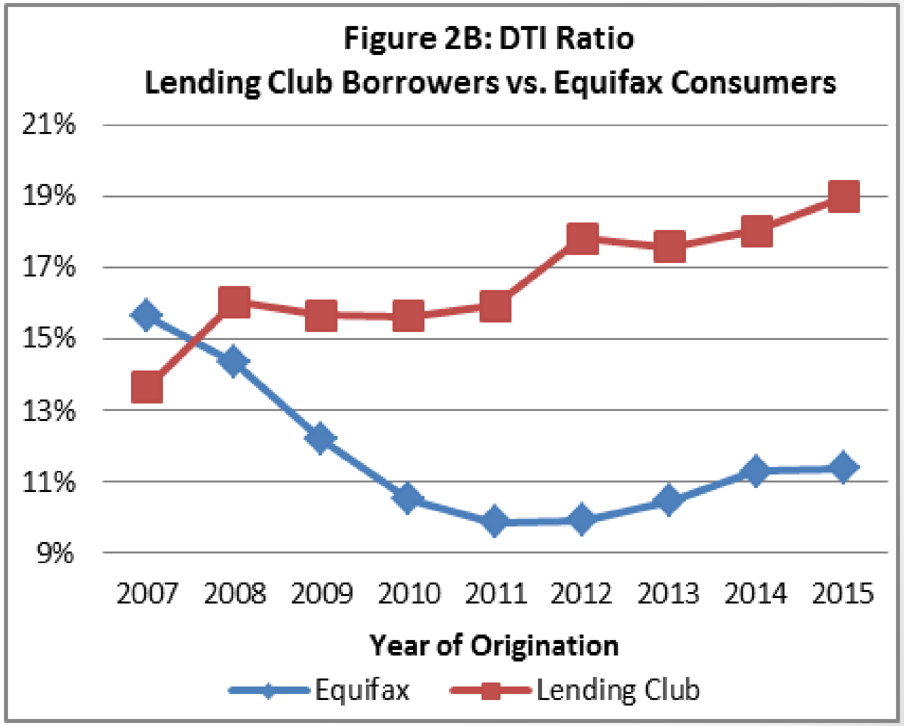


Lending Club Borrowers vs. FRBNY Equifax CCP Population

Home Ownership



DTI Ratio

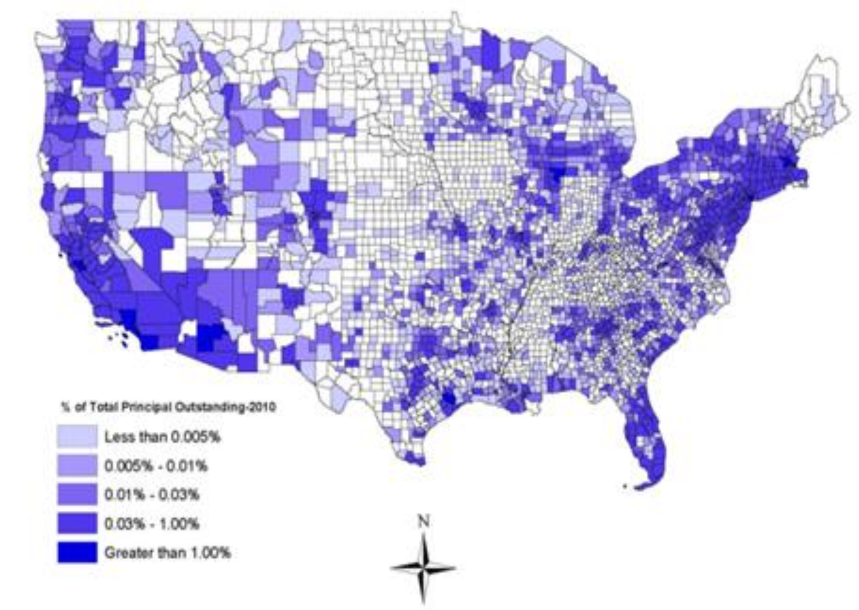


Geographic Distribution of Fintech Lending & Implications for Consumer Credit Access

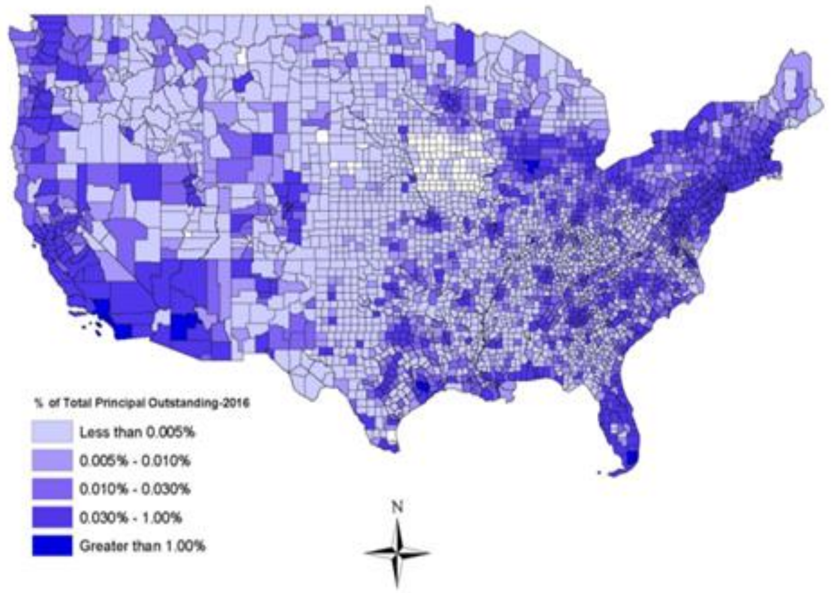
Geographic Distribution of LendingClub Portfolio (% Total Principal Outstanding)

LendingClub initially concentrated in Northeast and West Coast, today they have loans in every state

As of 2010

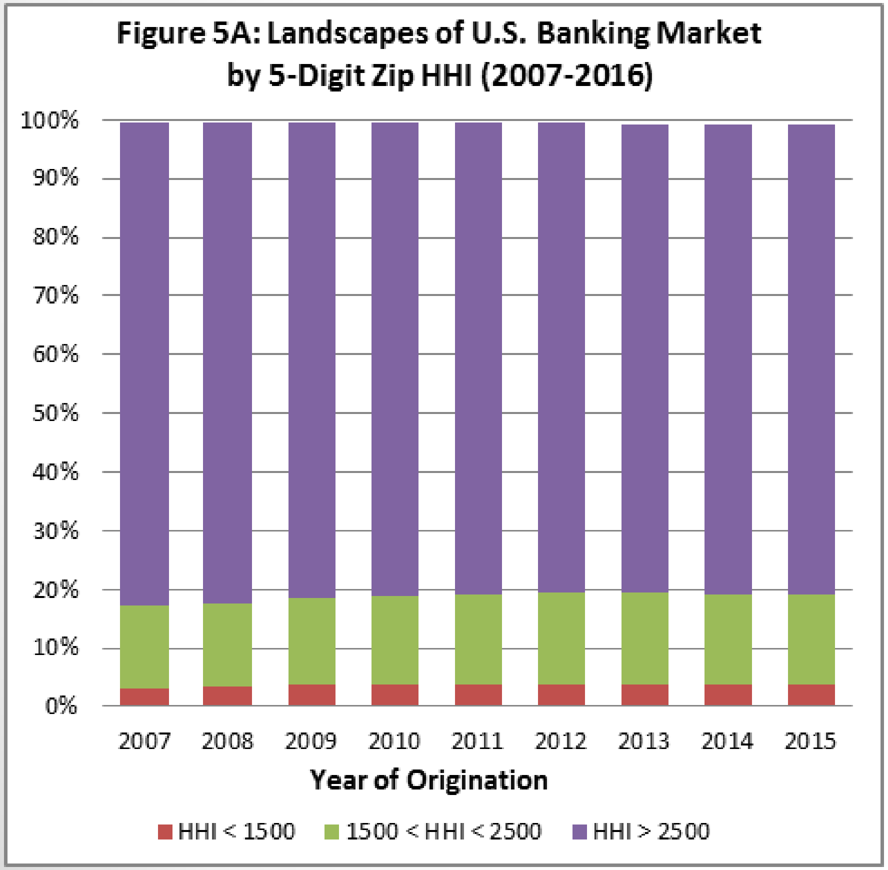


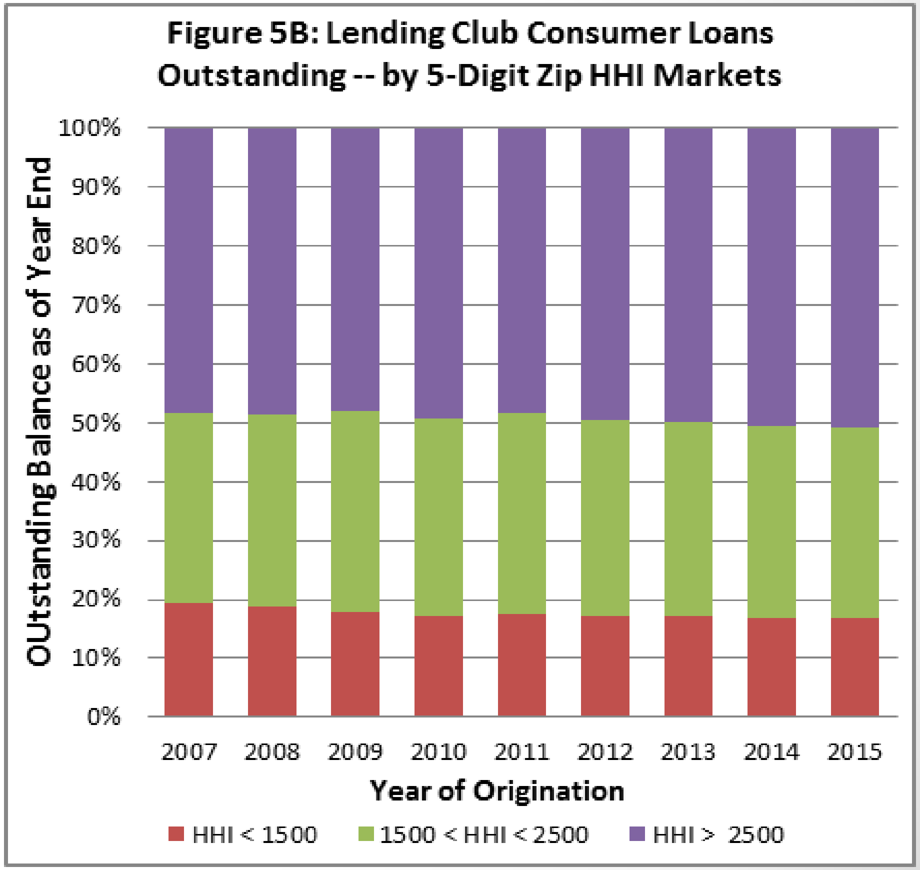
As of 2016



About 50% of LendingClub Loans are in Highly Concentrated Banking Market

HHI based on Deposit Taking in 5-Digit Zip

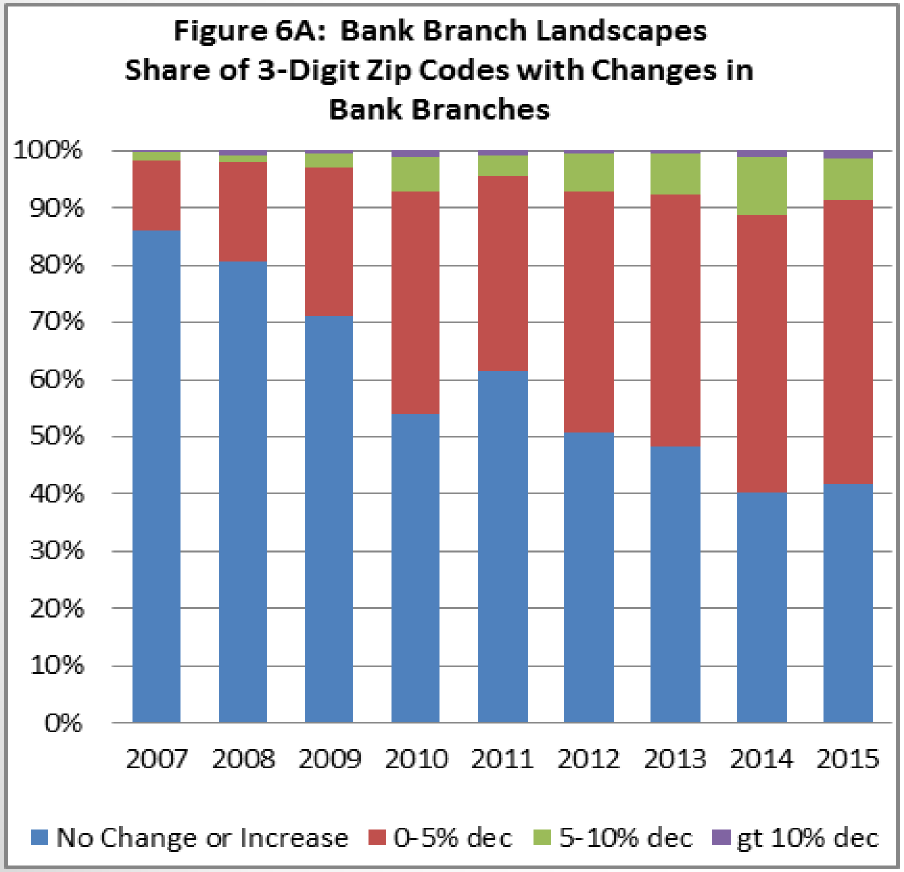




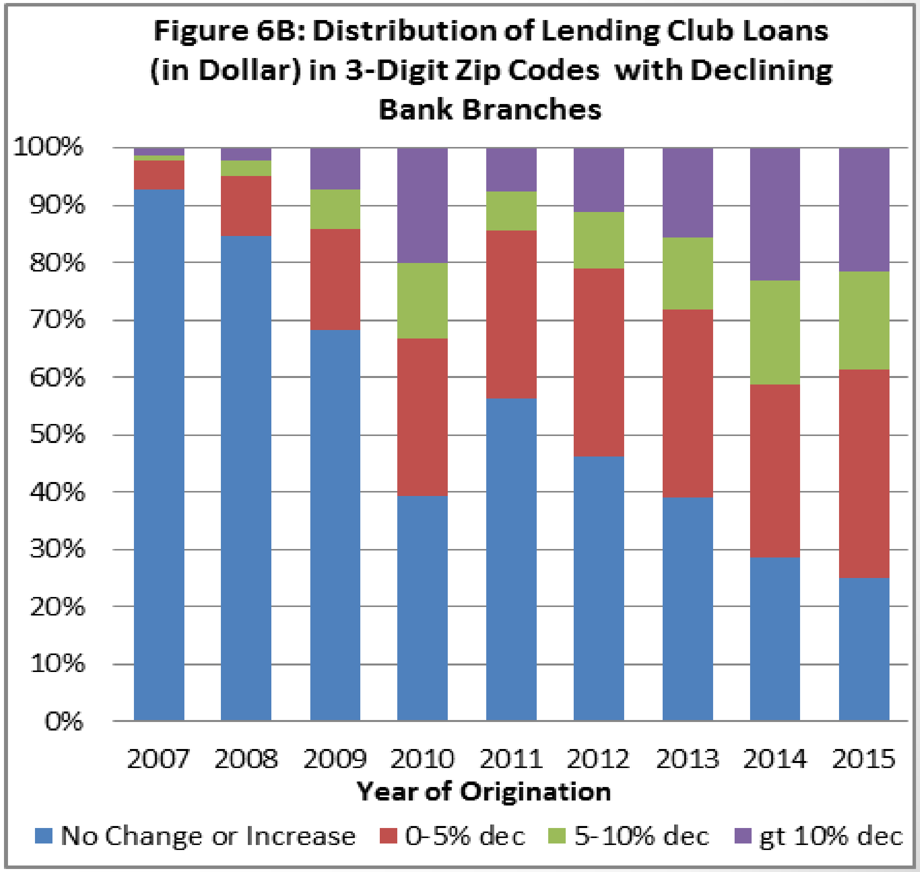
In 2014-2015, 40% of LendingClub Loans Originated in Areas that Lost >5% of Bank Branches

Changes in Branches are NOT significant in the regressions

Geographic Landscapes

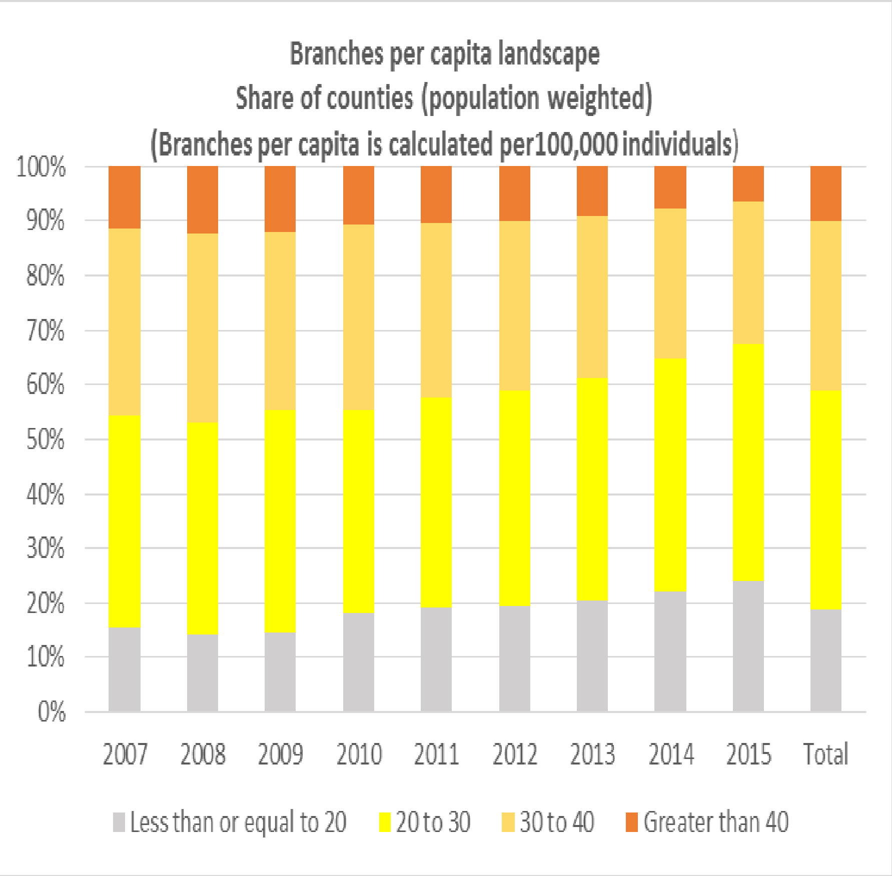


LendingClub Portfolio

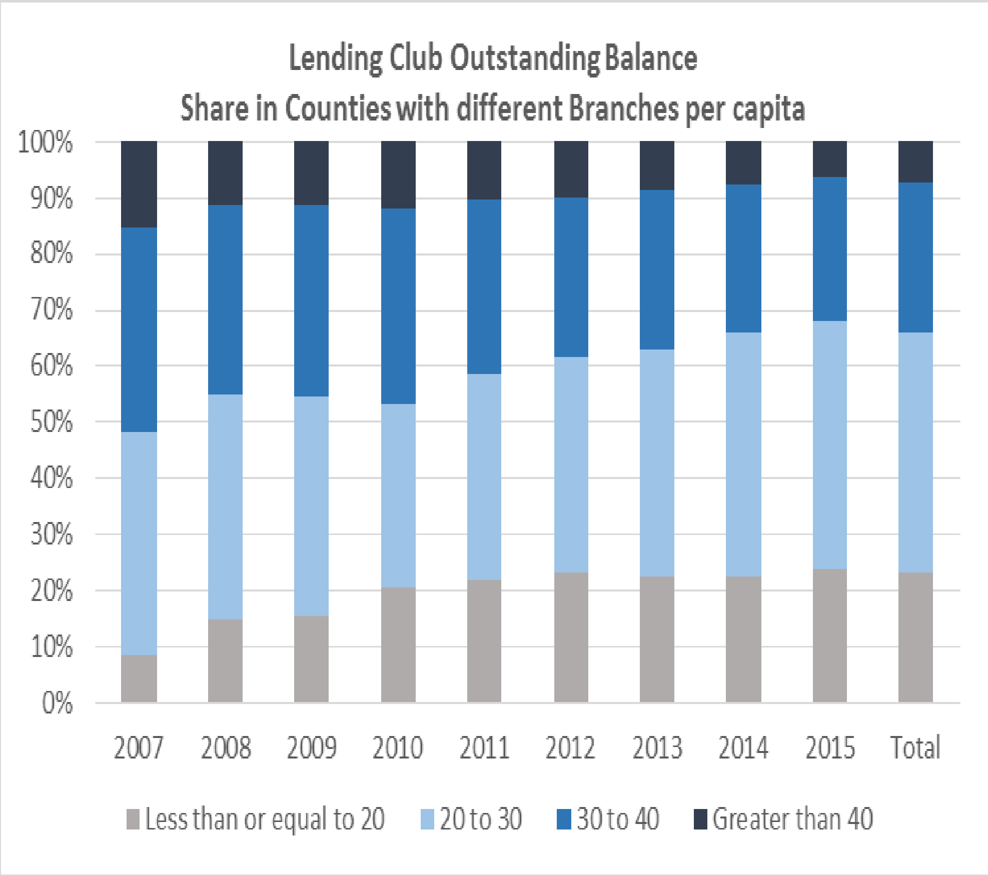


Bank Branches Per Capita

Geographic Landscapes



Lending Club Portfolio



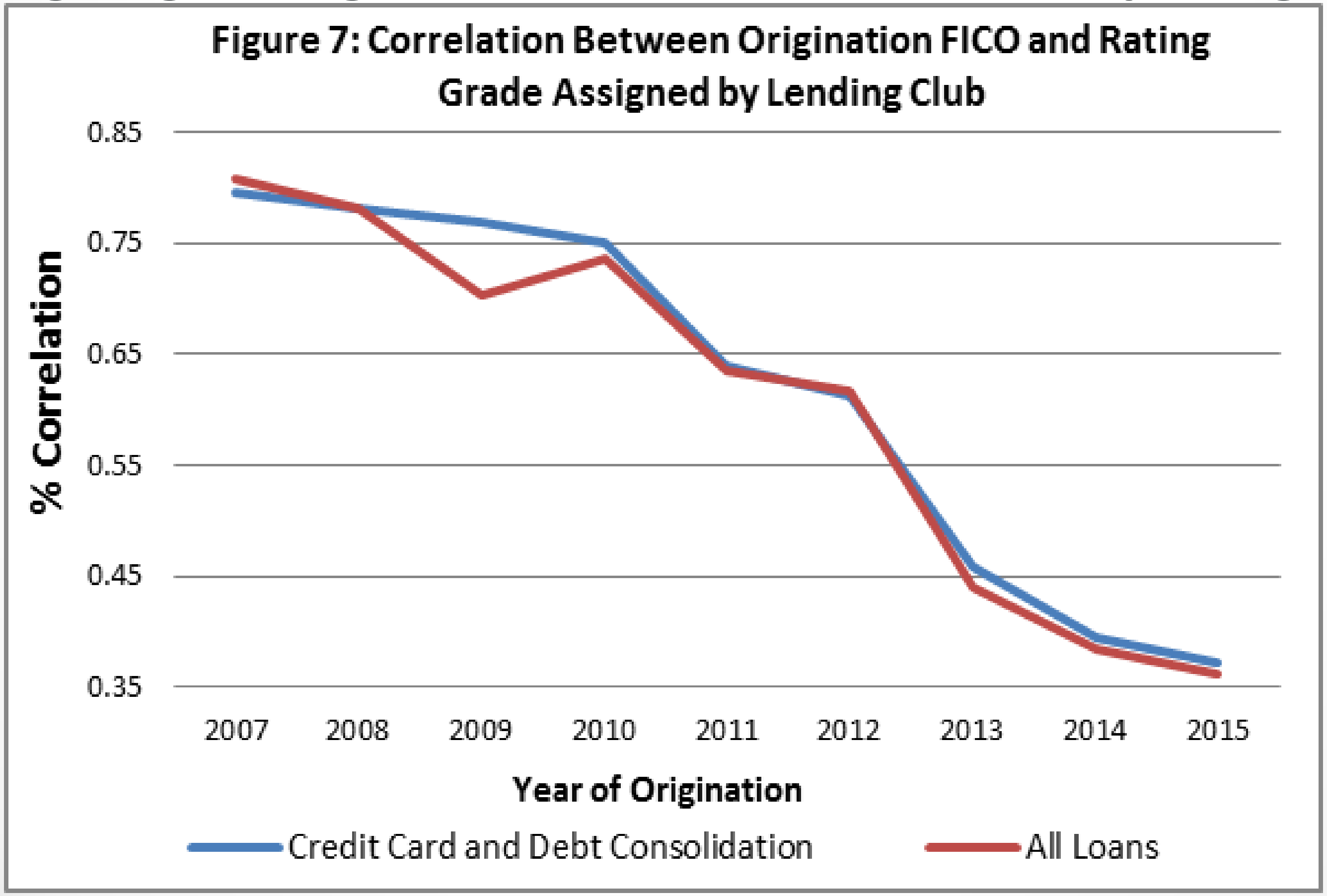
The Roles of Alternative Information in Credit Decisions

“By filling in more details of people’s financial lives, this information may paint a fuller and more accurate picture of their creditworthiness. So adding alternative data into the mix may make it possible to open up more affordable credit for millions of additional consumers…..”

Richard Cordray (March 2017)

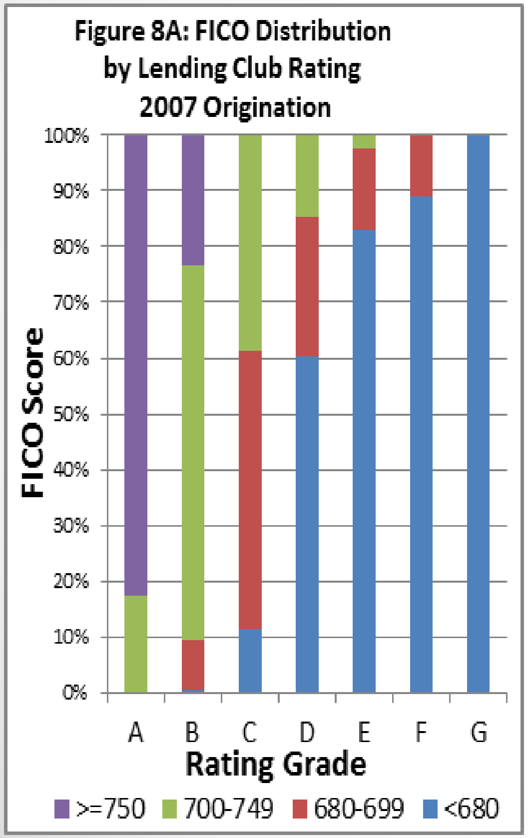
Increasing Roles of Alternative Information – Relative to FICO Scores

LendingClub increasingly relied on their own alternative data in assigning Rating Grades A-G and in their risk pricing

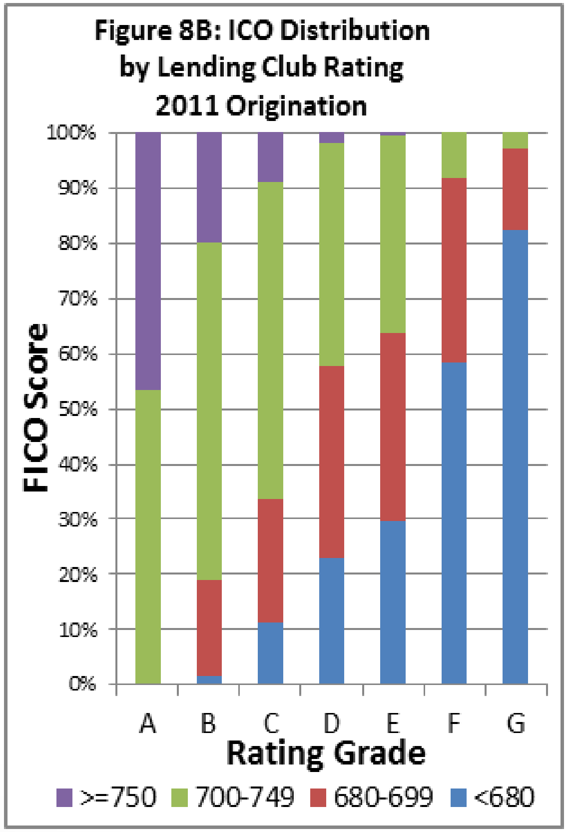


FICO vs. Rating Grades (2007-15)

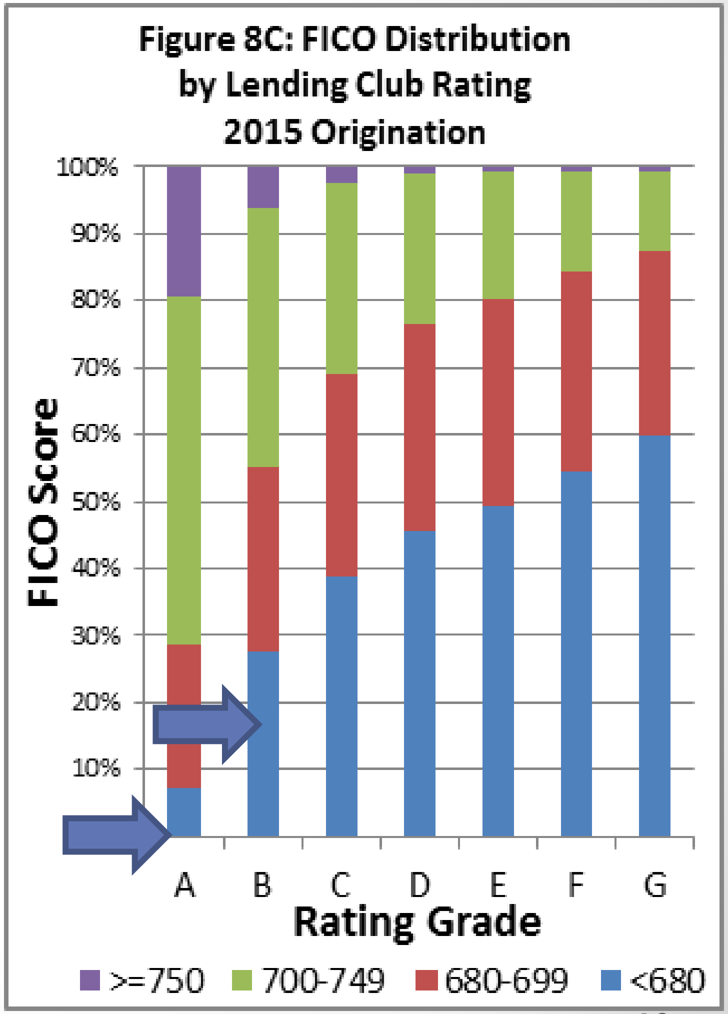
2007



2011



2015

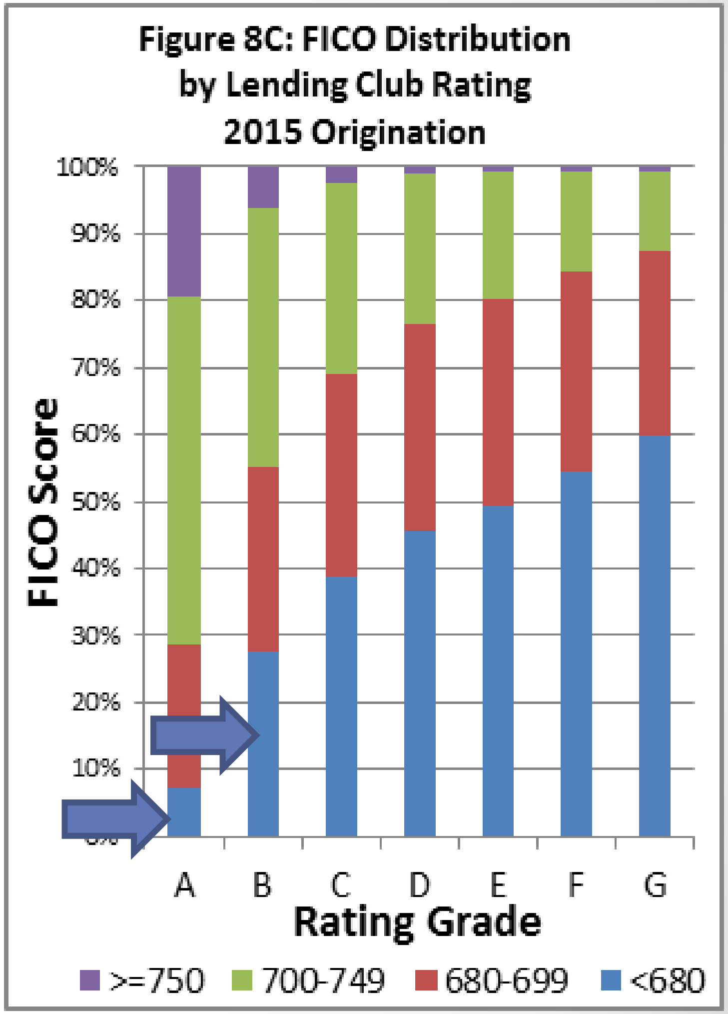


Rating Grades Assigned by LendingClub (2014-15)

- Rating grades are not correlated with FICO (as of origination)
- We will show that rating grades are highly correlated with default probability
- Alternative information seems to be effective in further identify consumer risks that are not captured by FICO scores

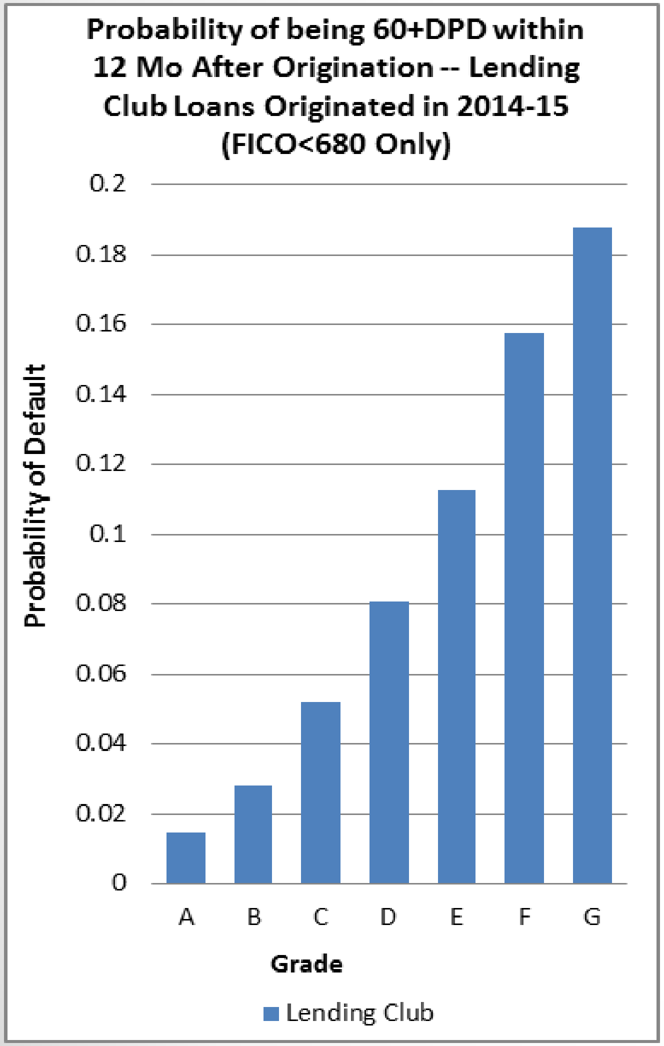
Examining PD of LendingClub Loans with FICO<680 and Rated A or B

PD is correlated with Rating Grades

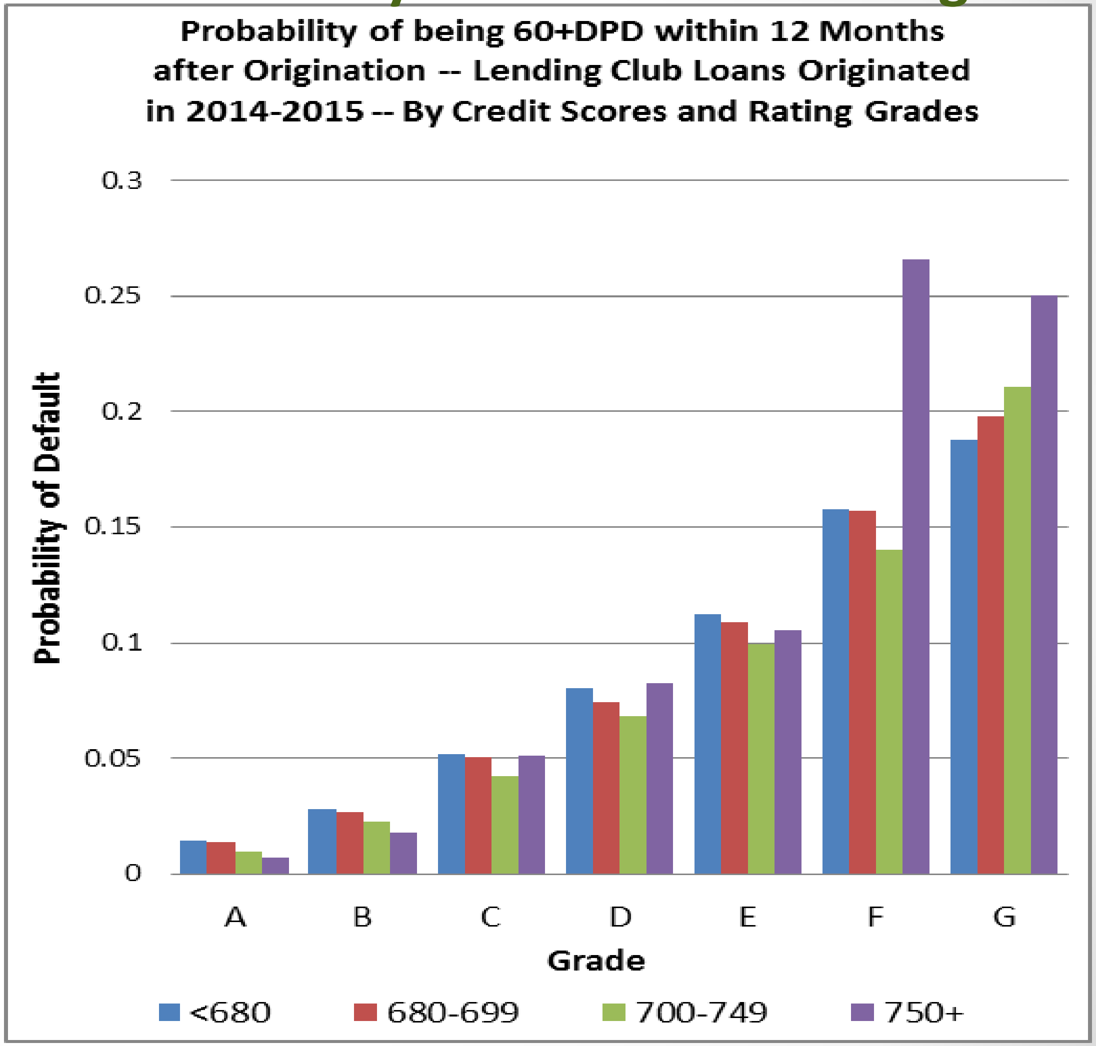


Probability of 60+DPD in 12 Months

FICO<680 Only

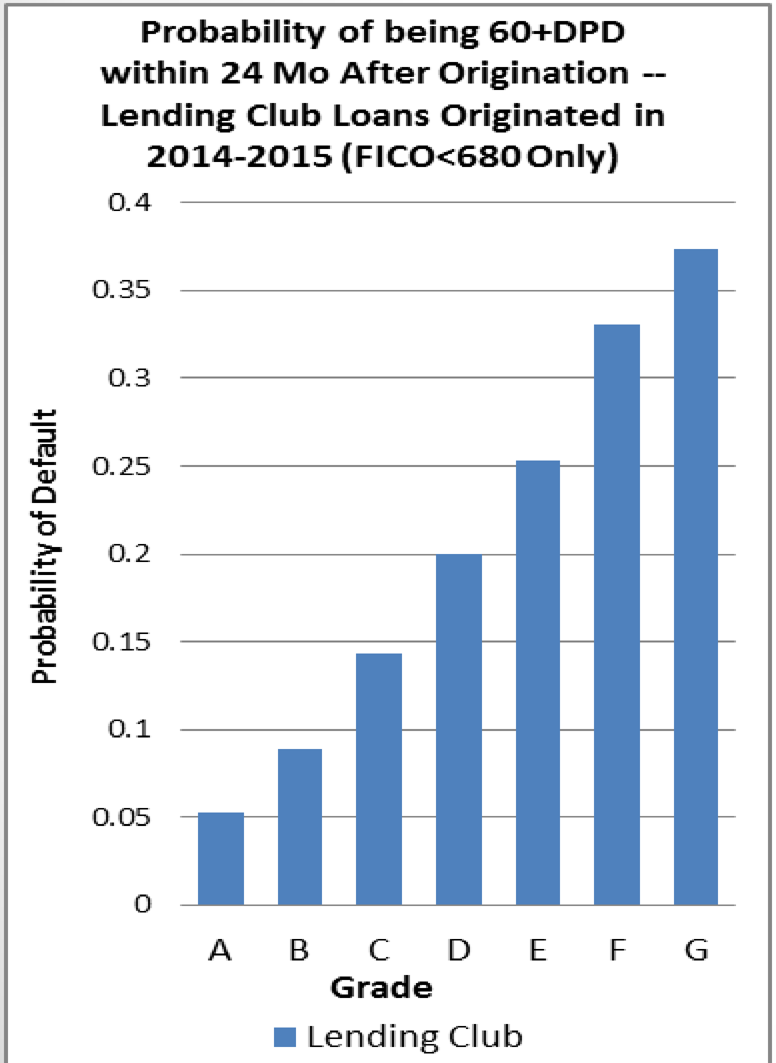


PD is closely related to A-G rating

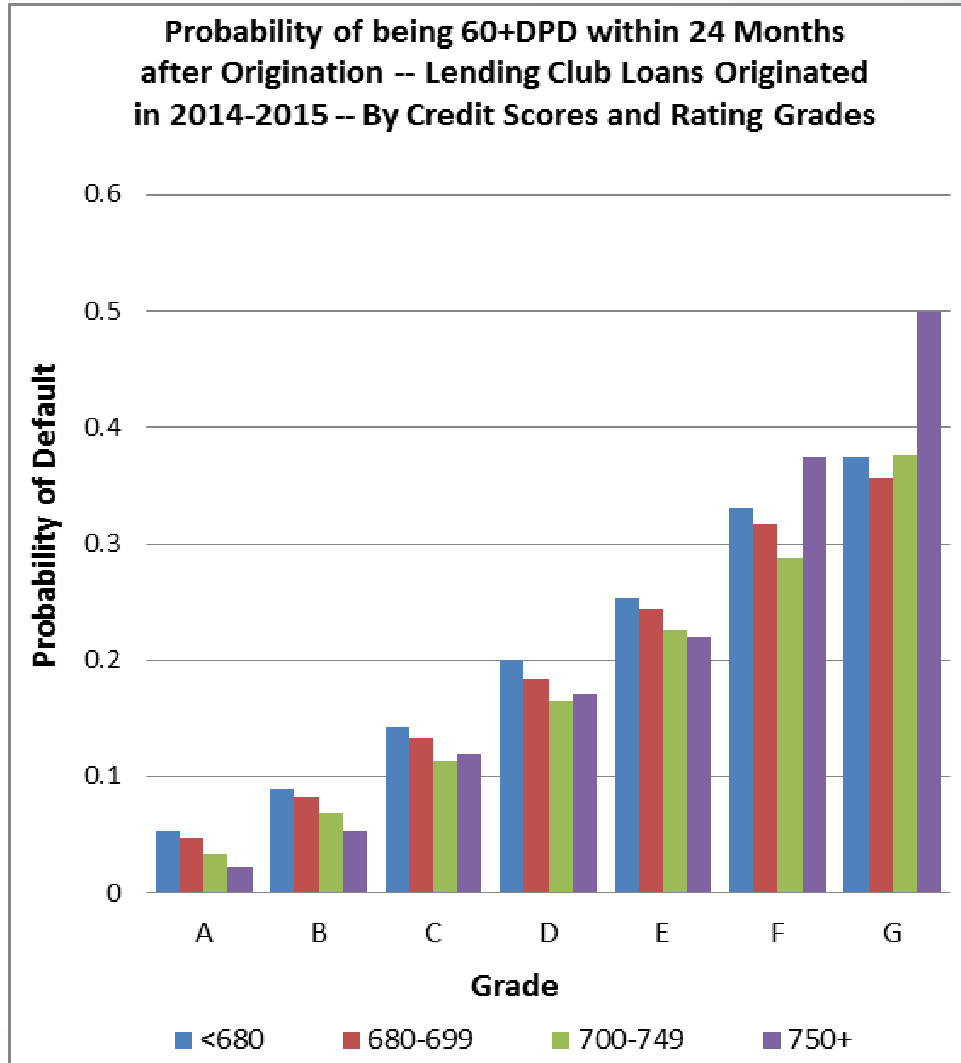


Probability of 60+DPD in 24 Months

FICO<680 Only



PD is closely related to A-G rating



Lending Club Loans
A-Rated and B-Rated Only

PD is correlated rating grade, regardless of FICO scores

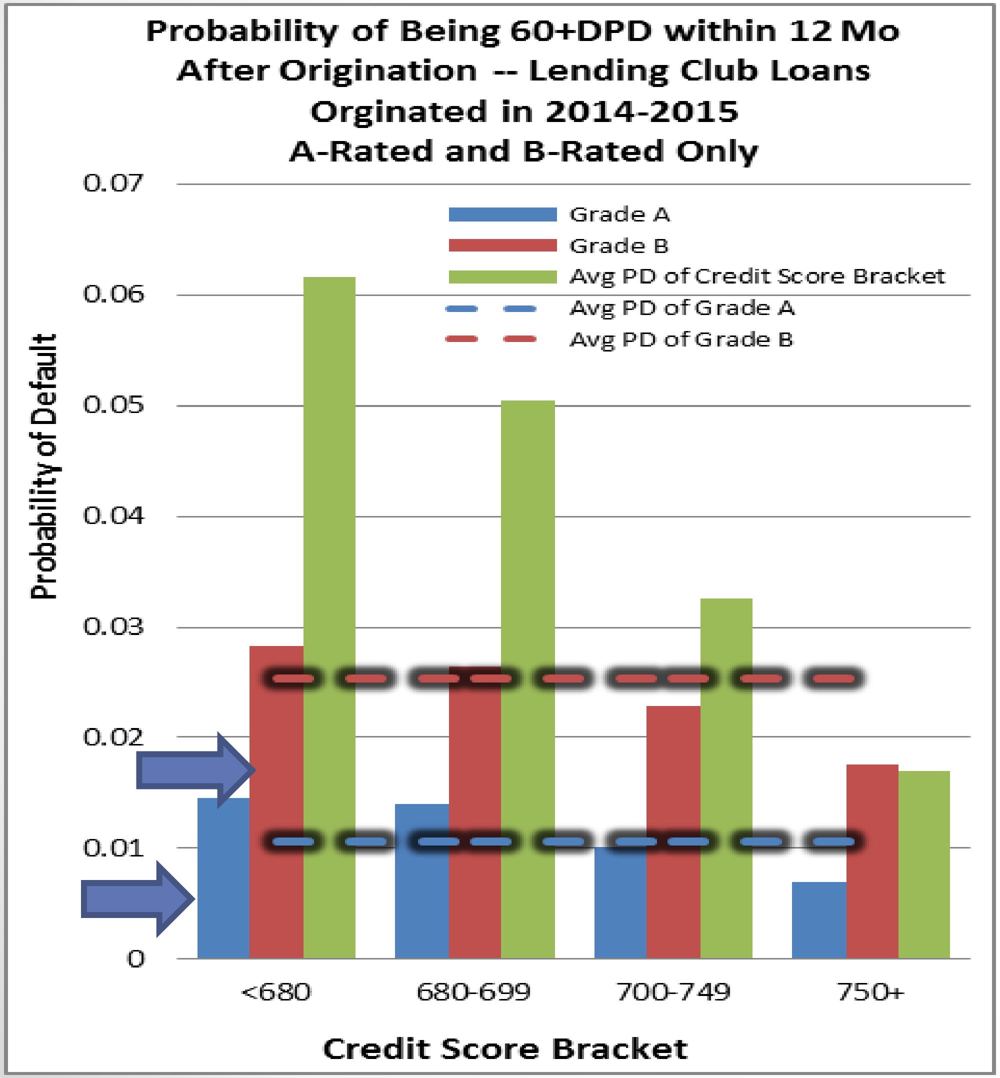
Examining PD of A-Rated and B-Rated Loans

PD is correlated with Rating Grades

FICO scores are too broad to capture PD of individual borrowers

LendingClub Use Alternative Data to Identify Subprime Borrowers that Have a Lower Default Probability

Default in 12 Months

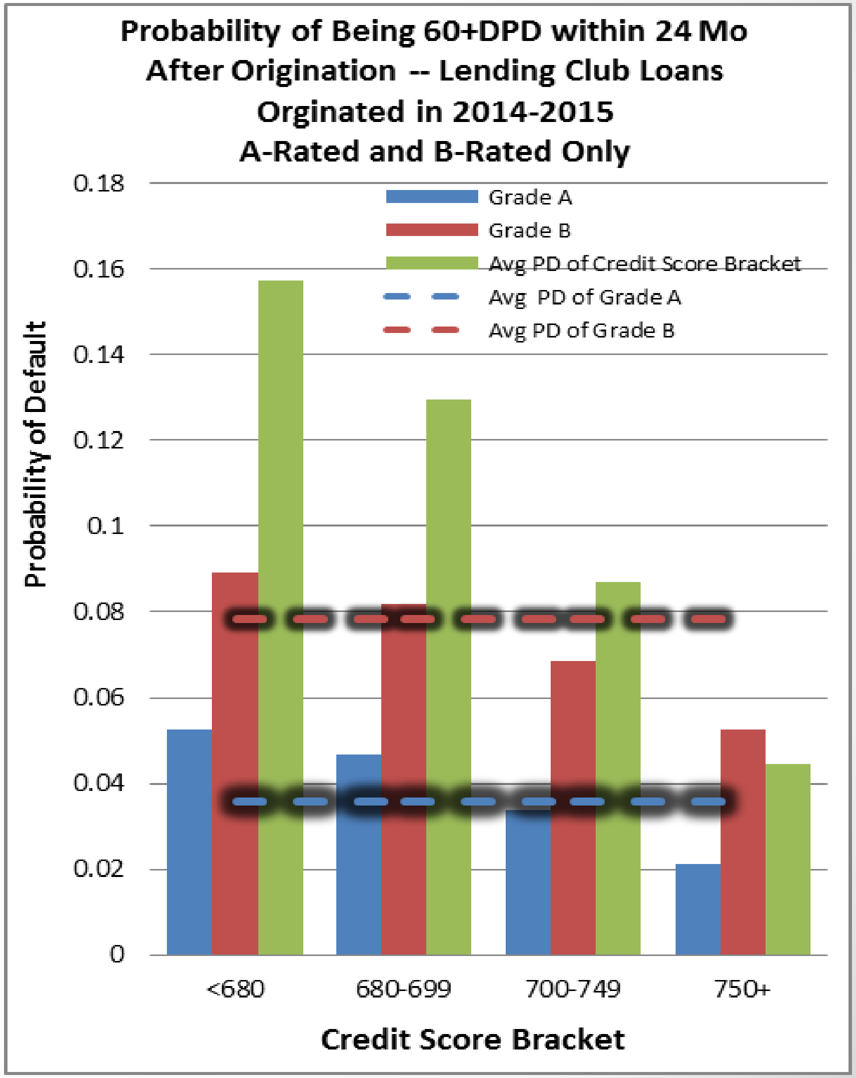


Subprime borrowers (FICO<680) who were rated A or B by LendingClub actually have PD similar to other borrowers who received the same rating grades A or B

Again, Lending Club can identify those subprime borrowers that have a lower PD

- We find Low PD for subprime borrowers (FICO<680) who were rated A or B by LendingClub
- This is not correctly captured by FICO
- Fintech rating and pricing decisions benefit from alternative data

Default in 24 Months

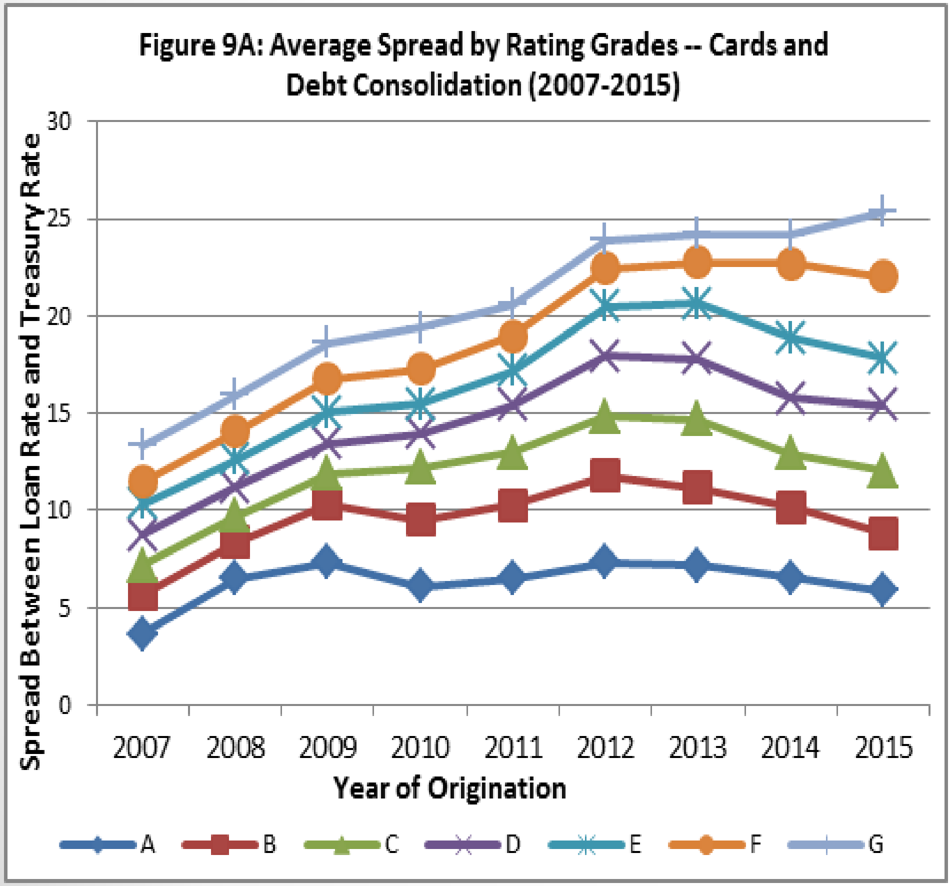


Risk Pricing

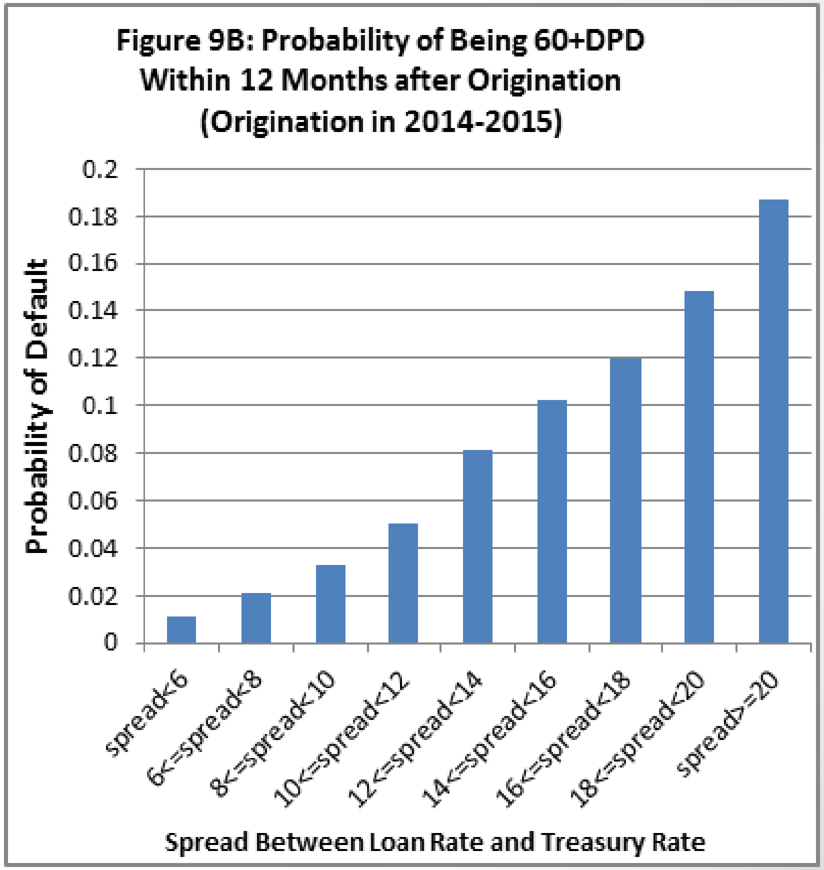
Rating Grades → Spreads → PD

LendingClub's interest rates are highly correlated with PD

Larger Spreads for Lower Grades

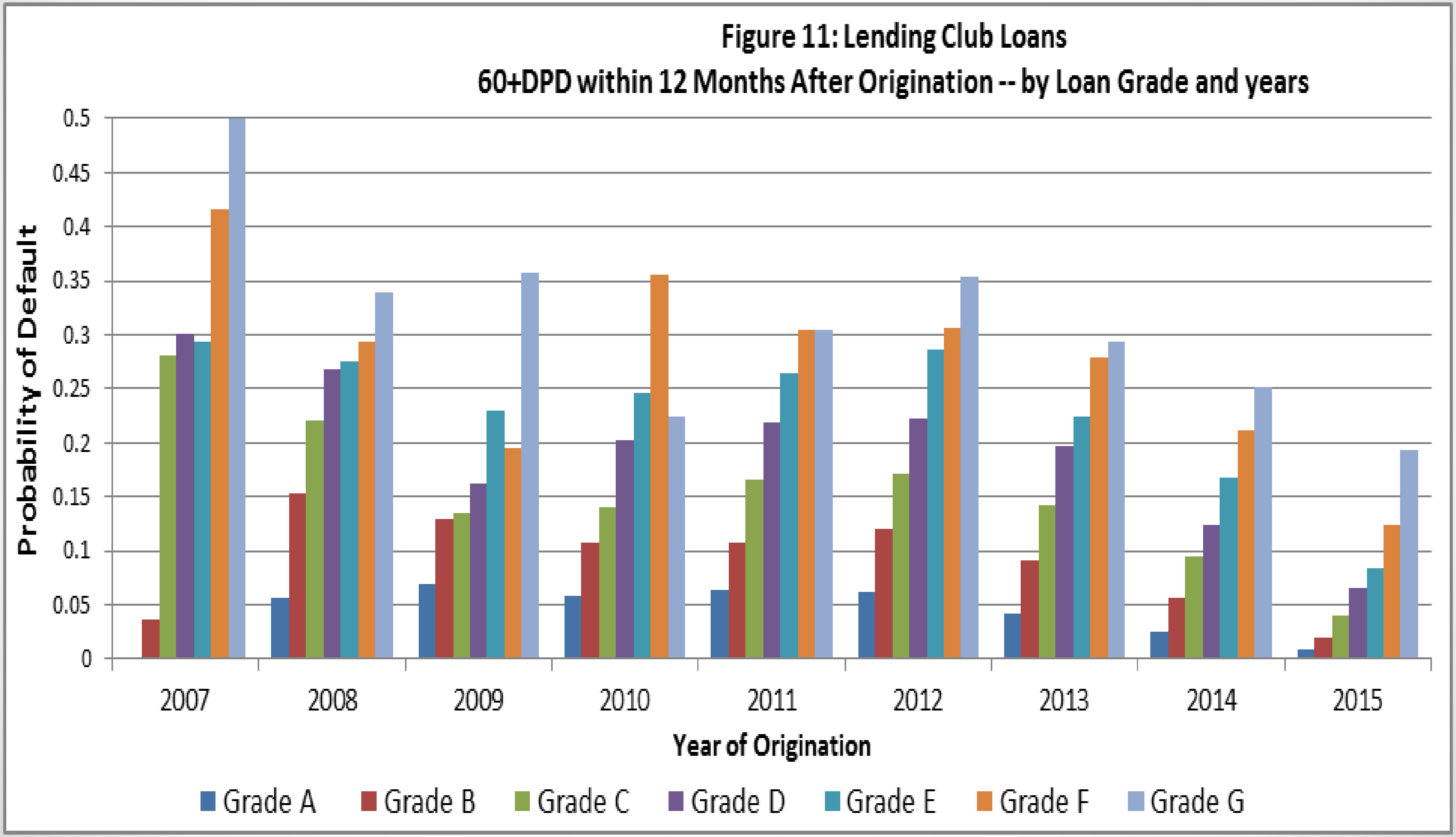


Larger PD for Larger Spreads



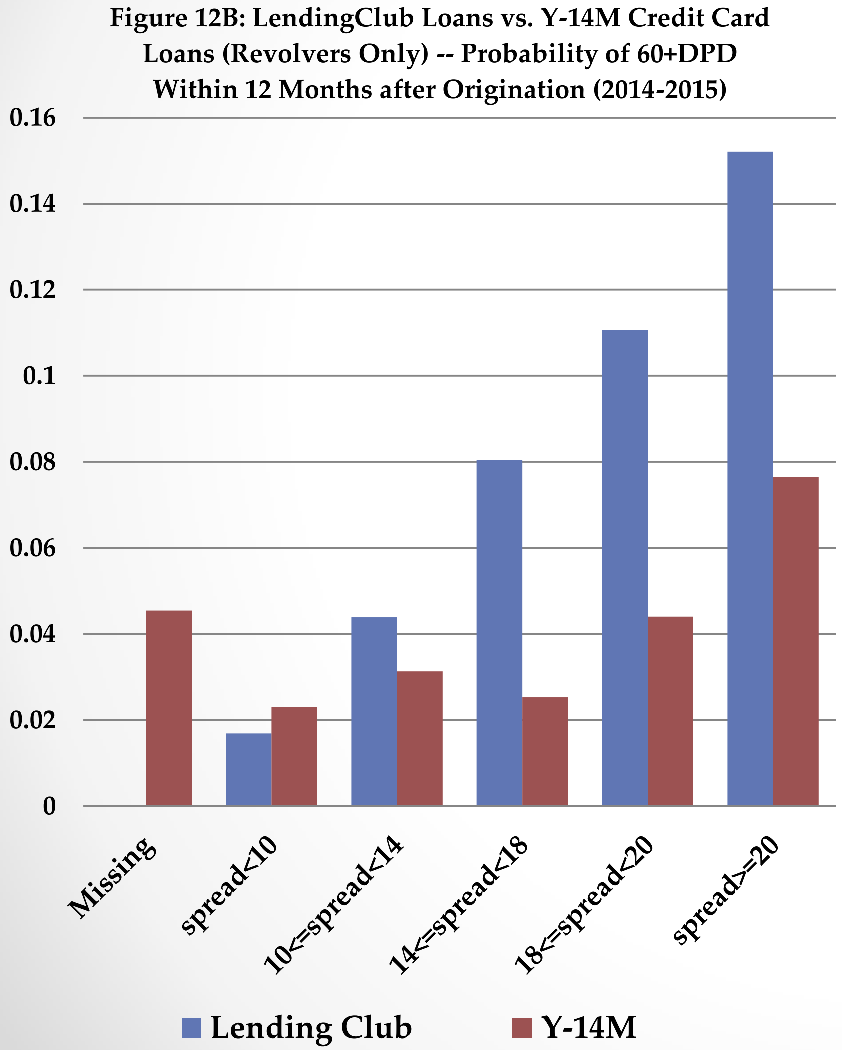
Higher PD for Worse Loan Grades

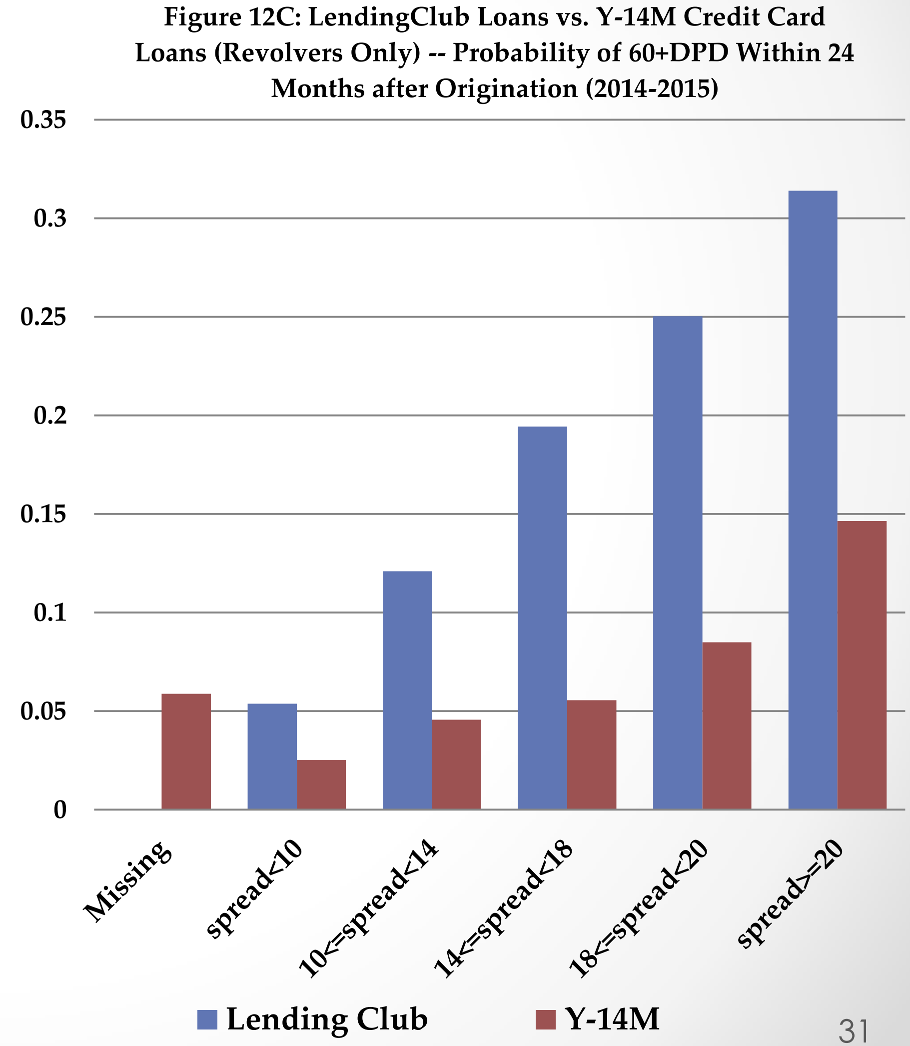
Declining PD Over the Years for All Loans



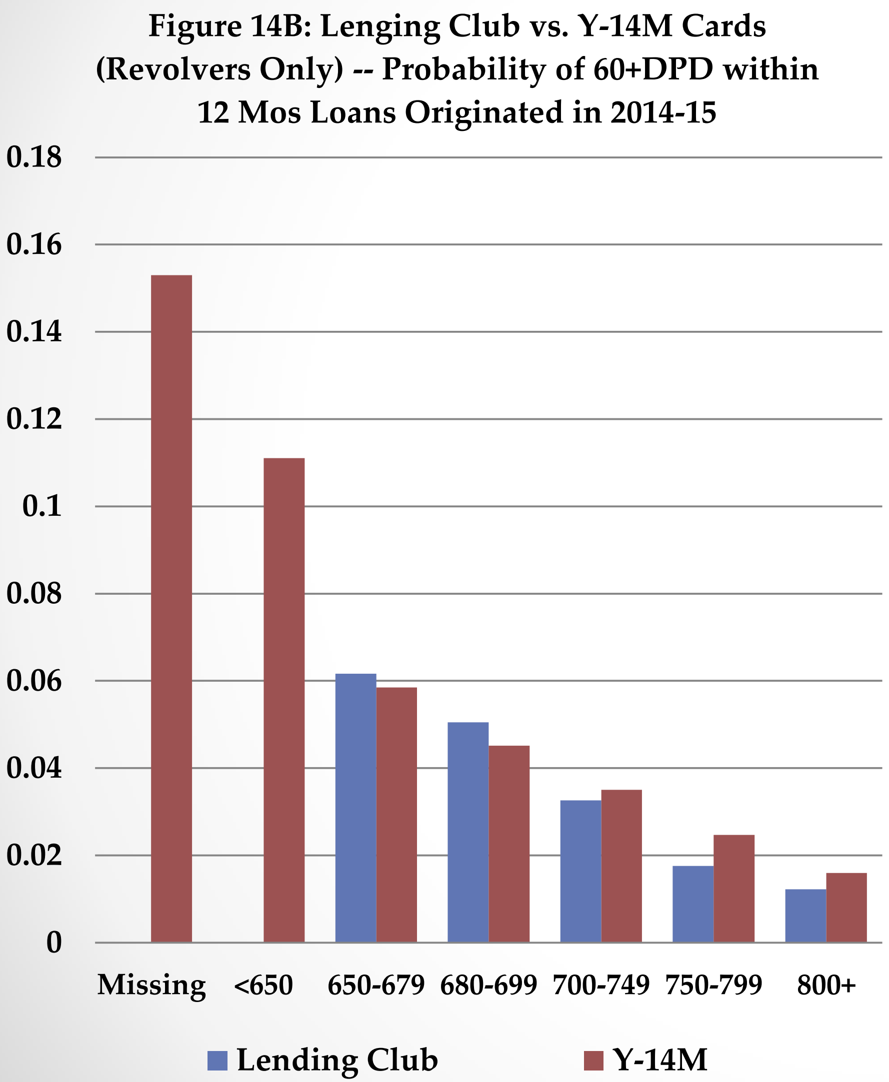
PD of Lending Club vs. Bank Loans

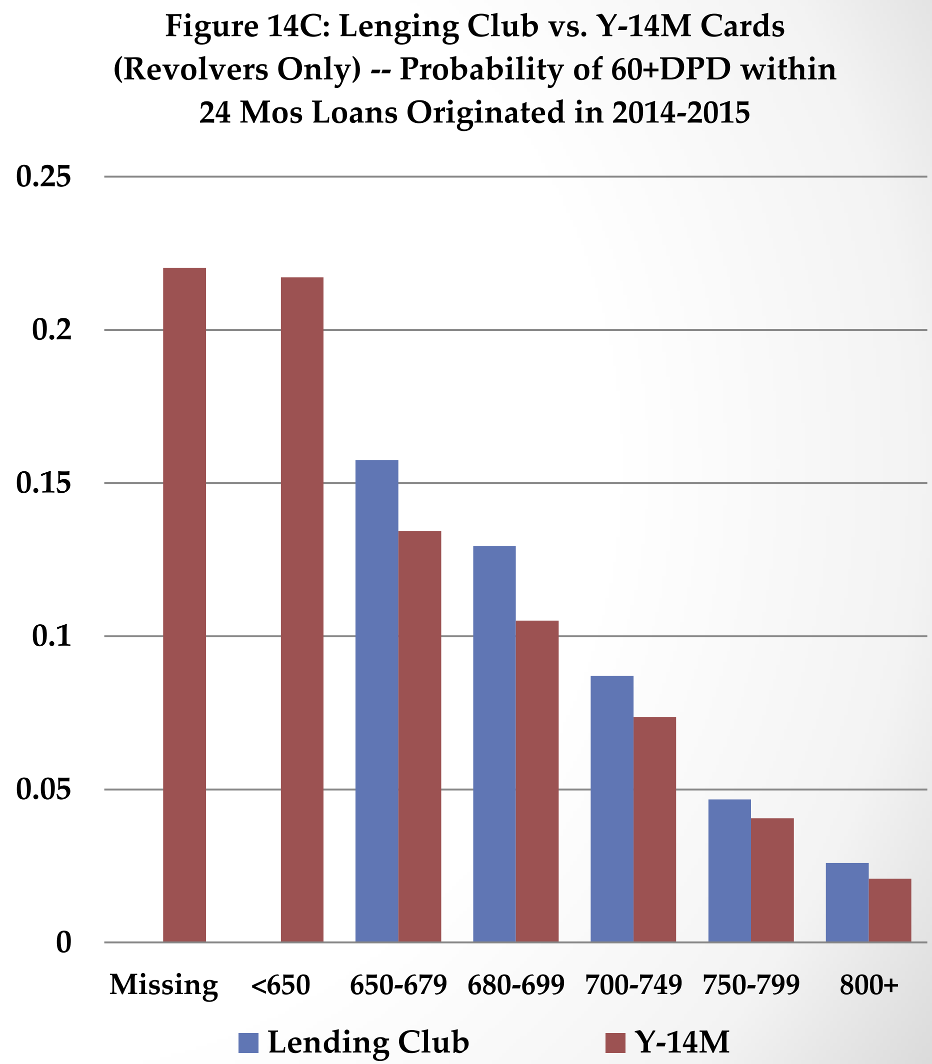
Loans Originated in 2014-15; Higher PD for LendingClub Loans; Smaller Spreads on LendingClub Loans, given the default risk





Controlling for FICO Scores, Lending Club Borrowers, on Average, Are Slightly More Likely to Default – Self Selection





Logistic Regression Result – LendingClub PD

- Data indicate that rating grades are good at identifying riskier borrowers.
- We explore this further using Logistic regression:
  - Dependent variable is the probability that the loan becomes delinquent within 12 months
  - Control for additional factors (credit spreads, borrower's risk characteristics, and economic factors).
- Results confirm that rating grades are highly significant; FICO scores are not significant after controlling for other risk factors.

Takeaways

- **Alternative Data Sources: There is additional information in LendingClub's ratings that are not already incorporated in traditional risk factors like FICO scores**
- **Rating grades (based increasingly on alternative data) have a decreasing correlation with FICO scores over the years – but remain effective in predicting future loan defaults**
- **Alternative data have allowed some borrowers to be assigned better ratings and to receive lower priced credit**
- **Lower Funding Cost: given the same risk of default, consumers pay smaller spreads on loans from LendingClub than from carrying credit card balances**