Fintech Borrowers:
Lax-Screening or Cream-Skimming?

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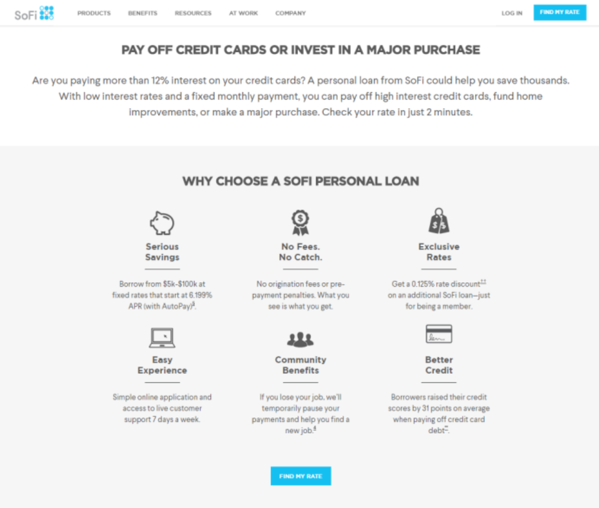
Motivation

- Fintech companies have targeted the consumer credit market, which is one of the largest credit markets, with outstanding credit of $3.5 trillion in 2015 (FED, 2016).
- Their share of the lending market has been predicted to increase to 20% by 2020.
- TransUnion established that fintechs have grown from a mere 1% of personal loan originations in 2010 to one-third of the entire personal loan market in 2017.
- The 32% market share for fintechs in the personal loans market was more than the 29% for banks, 24% for credit unions, and 15% for traditional finance

Fintech Lenders

- We define fintech lenders those who:
    - Operate exclusively online and do not have a brick and mortar presence
    - Do not accept deposits
    - Are not regulated by the Fed or the OCC
    - Have been recently founded

Fintech Lenders



Hypotheses Development

- "Fintech lenders can make loans in minutes, which might take banks weeks." Jamie Dimon, 2014
- **Hypothesis 1**: By having lower origination costs and (somewhat) better technology, fintech might target underserved and more marginal borrowers.

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- Heidhues and Kőszegi (2010, 2017): Consumers who exhibit self-control problems could make greater use of quick-access credit items.
- **Hypothesis 3**: Fintech lenders might allow borrowers to increase their leverage, which would lead them to default.

Results Preview

- **Main Results:** fintech borrowers seem to be richer and more creditworthy, reject the idea that they are under-served by traditional banks.
  - We find evidence that borrowers use the fintech loan to consume rather than to consolidate their existing debts.
  - This makes them more fragile and likely to default.
  - Significant heterogeneity between borrowers, e.g. revolvers and transactors.
  - These results hold even for borrowers that react to advertising, i.e. quasi-exogenous demand shifter.

The Data

- Credit Bureau Data: covers 260 million borrowers and over 1.8 billion single loans, and is updated monthly.
- Data on households' balance sheets: monthly payment history of all the loans that a borrower has, information about the main features of these individual loans, such as date opened, account type, credit limits, monthly scheduled payment (for installments only), balance, and performance history.

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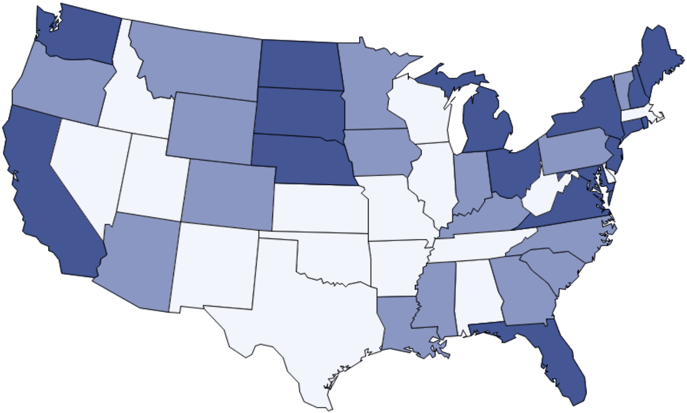
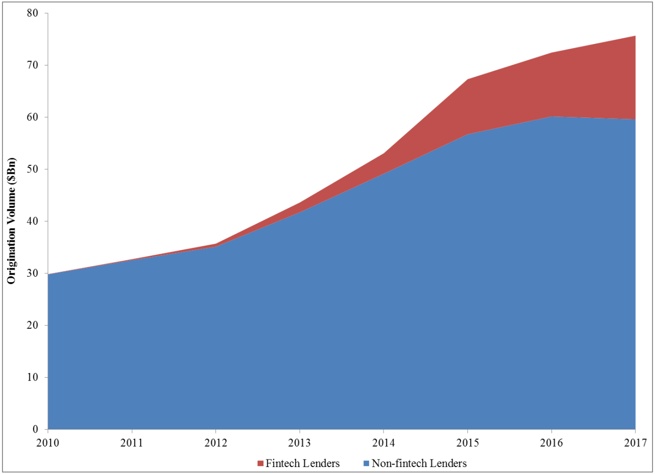
  - We have data on interest rates for personal loans.
  - For a significant sample of borrowers, we observe their employer as well as the industry they work in and their main occupation.

Distribution of Fintech Borrowers



FinTech vs Banks: Aggregate Trend



Where do they lend? Not in financial deserts

GEO

	Dependent variable: Fintech Loan Indicator								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
QoQ HP Change	0.008*** (0.0004)								
HP Level		0.031*** (0.0010)							
Cum. HP Decline 2007-10			-0.021*** (0.0010)						
UnEmployment Rate				-0.016*** (0.0010)					
Median HH Income					0.025*** (0.0010)				
Fraction of College Degree						0.023*** (0.0005)			
Fraction of Fintech Loans							0.111*** (0.0010)		
Average Bank Rate								0.023*** (0.0010)	
High-Speed Internet Coverage									0.018*** (0.0010)
Observations	3,756,375	3,747,903	3,756,398	2,344,717	3,092,984	2,344,717	3,701,699	3,701,697	3,203,917
R^2	0.077	0.08	0.078	0.083	0.081	0.086	0.101	0.076	0.072
Adjusted R^2	0.077	0.079	0.078	0.083	0.081	0.086	0.101	0.076	0.072

Fintech Borrowers: Demographics

Demographic

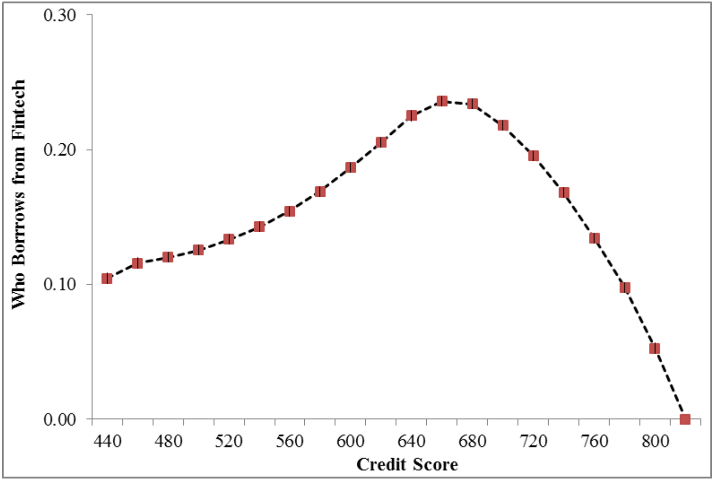
	Dependent variable: Fintech Loan Indicator					
	(1)	(2)	(3)	(4)	(5)	(6)
Male Indicator	0.007***					0.006***
	(0.0005)					(0.0005)
Married Indicator		-0.011***				-0.016***
		(0.0005)				(0.0005)
College Indicator			0.018***			0.014***
			(0.0010)			(0.0010)
High Income Indicator				0.028***		0.029***
				(0.0010)		(0.0010)
Professional Indicator					0.011***	0.007***
					(0.0010)	(0.0010)
Observations	3,756,398	3,756,398	3,756,398	3,756,398	3,756,398	3,756,398
R^2	0.325	0.325	0.325	0.326	0.325	0.326

Fintech Borrowers: Credit Attributes

Credit Attributes

	Dependent variable:Fintech Loan Indicator								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Credit Score	-0.021***								-0.043***
	(0.0005)								(0.0010)
Age of Credit History		-0.006***							-0.0003
		(0.0003)							(0.0002)
No of Accounts			0.018***						0.014***
			(0.0003)						(0.0003)
Rev. Utilization				0.011***					-0.004***
				(0.0004)					(0.0003)
DLQ Indicator					-0.032***				-0.087***
					(0.0010)				(0.0010)
Transactor Indicator						-0.046***			-0.030***
						(0.0010)			(0.0010)
Student Loan Indicator							0.061***		0.050***
							(0.0010)		(0.0010)
Mortgage Indicator								0.001*	0.013***
								(0.0010)	(0.0010)
Observations	3,756,398	3,756,361	3,756,361	3,640,227	3,756,398	3,747,268	3,756,398	3,756,398	3,631,491
R^2	0.327	0.325	0.327	0.329	0.326	0.326	0.33	0.325	0.342
Adjusted R^2	0.136	0.134	0.136	0.133	0.134	0.134	0.14	0.133	0.149

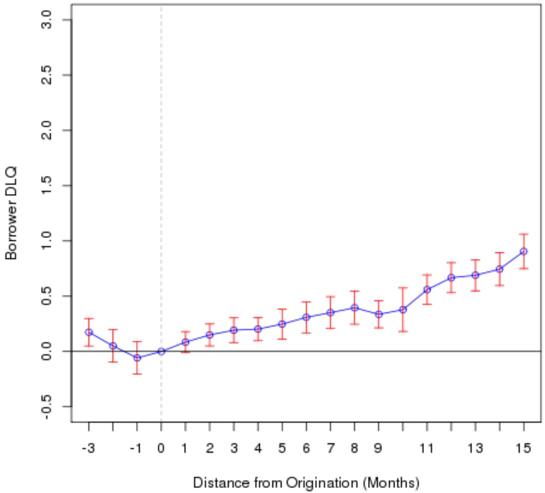
Non-Linearity in Credit Score



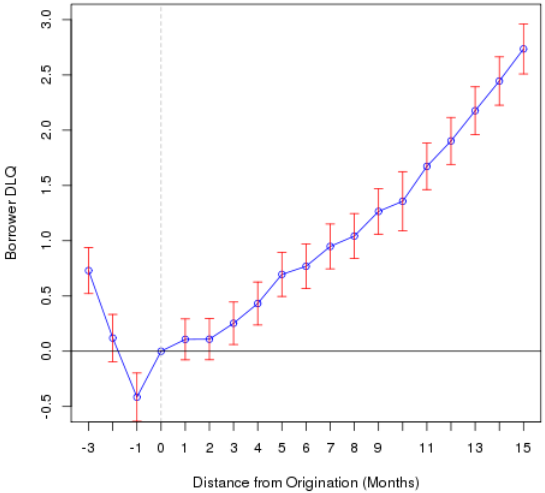
Taking Stock

- We find evidence that fintech borrowers are less likely to live in areas that were hit more severely by the crisis.
- Male, educated and higher income borrowers are more likely to apply.
- Borrowers with average FICO, lower past delinquency, more accounts are more like to apply to fintech.
    - => **No evidence that these are under-served/marginal borrowers**

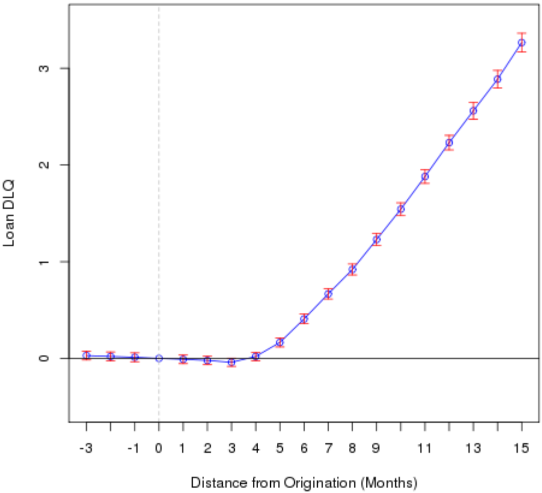
Average Performance: High Credit Score



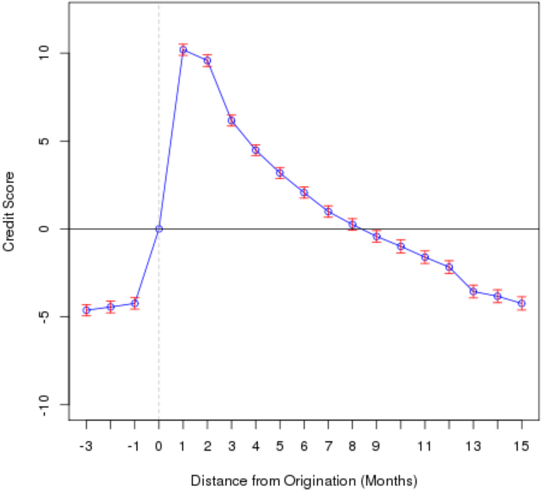
Average Performance: Low Credit Score



Loan Performance



Credit Score



Mechanism: Leverage and Consumption

Borrower Debt vs Spending

	Total Debt (1)	*New Car* (2)
x 1-3 Months Before	779.435***	-0.306***
	-79.871	-0.019
x 1 Month After	1,012.005***	-0.395***
	-79.261	-0.032
x 2 Months After	-3,463.751***	0.426***
	-81.222	-0.032
x 3-7 Months After	3,993.304***	0.326***
	-82.756	-0.017
x 8-12 Months After	4,870.138***	0.051***
	-82.213	-0.018
x 12-15 Months After	5,164.916***	-0.013
	-84.212	-0.021
Observations	62,062,556	62,832,042
R^2	0.893	0.053
Adjusted R^2	0.889	0.021

Mechanism: Marginal Lenders?

	Loan DLQ x 100			
	Non-Main	Main Lender	Non-Main	Main Lender
Fintech Borrower Indicator				
x 1-3 Months Before	0.018	0.003	-0.004	0.006
	(0.042)	(0.0009)	(0.283)	(0.0088)
x 1 Month After	0.084	0.0003	0.450	-0.048***
	(0.061)	(0.002)	(0.358)	(0.012)
x 2 Months After	-0.079	0.0017	-0.149	-0.051***
	(0.099)	(0.004)	(0.373)	(0.013)
x 3-7 Months After	0.776***	0.232***	0.799***	0.169***
	(0.216)	(0.013)	(0.303)	(0.013)
x 8-12 Months After	3.319**	1.233**	3.352**	1.162**
	(0.392)	(0.022)	(0.369)	(0.019)
x 13-15 Months After	5.362***	2.241***	5.511***	2.149***
	(0.683)	(0.030)	(0.572)	(0.024)
1-3 Months Before	-0.001	0.003	0.036	0.004
	(0.021)	(0.001)	(0.112)	(0.004)
1 Month After	-0.055*	-0.016***	-0.063	0.003
	(0.029)	(0.001)	(0.152)	(0.005)
2 Months After	0.048**	0.0004	0.202	0.020**
	(0.081)	(0.002)	(0.141)	(0.005)
3-7 Months After	0.636***	0.311***	0.792***	0.344***
	(0.093)	(0.004)	(0.125)	(0.005)
8-12 Months After	1.411***	0.539***	1.708***	0.611***
	(0.132)	(0.005)	(0.145)	(0.006)
13-15 Months After	2.117***	0.664***	2.402***	0.765***
	(0.208)	(0.007)	(0.198)	(0.007)
Borrower FE	No	No	Yes	Yes
R-Square	0.030	0.011	0.031	0.012
Observations	104917	23361571	104917	23361571

Mechanism: Adverse Selection

Low vs High Inquiries

	Borrower DLQ		*Loan DLQ*	
	(1)	(2)	(3)	(4)
x 1-3 Months Before	-1.340***	-0.720***	-0.186***	-0.077**
	(0.1060)	(0.0990)	(0.0160)	(0.0310)
x 1 Month After	-1.336***	-0.947***	-0.202***	-0.108***
	(0.0660)	(0.1030)	(0.0150)	(0.0310)
x 2 Month After	-1.208***	-0.941***	-0.211***	-0.119***
	(0.0530)	(0.0950)	(0.0150)	(0.0300)
x 3-7 Months After	-0.344***	-0.359***	-0.039**	0.375***
	(0.0570)	(0.0960)	(0.0180)	(0.0360)
x 8-12 Months After	0.630***	0.628***	0.972***	2.480***
	(0.0650)	(0.1210)	(0.0320)	(0.0620)
x 12-15 Months After	1.576***	1.782***	2.040***	4.536***
	(0.0790)	(0.1430)	(0.0460)	(0.0890)
Observations	38,952,402	23,927,545	38,952,402	23,927,545
R^2	0.587	0.577	0.325	0.334
Adjusted R^2	0.571	0.56	0.298	0.308

Mechanism: Self-Control

Revolver vs Transactor

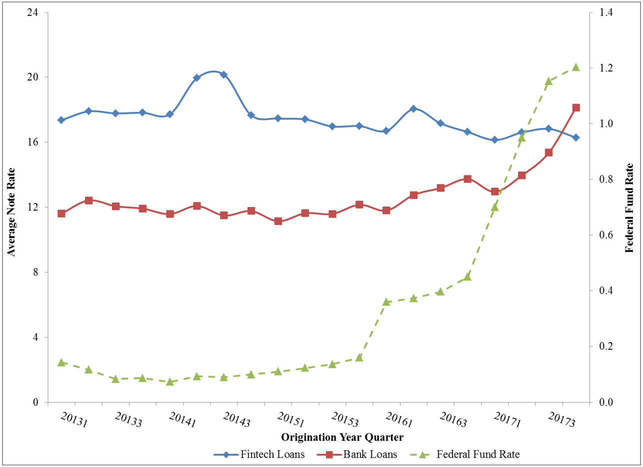
	Borrower DLQ		*Loan DLQ*	
	Revolver	*Transactor*	*Revolver*	*Transactor*
	(1)	(2)	(3)	(4)
x 1-3 Months Before	-1.174***	-1.239**	-0.204***	-0.113***
	(0.0520)	(0.6030)	(0.0170)	(0.0380)
x 1 Month After	-1.308***	-0.523***	-0.226***	-0.125***
	(0.0580)	(0.1870)	(0.0170)	(0.0380)
x 2 Month After	-1.239***	-0.719***	-0.237***	-0.134***
	(0.0480)	(0.1700)	(0.0160)	(0.0380)
x 3-7 Months After	-0.650***	-0.447**	-0.001	-0.008
	(0.0500)	(0.1800)	(0.0180)	(0.0450)
x 8-12 Months After	0.182***	-0.065	1.341***	0.536***
	(0.0610)	(0.1810)	(0.0330)	(0.0660)
x 12-15 Months After	1.129***	0.576***	2.726***	1.198***
	(0.0740)	(0.2070)	(0.0490)	(0.0910)
Observations	58,460,551	4,271,354	58,460,551	4,271,354
R^2	0.565	0.554	0.305	0.265
Adjusted R^2	0.55	0.534	0.282	0.233

Are Fintech Loans a better deal?

Loan Terms

	Dependent variable:					
	Credit Limit	Loan Term	Note Rate	Credit Limit	Loan Term	Note Rate
	(1)	(2)	(3)	(4)	(5)	(6)
Fintech Loan Indicator	4,210.432***	-0.977***	3.469***	2,911.131***	-1.223***	-0.139***
	(33.5590)	(0.0950)	(0.0480)	(37.8220)	(0.0810)	(0.0530)
Credit Attributes	YES	YES	YES	YES	YES	YES
Loan Terms			YES			YES
ZIP x YM FE	YES	YES	YES			
Borrower FE				YES	YES	YES
Observations	3,603,494	3,603,494	2,114,467	253,695	253,695	163,436
R^2	0.378	0.507	0.575	0.703	0.574	0.762
Adjusted R^2	0.195	0.362	0.385	0.502	0.286	0.458

Fintech Rate does not respond to Monetary Policy



Regulatory Implications?

- Our results suggest that consumers are prone to use the relaxation of their credit constraints due to the entry of these new lenders to stretch themselves.
- Then, in the same spirit as the introduction of the "*ability to repay*" rules for mortgage products, regulators could demand fintech lenders to more closely monitor the borrowers' ability to service their unsecured debt.

Shameless Self-Promotion

Harvard Business School (HBS) Executive Education is launching a new three-day program, Leveraging Fintech Innovation to Grow and Compete. Led by HBS faculty Luis Viceira and Marco Di Maggio, the program will help participants evaluate innovative strategies across different segments of the financial market and examine key challenges within the fintech space.

Delivered in the unique HBS case method style, participants will work with a group of global peers on a broad range of real-world cases that examine current and emerging topics at the intersection of finance and technology. Key topics include:

- Analyzing disruptive innovations in several different markets, including investment management, lending markets, payment systems, insurance, and real estate
- Evaluating and implementing innovative strategies to create new marketplaces and opportunities
- Examining the strategic drivers of growth and profitability, and the key challenges in competing with incumbent firms
- Exploring how to defend market share by responding to the emerging trends in the market

This program is ideal for rising executives in a broad array of financial institutions, from banks to asset management firms and financial advisors—as well as for individuals more broadly involved in areas related to capital markets. The program is also valuable for individuals who are planning to launch new enterprises aimed at disrupting key areas of financial markets.

If you are interested in this program and would like more information, please contact our Program Advising team at executive_education@hbs.edu.

Concluding Remarks

- This paper exploits unique data from bureau on households' balance sheet information

- We show two main set of results:
  - First: borrowers that use fintech lenders do not seem to be less creditworthy or under-served by traditional banks ex ante.
  - Second: these borrowers tend to spend more than those who get a bank loan and are more likely to default.

- The heterogeneity suggests that Fintech lenders might be a vehicle for borrowers with self-control issues to over-borrow.