The Impact of Fintech Lending on Credit Access for U.S. Small Businesses*

The American Finance Association (AFA) Conference Annual ASSA Meeting (January 5-8, 2023)

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* Based on Giulio Cornelli, Jon Frost, Leonardo Gambacorta, and Julapa Jagtiani (2022)

The views expressed here are our own and not the views of the FRB Philadelphia, the Federal Reserve System, or the Bank for International Settlements

Introduction

- Small business lending (SBL) plays an important role in funding productive investment and fostering local economic growth. So, it is important that they get the funding they deserve.
- Traditionally, local community banks played a key role in SBL funding through relationship lending. Over the past decade, community banks were losing SBL market share to large banks.
- More recently, the entire banking industry has been losing SBL market share to nonbank lenders, including fintech lenders.
- Among nonbanks, fintech lenders have been effective in leveraging alternative data for their own internal credit scoring and making funding more accessible to US small businesses.

Our SBL Data

Fintech Data:

We use proprietary loan-level data from two fintech SBL platforms -- Funding Circle and LendingClub SBL platforms -- to explore the characteristics and performance of loans originated pre-pandemic (2016–2019).

Bank Data:

We use Y-14M loan-level bank data (monthly report to the Fed for stress testing purposes) -- to compare fintech SBL (installment loans) with traditional bank SBL (business cards data) in terms of credit access and interest rates.

Key Findings

Result 1:

Fintech SBL lender (Funding Circle) lent more in zip codes with higher unemployment rates and higher business bankruptcy filings.

Result 2:

Fintech's internal ratings were able to predict future loan performance more accurately than the traditional credit scores, particularly in areas with high unemployment.

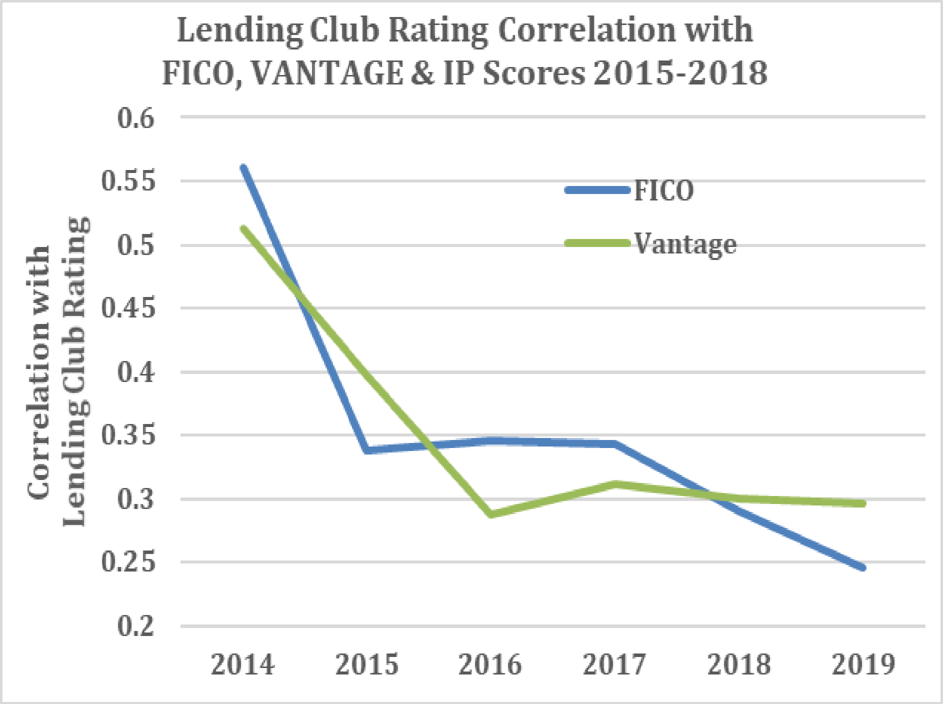
Note: our results may not be applicable to the entire fintech industry.

Overall

Fintech lenders have a potential to create a more inclusive financial system, allowing some small businesses that were less likely to receive credit through traditional lenders to access credit and to do so at a lower cost.

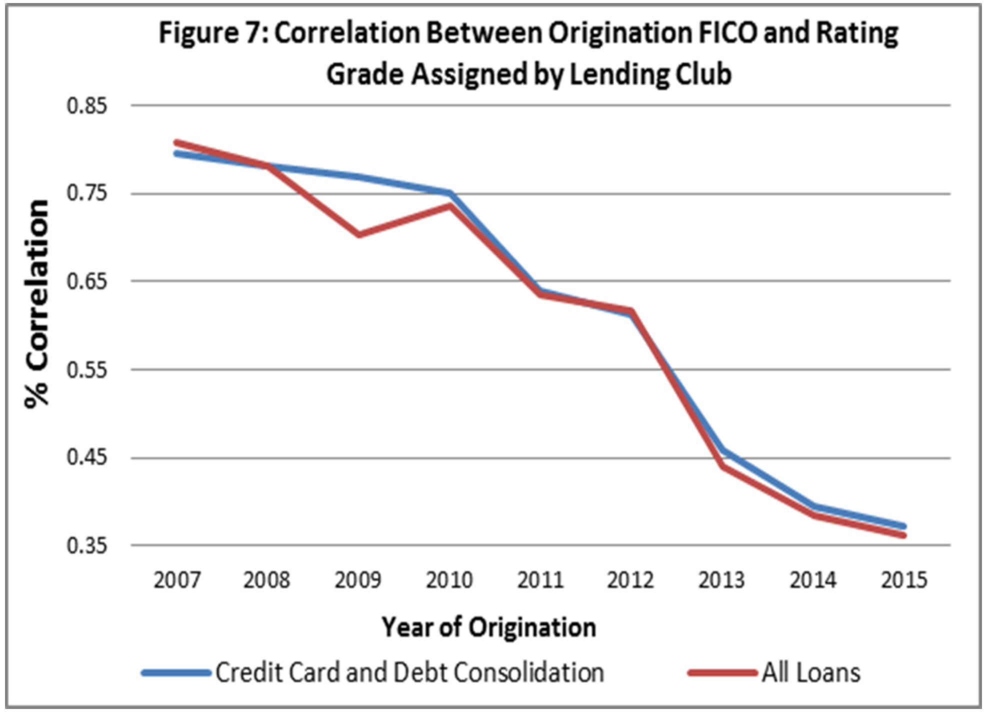
Previous study -- There is a potential for fintech lenders (which use nontraditional data in credit decisions) to be more accurate in risk evaluation and pricing… Resulting in more consumers accessing credit at lower cost

LendingClub Small Business Loans



Source: Giulio, Frost, Gambacorta, and Jagtiani (2022)

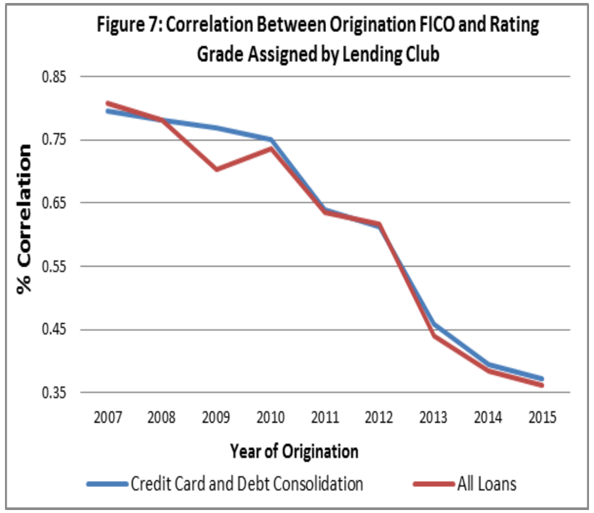
LendingClub Personal Loans (2007-2015)

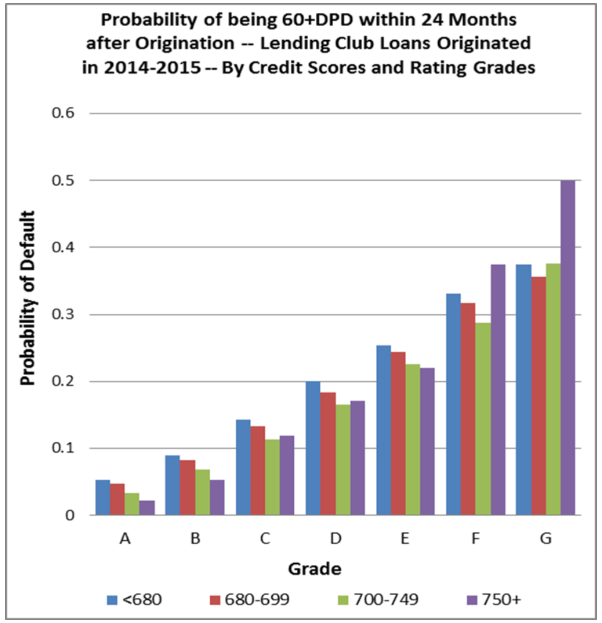


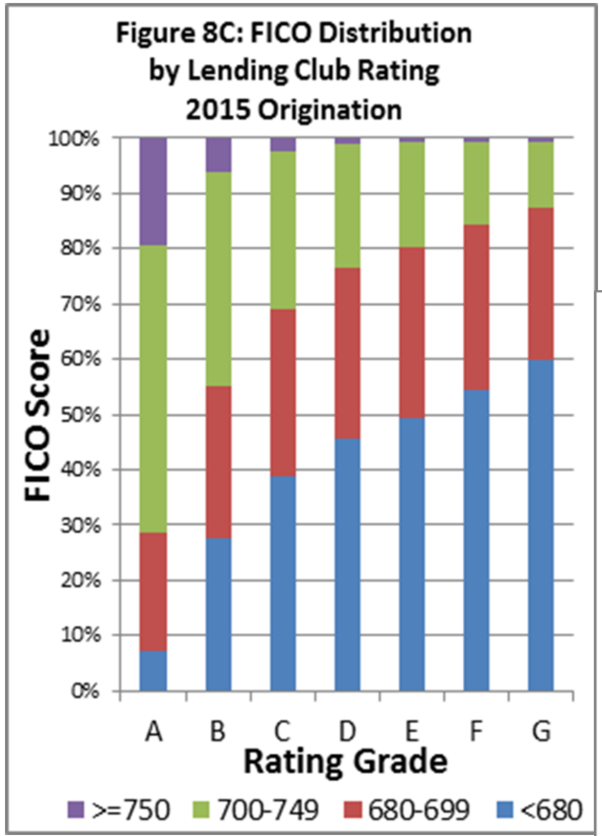
Source: Jagtiani and Lemieux (2019)

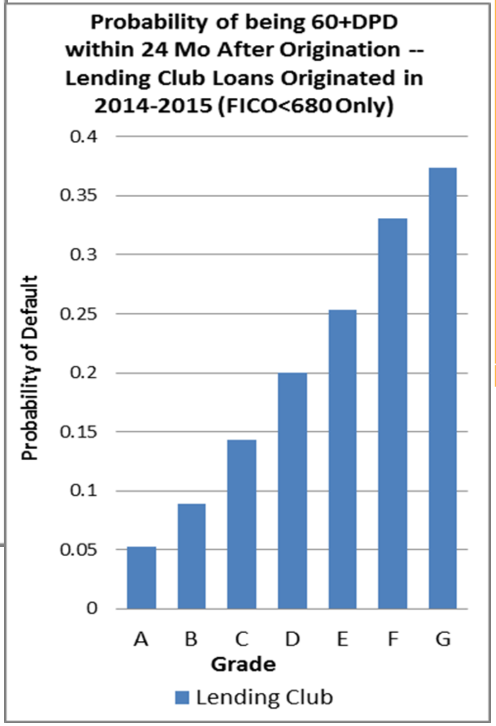
Note: Hughes, Jagtiani, and Moon (2022) – find that LendingClub consumer platform became more efficient than traditional lenders of the same size (compare 2013 vs. 2016).

We followed low-FICO borrowers for 2 years – those with high ratings by LendingClub did not default









FICO Segment At Origination	% APR Average Spread (Origination Fees Included) LendingClub		% Ave Spread Bank Y-14M Revolvers Only
	3Year Maturity	5 Year Maturity	
660-679	15.336	18.113	20.1923
680-699	13.756	16.764	19.8465
700-719	12.013	15.351	19.1418
720-739	10.432	14.033	18.4180
740-759	9.125	12.818	17.6569
760-779	8.236	11.972	16.8312
780-799	7.604	11.338	16.1820
800+	6.9519	10.699	16.1668

Source: Jagtiani and Lemieux (2019)

Different Products & Services under "Fintech" Label

- **True marketplace lenders** – match lenders and investors -- no balance sheet risk. May also get funding through securitization/Fintech ABS (since 2015)
- **B/S fintech lenders --** are exposed to credit risk

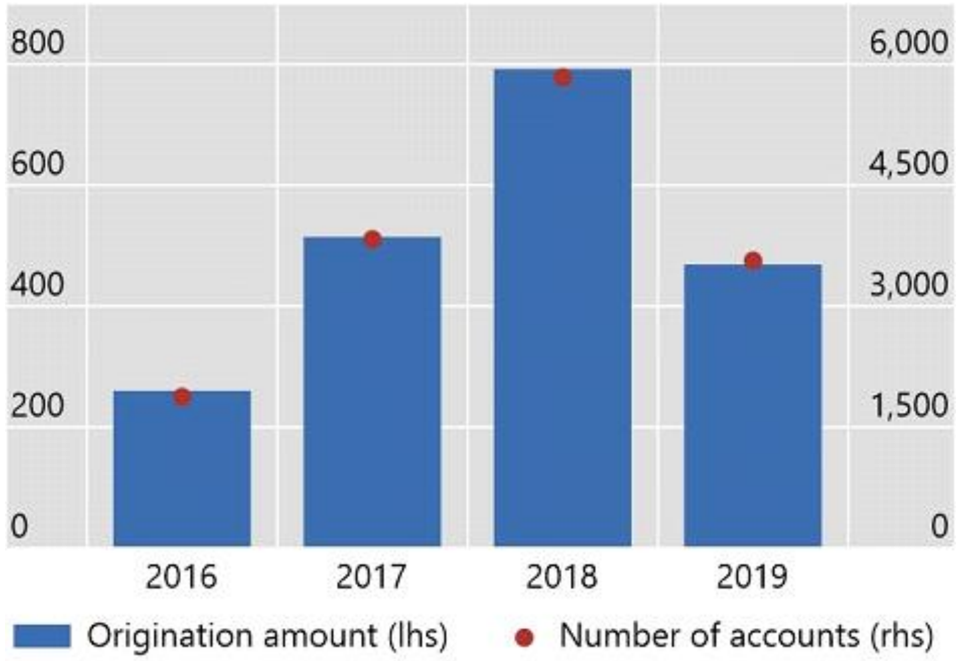
  Ease of application, reduced collateral requirements, and expedited funding (24 hrs vs. months through SBA)
- **Payment processors** – Square, PayPal, Stripe, Intuit

  Using proprietary big data collected while processing paymeı transactions – also get bird's eye view of industry and geography -- use SBL as a means to grow business volume on payment platform
- **Variety of SBL loan products:** with variety of products -- loan amount ($5K to $1 million), loan terms (installment, LOC, MCA, Factoring, RBF), maturity (60 days to 7 years) , and APR (10% to 250% APR).

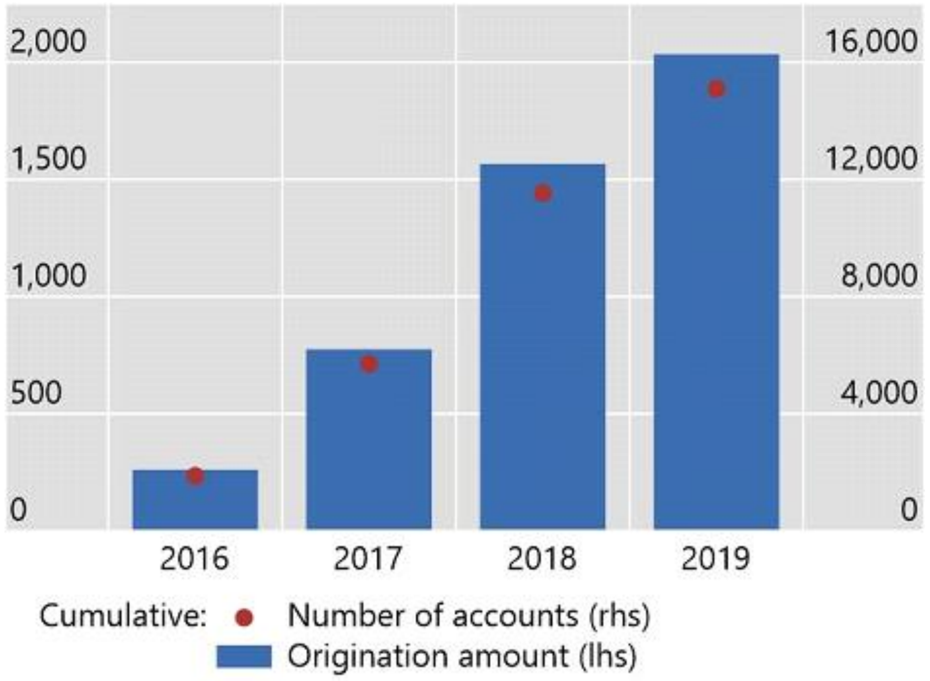
Fintech SBL Data: Origination Volume

- **Our SBL data from 2 lenders – Funding Circle and LendingClub**
- **Loan origination period: 2016-2019 (with observation window for performance within 24 months after origination)**

Loan Amount ($Mill) and # of Accounts



Cumulative Loan Amount ($Mill) and # of A/C



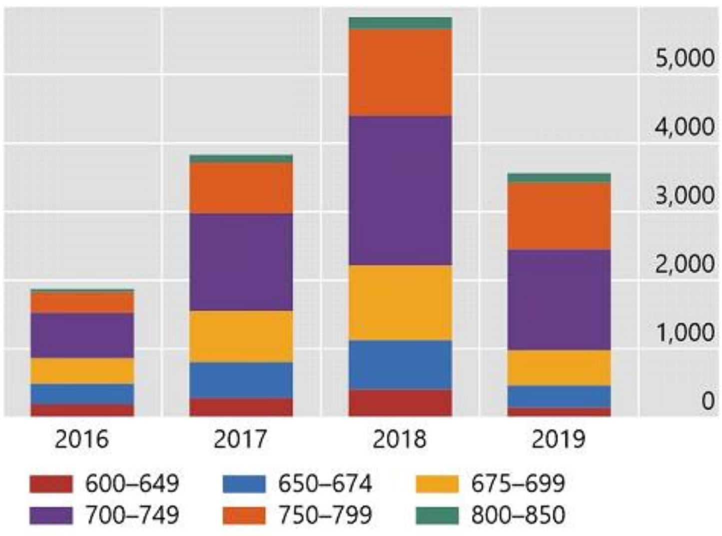
Funding Circle Loans Characteristics (2016-2019)

The majority of loans are 15% APR or lower rates.

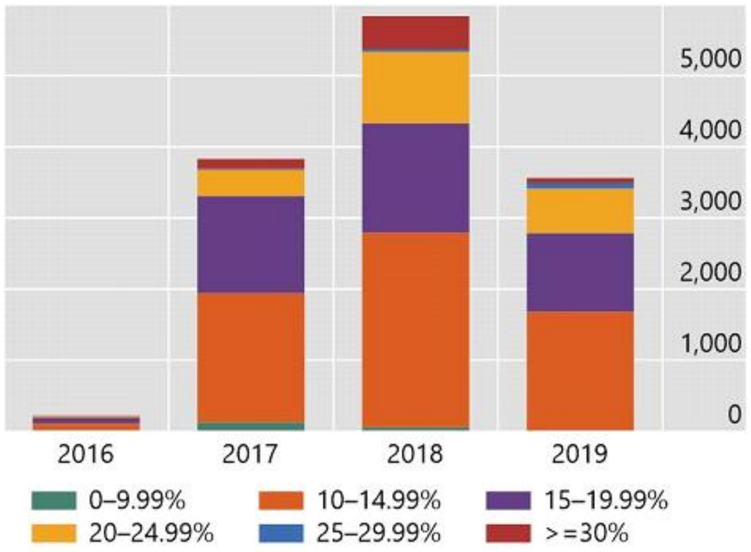
Average loan size $134.000 (from $25,000 to $500,000)

Average maturity 48 months (from 6 months to 5 years

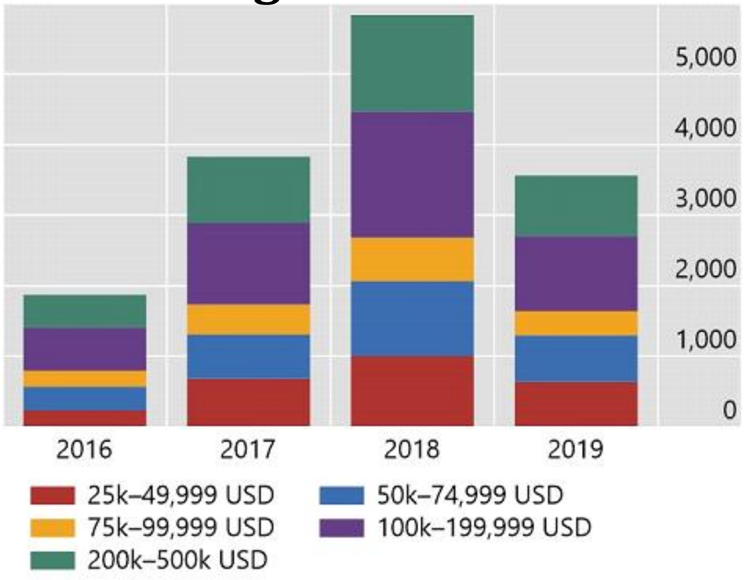
FICO Distribution



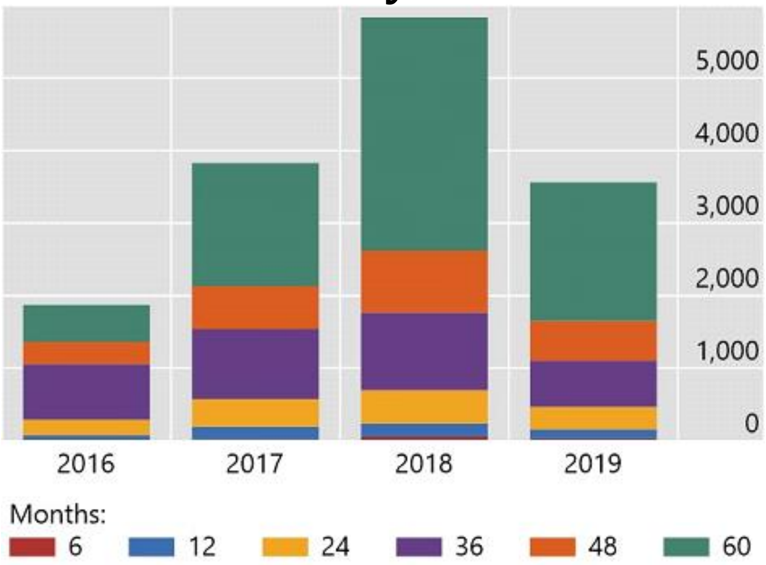
Interest Rates



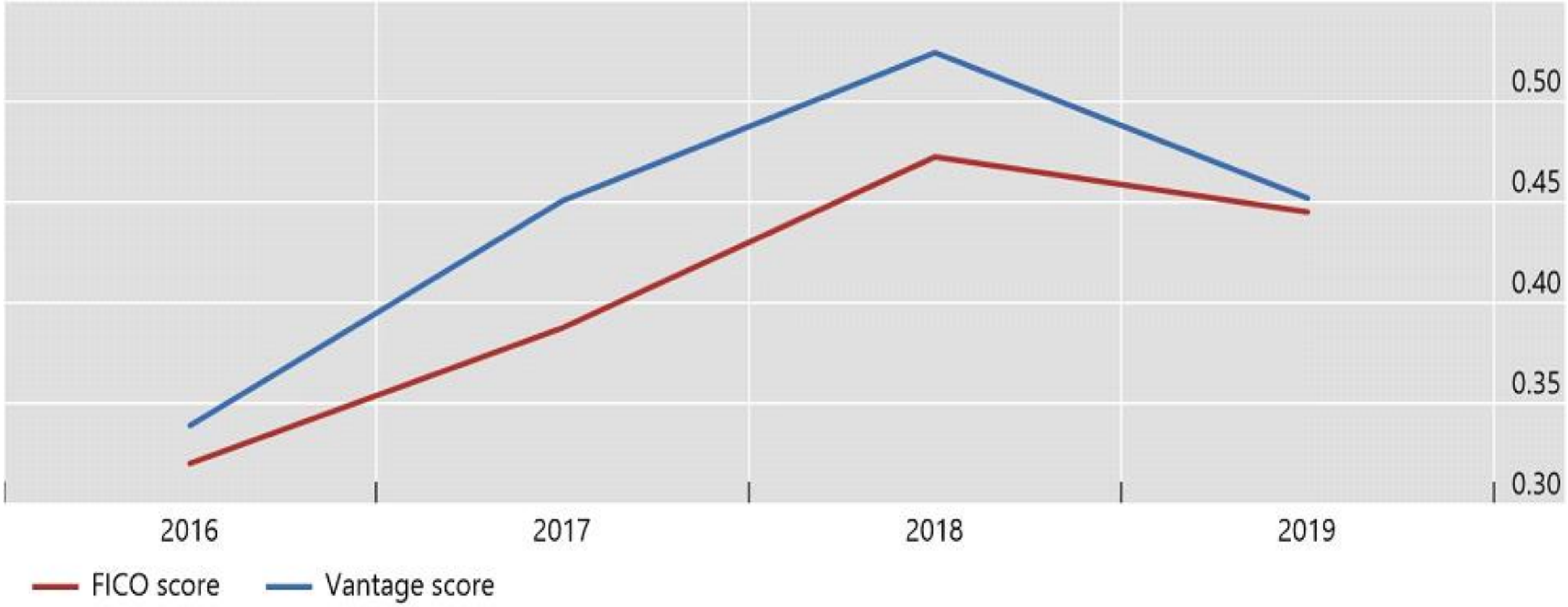
Funding Amount



Loan Maturity

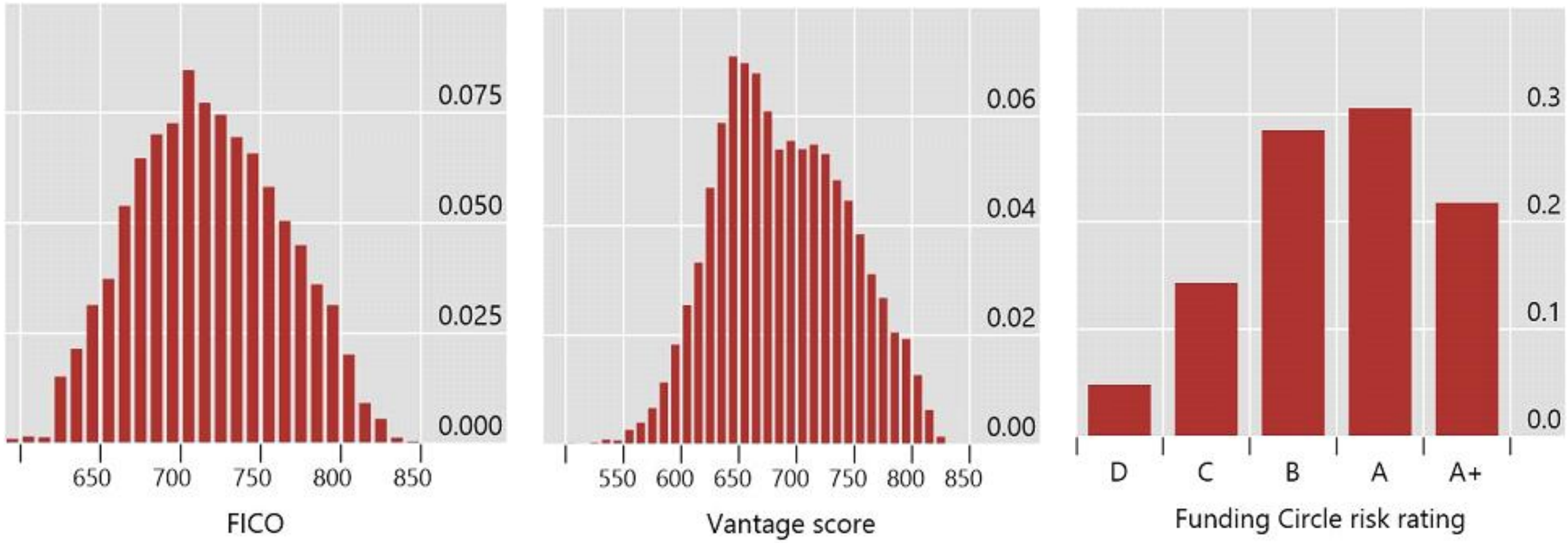


Low correlation Between Funding Circle's Risk Bands and Traditional Credit Scores (FICO and Vantage Score) – consistently below 50%



Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

Funding Circle's Loan Distribution by FICO vs. Vantage Scores vs. Funding Circle Own Ratings



About half of the Funding Circle loans received top ratings (A or A+) from Funding Circle, although they may not be highly rated based on the traditional credit scoring systems

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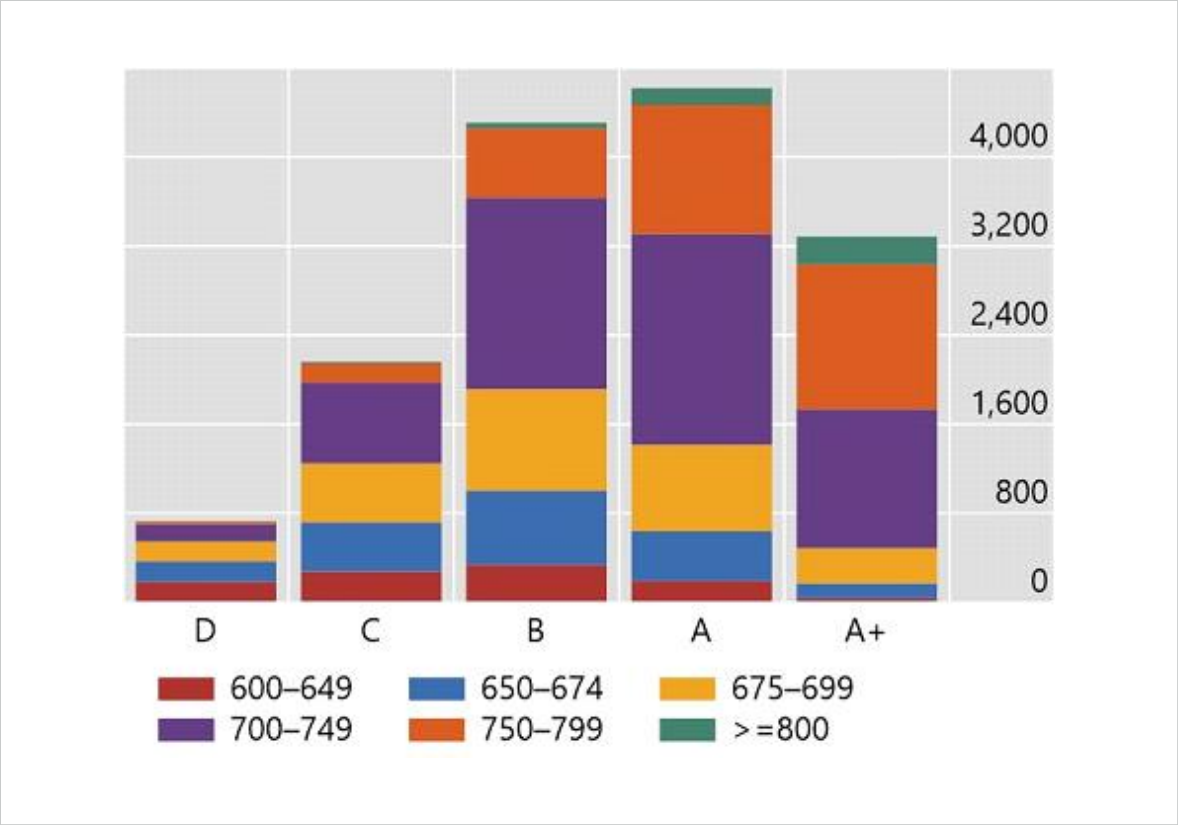
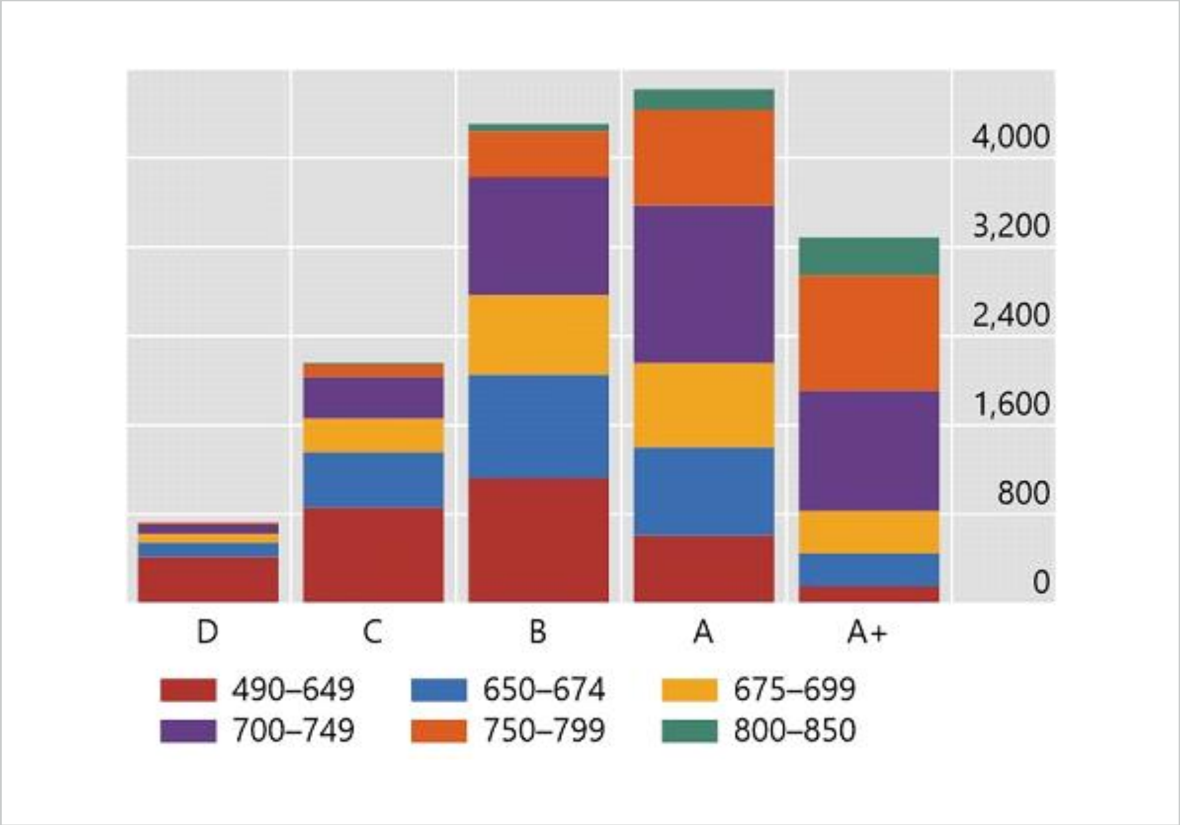
Credit Score Distribution by Funding Circle's Rating Grades

Some loans that would traditionally be considered below prime, based on FICO and VantageScore (Red and Blue), are assigned much better ratings (A or A+) by Funding Circle.

FICO Distribution by FC Risk Bands



VantageScore Distribution by FC Risk Bands



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Delinquency Rate by Funding Circle's Rating Grades vs. FICO Scores

About 12.6% of the loans originated by FC fall into the high-risk FICO vs. 3.1% in D-rated.

Delinquency rates are defined as the share in the total number of outstanding loans 60 days or more past due, divided by the total number of loans. These are shown for different ranges of FICO scores and Funding Circle risk bands, over the period 2016–2019. The (discrete) Funding Circle credit ratings at origination are divided into five different risk groups (A+ through D), while the (continuous) scores of the FICO credit bureau are divided into three corresponding to risk level: Low Risk (FICO>739); Medium Risk (FICO between 670–739); and High Risk (FICO<670).

		Funding Circle Risk Grades					Total FICO	Portfolio Share
		D	C	B	A	A+		
FICO Band	Low Risk	21.4%	11.3%	5.1%	3.3%	1.7%	3.6%	36.3%
	Medium Risk	17.4%	10.6%	7.1%	4.3%	3.5%	6.7%	51.1%
	High Risk	21.1%	13.3%	10.5%	7.6%	6.0%	11.8%	12.6%
Total FC Risk Grade		19.3%	11.5%	7.3%	4.3%	2.6%	6.5%	
Portfolio Share		3.1%	12.3%	27.5%	33.8%	23.3%		

Interest rates (APR) by Funding Circle rating grades and FICO scores

		Funding Circle Risk Grades						
		D	C	B	A	A+	Total FICO	Portfolio Share
FICO Band	Low Risk	31.0%	23.1%	18.9%	13.9%	11.2%	14.4%	36.3%
	Medium Risk	31.1%	23.1%	18.8%	14.0%	11.4%	17.4%	51.1%
	High Risk	31.3%	23.1%	18.9%	14.3%	11.5%	20.4%	12.6%
Total FC Risk Grade		31.2%	23.1%	18.9%	14.0%	11.3%	16.9%	
Portfolio Share		3.1%	12.3%	27.5%	33.8%	23.3%		

Note: There is little variation of interest rates across FC risk grades (see green area). In contrast, we observe a wide variation of APR across FICO buckets (see pink area) – some low-FICO borrowers get low rate APR at Funding Circle.

Alternative data allow for greater accuracy in SBL credit risk evaluation. Default rate varies widely within the same FICO (VantageScore) segment. Default rate is strictly monotonic with Funding Circle's internal ratings, controlling for FICO.

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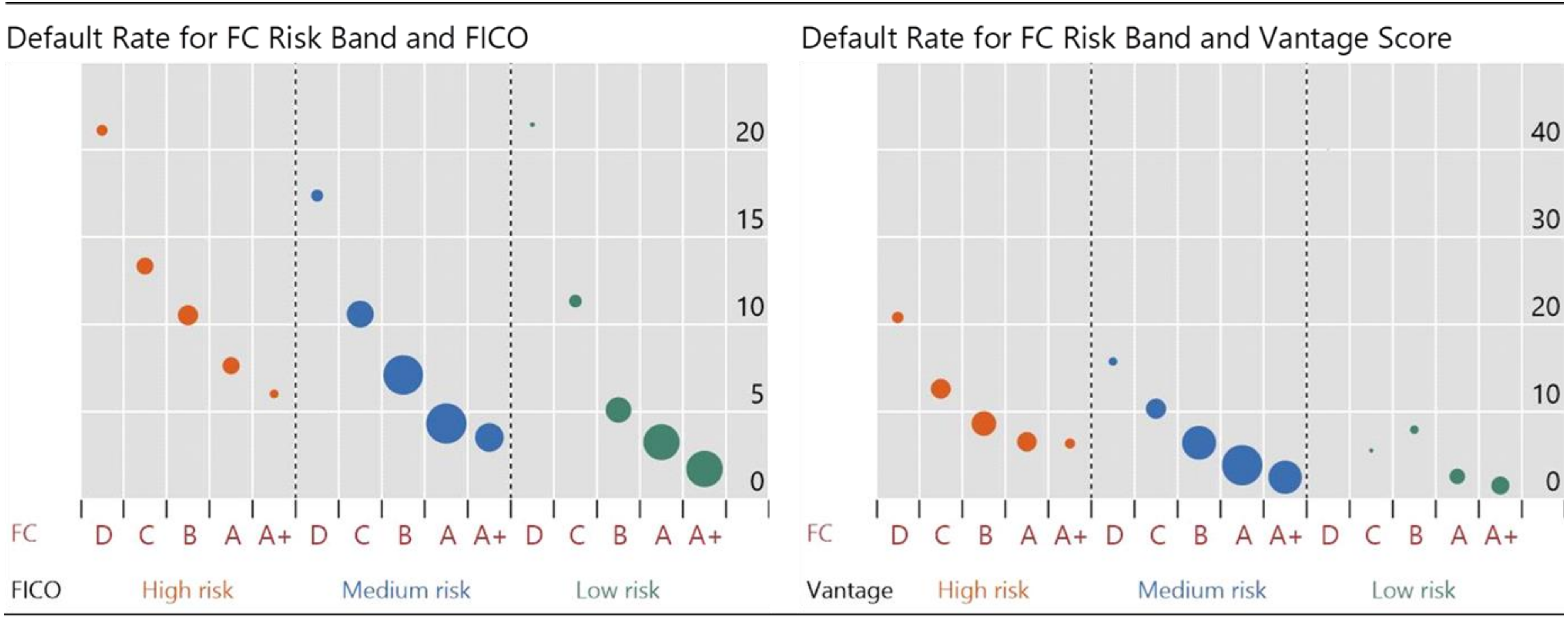
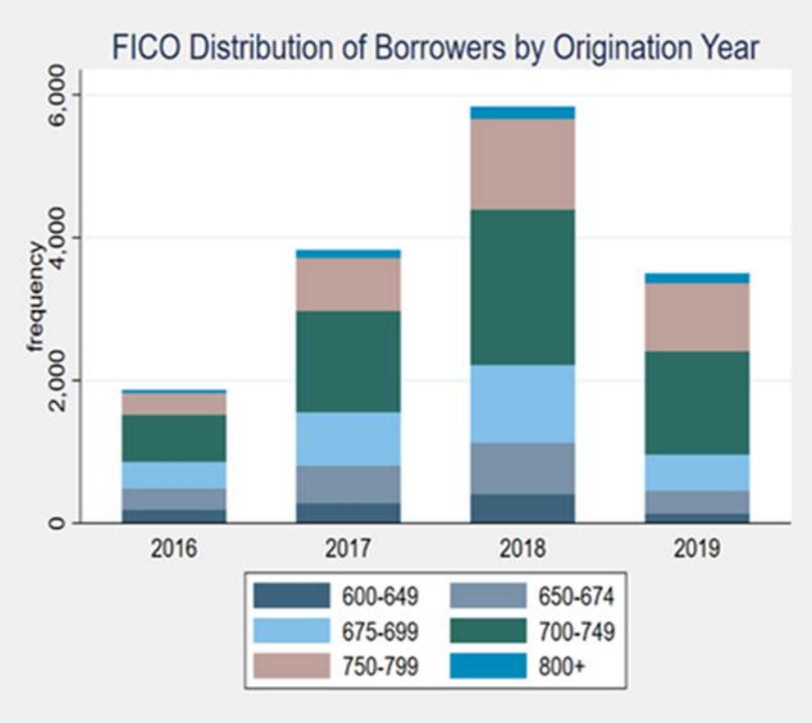


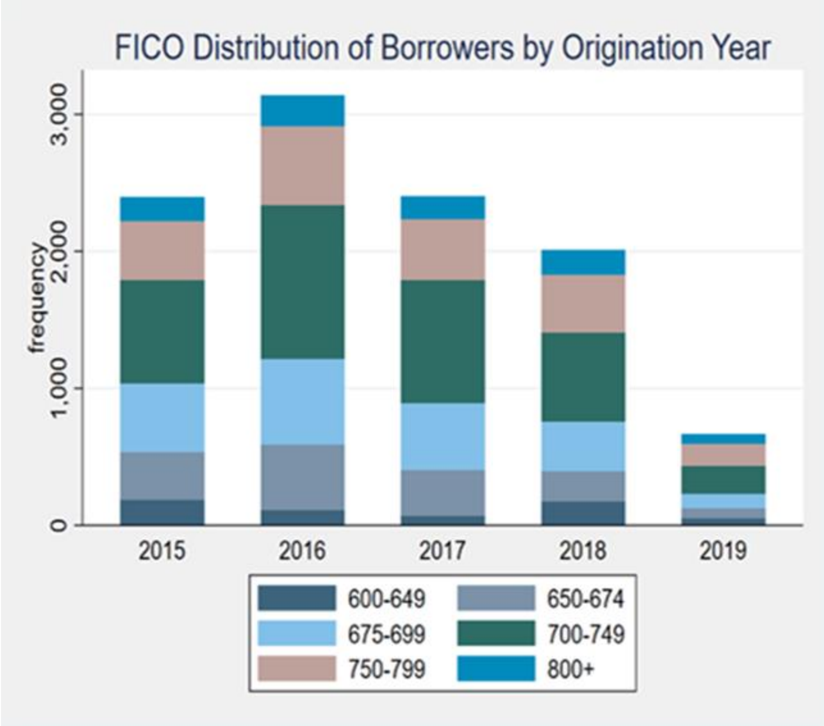
Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

FICO Distribution for SBL Loans: Funding Circle VS. LendingClub VS. Traditional Banks

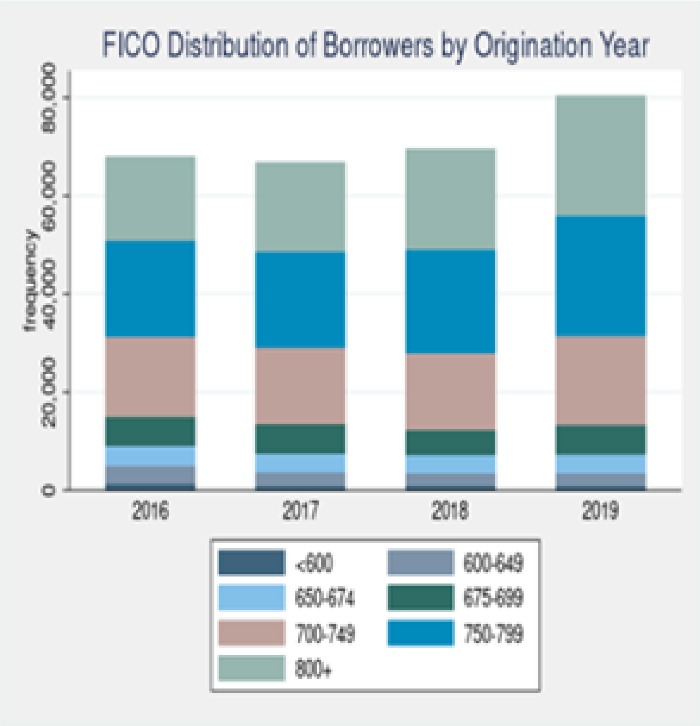
Fintech SBL portfolios include more of below-prime borrowers (with FICO<675 and FICO<650)



Funding Circle SBL



LendingClub SBL

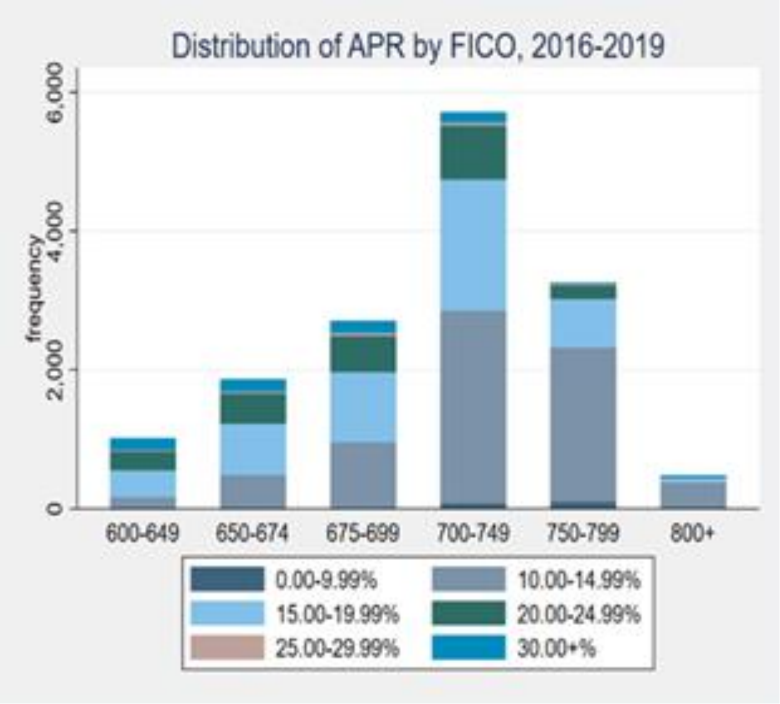


Bank (Business Card)

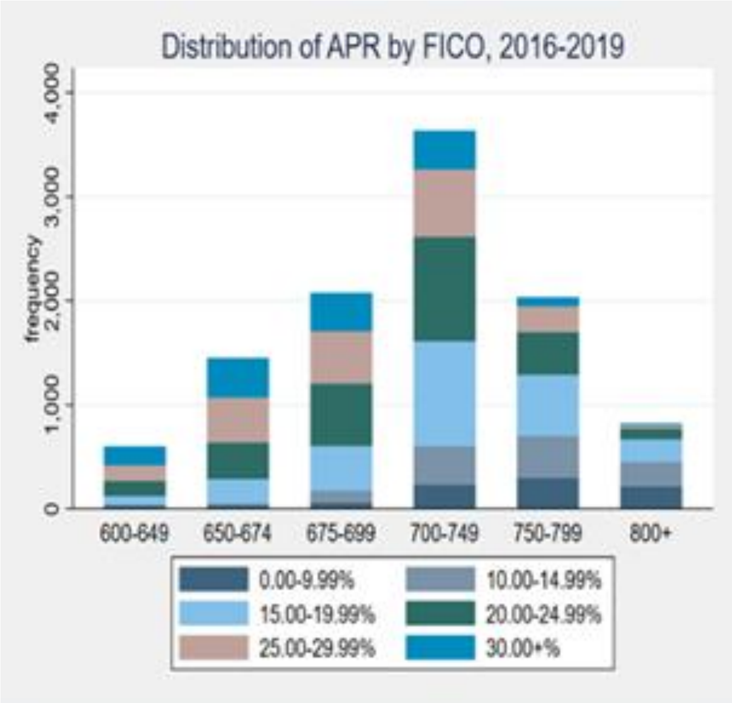
Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

APR Distribution by Business Owners' FICO Scores Funding Circle VS. LendingClub VS. Banks

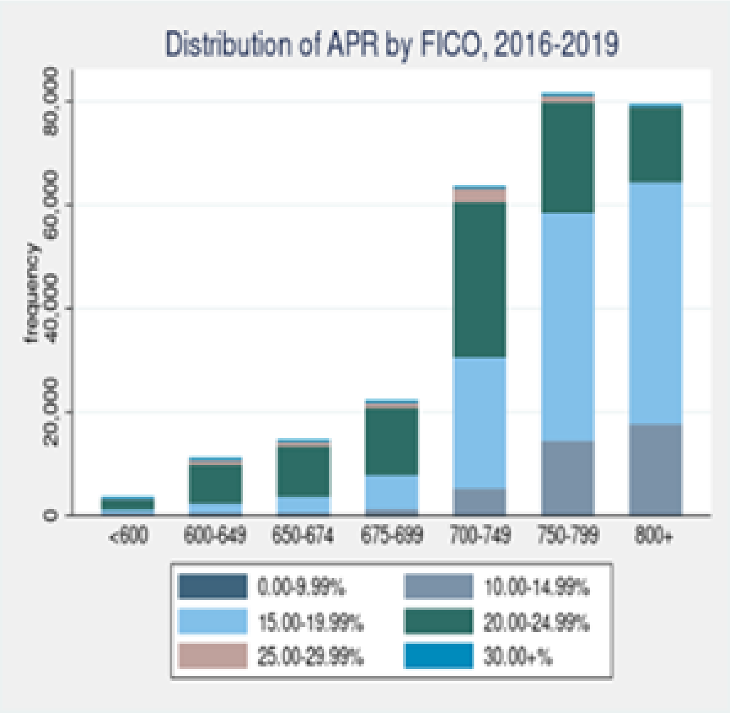
Some below-prime borrowers pay <15% APR with fintech lenders but not at banks.



Funding Circle SBL



LendingClub SBL



Bank (Business Card)

Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

Credit Access:

Dependent Variable = Funding Circle SBL Share

Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

Credit Access – Dependent Variable = Funding Circle SBL Share							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
County unemployment		0.00197***	0.00199***	0.00197***	0.00197***	0.00153***	0.00196***
County HPI (in ‘00s)		0.000124	0.000142	0.000122	0.00011	-0.00367***	0.00027
County business bankruptcy filings per capita		48.29***	48.01***	48.32***	48.27***	41.23***	52.95***
Median income (in ‘00,000s)		0.0118***	0.0118***	0.0118***	0.0118***	0.0118***	0.0116***
SBL concentration (in ‘000s)		0.00106	0.00108	0.00105	0.00107	0.00179**	0.00155
Population (%)	0.289***	0.293***	0.290***	0.292***	0.292***	0.288***	0.281***
Dummy, decrease in branches			0.00209**				
Percentage decrease in branches				0.00293			
Percent change in branches					0.00347		
No new firms ('000s)						0.00081***	
County share of population above 65							-0.00026**
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Observations	10,279	9,688	9,688	9,688	9688	9688	9179
R^2	0.074	0.085	0.085	0.085	0.085	0.089	0.083

Credit Performance:

Dependent Variable = 1 if default within 24 mo

Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)

	Credit Performance: Dependent Variable = 1 if default within 24-Month			
	(I)	(II)	(III)	(IV)
FICO Score	-0.0104***			
VantageScore		-0.00774***		
FC Risk Grades				
A			0.601***	0.622***
B			1.178***	1.227***
C			1.748***	1.736***
D			2.271***	2.279***
APR residuals				2.862
Observations	14,961	14,951	14,961	13,281
Pseudo R^2	0.0916	0.0889	0.118	0.118

Credit Performance: Default within 24 months After Origination

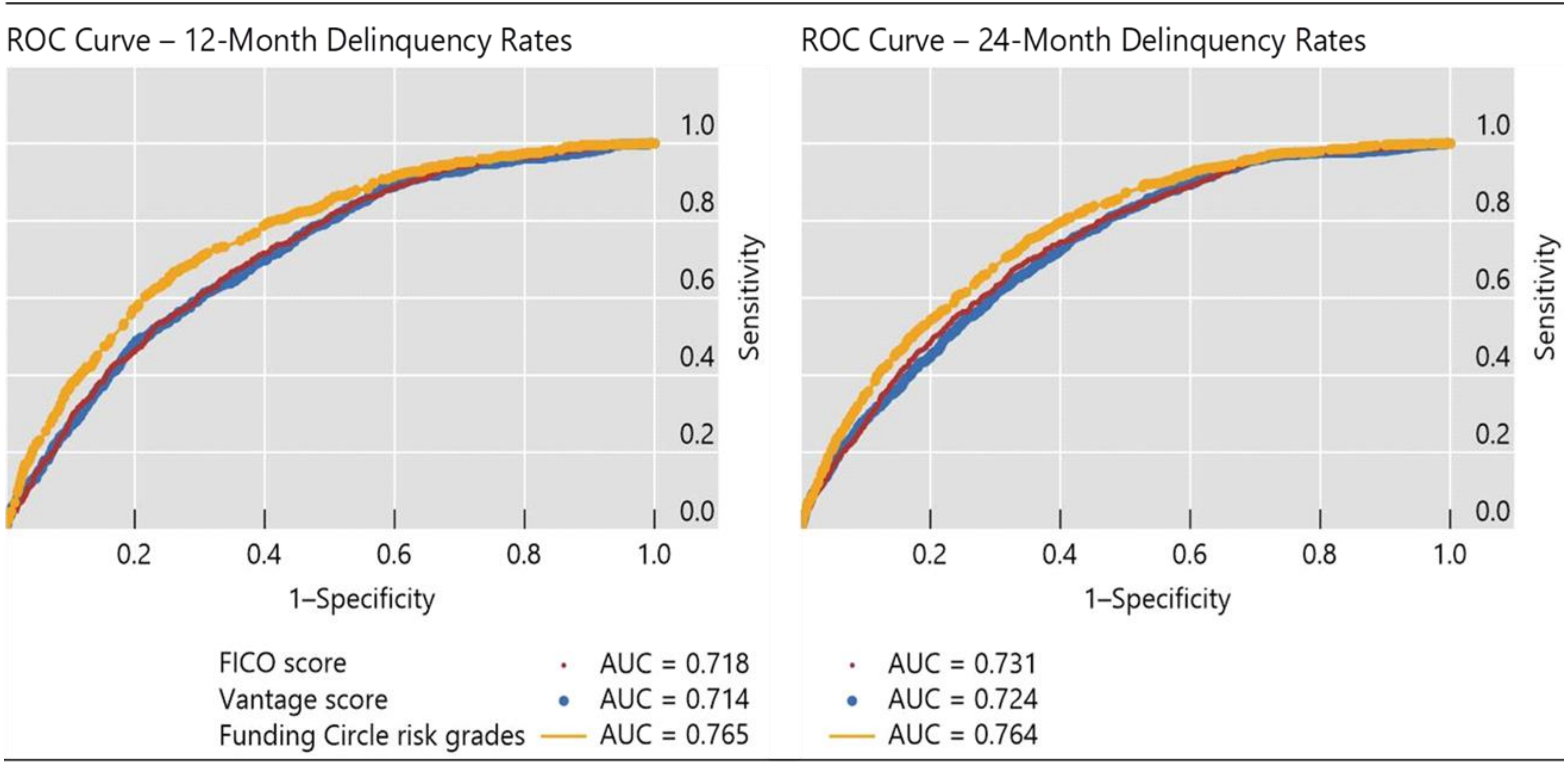
Source:

Cornelli, Frost, Gambacorta, and Jagtiani (2022)

Acquisition score	-0.00001*	-0.00001**	-0.00001**
FICO at origination	-0.00727***		-0.00526***
VantageScore	-0.00418***		-0.000370
FC rating A		0.609***	0.494***
FC rating B		1.245***	1.044***
FC rating C		1.852***	1.589***
FC rating D		2.497***	2.165***
Ln (profit)	-0.0460	-0.0216	-0.0300
Ln (gross revenue)	-0.217***	-0.214***	-0.201***
Ln (loan amount)	0.547***	0.572***	0.606***
Loan maturity in months	0.00402	0.00537*	0.00466
Unemployment	0.0493	0.0207	0.0235
County HPI	0.00177	0.000936	0.00121
County business bankruptcy per capita	-1,358*	-1,551*	-1,487*
Observations	11,580	11,585	11,580
Pseudo R^2	0.110	0.140	0.144

Enhanced Predictive Power Using Alternative Data for SBL Lending

Source: Cornelli, Frost, Gambacorta, and Jagtiani (2022)



Improvement in the Receiver Operating Characteristic (ROC) Curves increases further in areas with high unemployment rate.

	Increase in AUROC (FICO Vs FC risk grades)		
	Unemployment above median	Unemployment at or below median	Without unemployment breakdown
12-Month Delinquency Rates	7.46%	2.36%	4.69%
24-Month Delinquency Rates	4.74%	2.11%	3.31%

The table reports the increase in the area under the ROC curve (AUROC) for the logit regression, which include state- and origination year-level dummies.

Conclusions

- **Funding Circle (FC) lent to many small businesses that would not have had access to bank loans.**
- **FC lent more in areas with higher unemployment and business bankruptcies, controlling for other risk characteristics.**
- **The ratings that FC assigns to each loan were important in explaining the future delinquency over the 24-mo period after loan origination.**
- **The information used by FC is superior to the information contained in the traditional credit risk measures.**
- **The contribution of these alternative data increased further in areas with a high unemployment rate.**
- **We have demonstrated the potential of what the fintechs could do to move us closer towards a more inclusive financial system.**