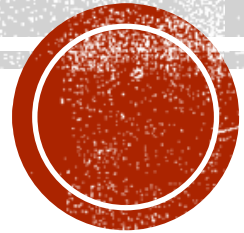
WHICH LENDERS ARE MORE LIKELY TO REACH OUT TO UNDERSERVED CONSUMERS: BANKS VS. FINTECHS VS. OTHER NONBANKS?

AMERICAN ECONOMIC ASSOCIATION CONFERENCE
JANUARY 7-9, 2022



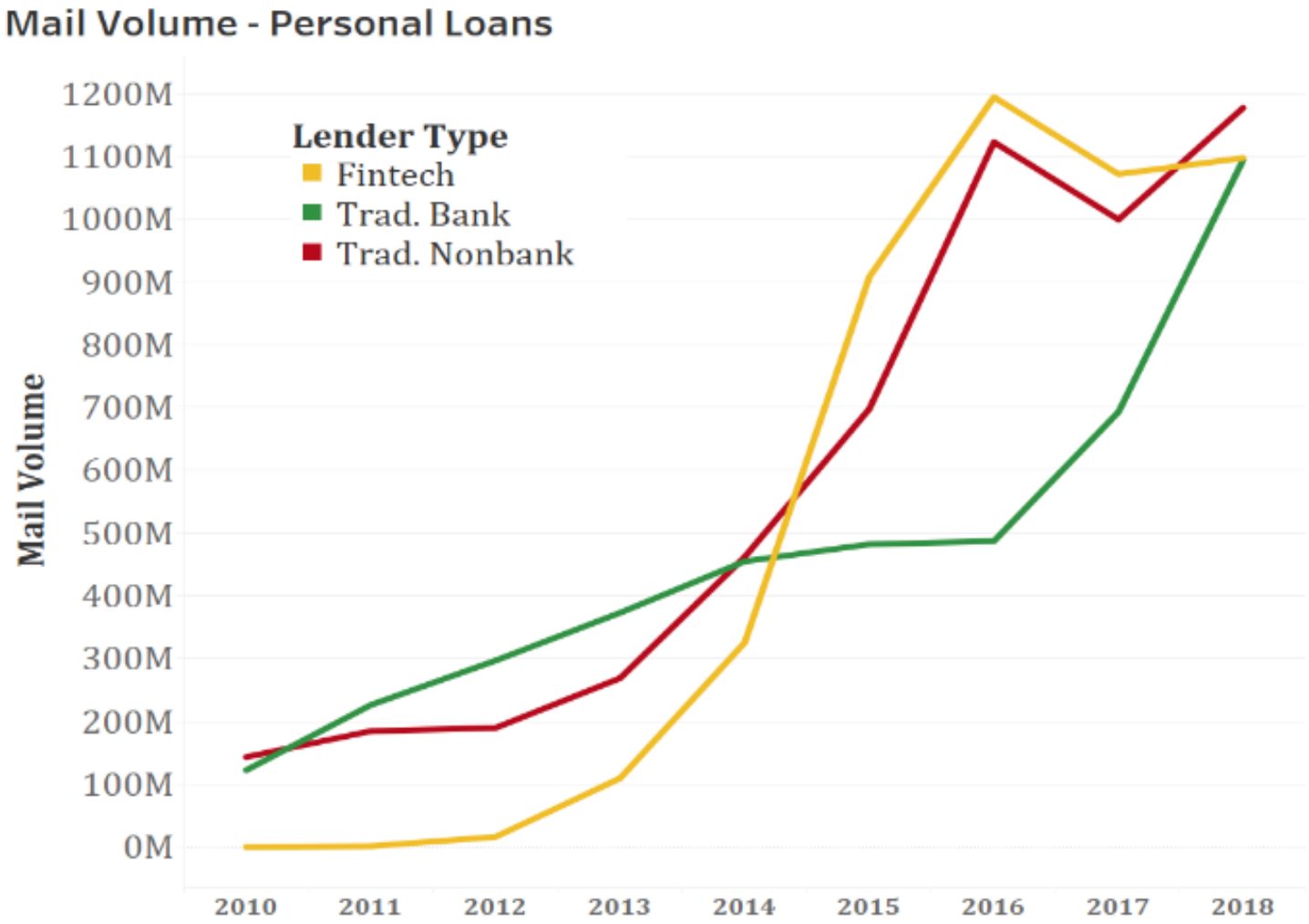
Erik Dolson and Julapa Jagtiani

Federal Reserve Bank of Philadelphia

GROWING PRESENCE OF FINTECH FIRMS IN CREDIT MARKETS

- TransUnion (2019) -- Fintechs held 38% of all personal loan balances in 2018 – the largest market share compared to banks, CUs, and other finance companies
- Buchak, Matvos, Piskorski, and Seru (2018) -- increasing market share of Fintech lenders in the mortgage market – from 3% in 2010 to 12% in 2015 -- and continued to increase.
- We document evidence of a dramatic increase in Fintech credit offers by mail/email.

TRENDS IN CREDIT PRODUCT MAIL OFFERS



Source: Mintel Comperemedia, Inc. Direct Mail Monitor Data and TransUnion LLC Match File (2018)

DESPITE THE GROWTH IN CREDIT OFFERS, MANY CONSUMERS FEEL CREDIT-CONSTRAINED…

- Federal Reserve's Survey of Consumer Finances, Bhutta et al. (2020) -- around 1/5 of US households feel credit-constrained
- On the one hand, Fintech firms may fill this credit-gap by targeting consumers that are considered not creditworthy by traditional standards (but still have a high likelihood of repayment).
- On the other hand, Fintech firms may "skim the cream" from top of credit market – target high-income borrowers who may be willing to pay more for greater transparency and convenience.

RESEARCH QUESTIONS

- Do Fintech lenders target consumers who are likely to be "underserved" by traditional lenders?
  - Low-income consumers)
  - Those in LMI areas?
  - Those in areas with less-banking services?
- How do the interest rates (APR) offered by Fintech firms compare to similar offers by traditional lenders?

THE DATA

Mintel Comepremedia, Inc. Direct Mail Monitor Data and TransUnion LLC Match File (Mintel-TransUnion)

- Stratified random sample of 8,000 households/mo that forward their offers on to Mintel
- Merged with TU data to obtain demographic & credit characteristics
- Sample includes data (credit offers) during the period 2015-2018
- **U.S. Census Bureau Data – American Community Survey**
- Zip code-level median income, percent minority

FRBNY Consumer Credit Panel/Equifax Data (FRBNY/Equifax CCP)

- Average Equifax Risk Score at zip code level

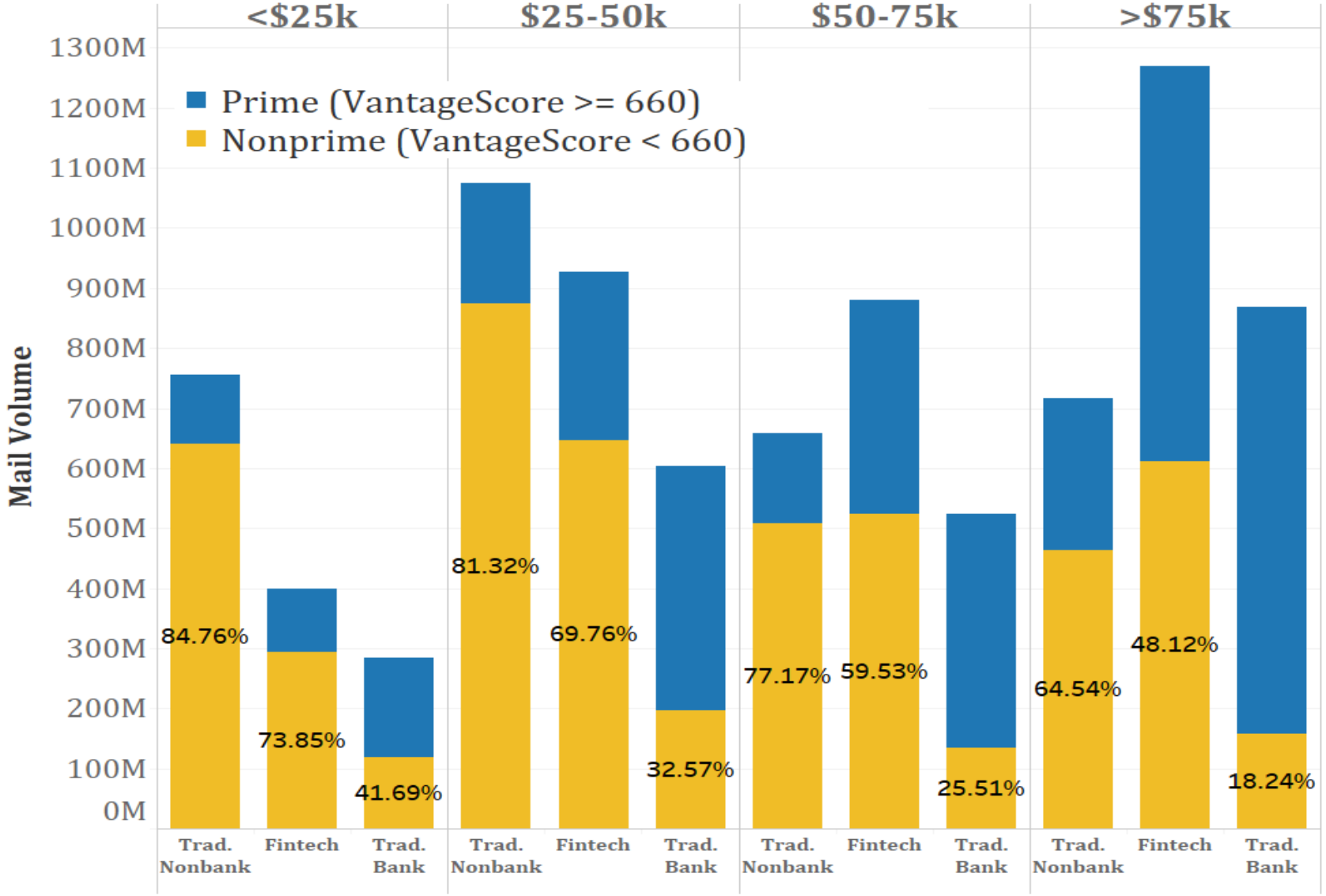
U.S. Department of Agriculture – Rural-Urban Continuum Codes

- Classified counties as either rural or urban

FDIC Summary of Deposits Database

- Bank branches per 100,000 people (at the zip code level)

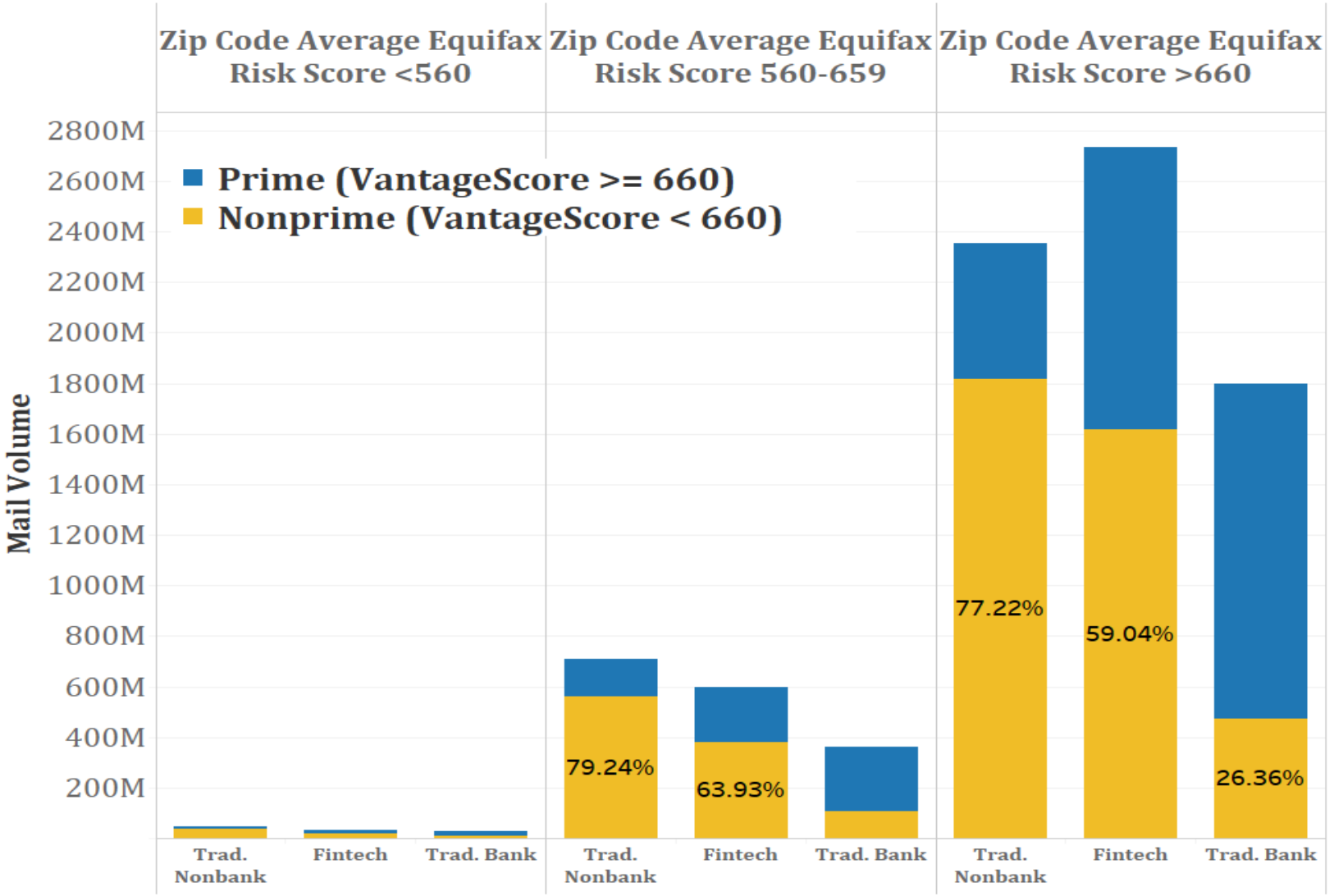
Personal Loan Mail Volume by Income and Credit Score (2015-2018)



- Fintech firms reach out to nonprime consumers in all income brackets (compared to banks)
- For both Fintechs and banks: Largest volume to consumers in the highest income brackets
- Shadow banks target nonprime borrowers in lower income brackets

Source: Mintel-TransUnion (2018)

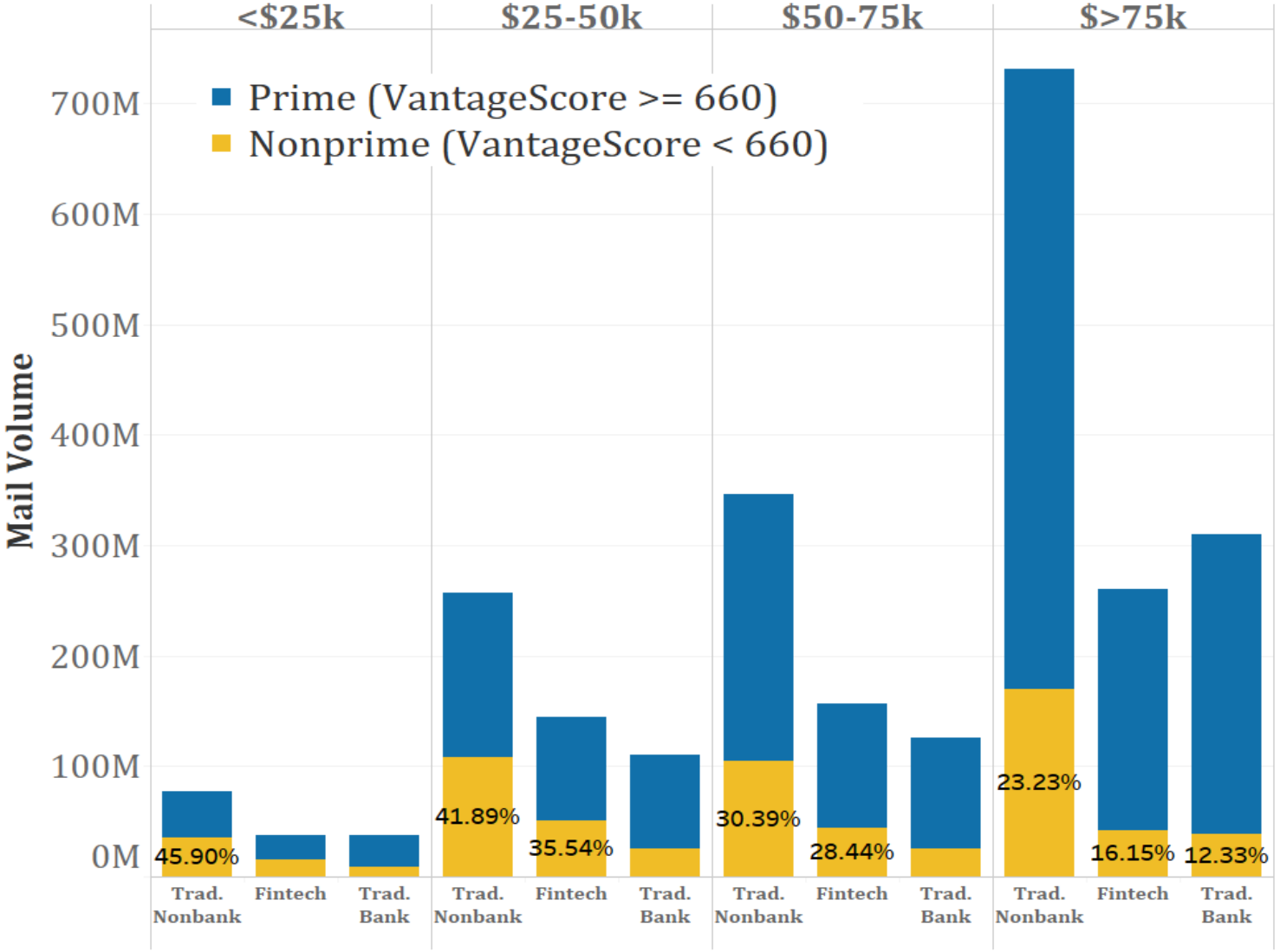
Personal Loan Mail Volume by VantageScore and Zip-Level Average Equifax Risk Score (2015-18)



- Fintech and shadow banks targeting nonprime consumers, including those living in prime zip codes
- Shadow banks have strongest nonprime focus in all areas.
- More than 70% of offers by traditional bank lenders go to prime consumers

Source: Mintel-TransUnion (2018)

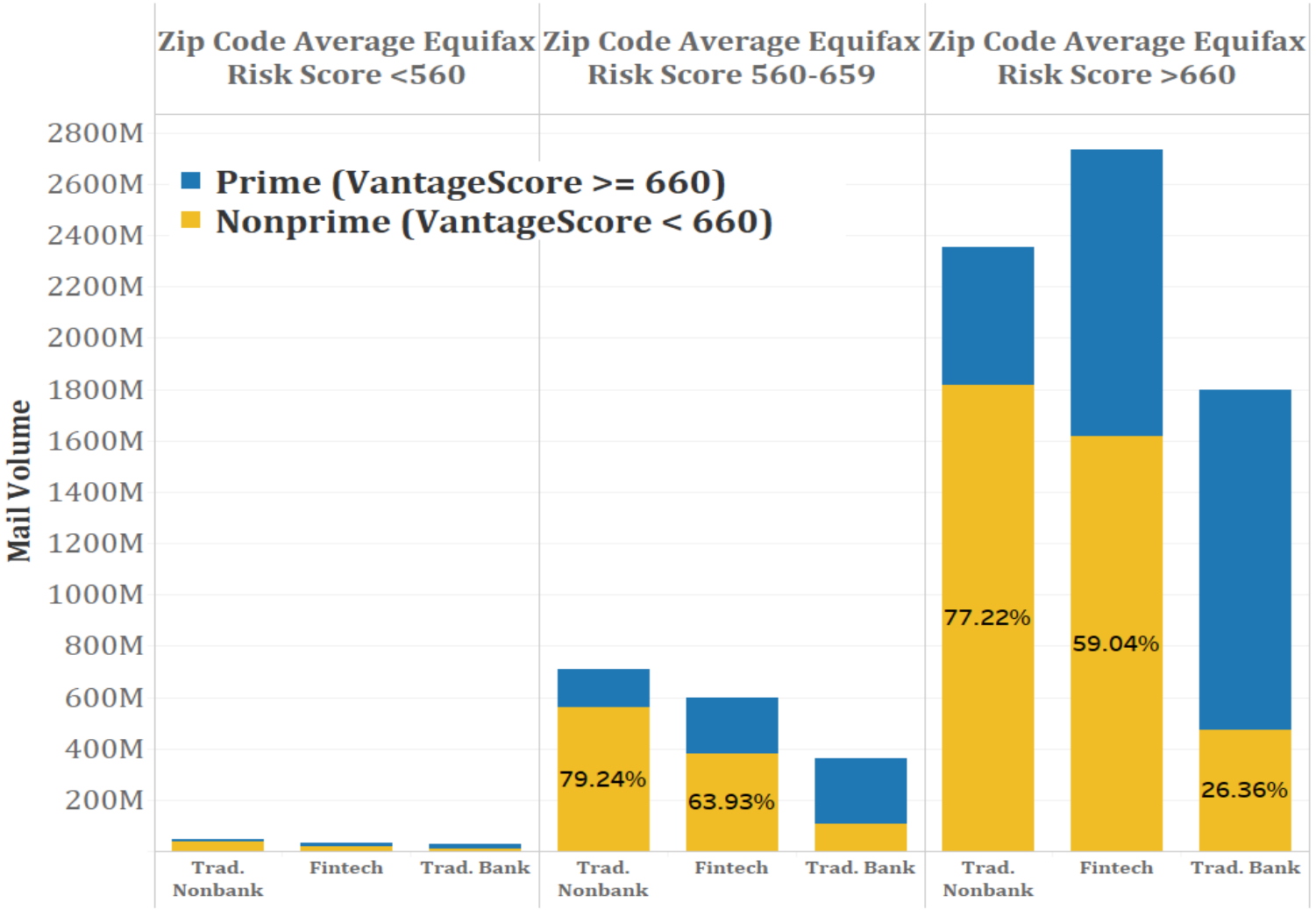
Mortgage Mail Volume by Income and Credit Score (2015-2018)



- Fintechs target fewer nonprime borrowers in upper income groups but still more focused on these borrowers than banks
- Shadow banks consistently reach out to nonprime consumers (although less aggressively than in personal loan sector)

Source: Mintel-TransUnion (2018)

Mortgage Mail Volume by VantageScore and Zip Code-Level Average Equifax Risk Score (2015-18)



- All lenders target consumers in prime zip codes for mortgages.
- Less focus on nonprime consumers for mortgages due to the traditional process to qualify for securitization.
- Jagtiani, Lambie-Hanson, and Lambie-Hanson (2021) document that this is likely due to limited ability to use alternative data in FHA mortgage origination in our sample period.

Source: Mintel-TransUnion (2018) and FRBNY Consumer Credit Panel/Equifax Data (2018)

OUR EMPIRICAL APPROACH

- Logistic Regressions -- Dependent variable = Binary variable indicating whether or not a credit offer comes from a Fintech firm
- Two sets of regressions:
  - 1) Traditional ((banks) as the base group;
  - 2) Other non-banks as the base group
- Independent variables of interest:
  - Consumer level – Income brackets, Creditworthiness (VantageScore brackets, bankruptcy indicator, number of accounts 60+dpd, number of credit inquiries), Number of credit card offers received, Credit denials
  - Zip code level –Rural area indicator, Ave Equifax Risk Score of zip code, Credit card offers per 100,000, % minority, Zip Code Median Income

METHODOLOGY -- NOTES

- A few study design / econometric notes
  - Some consumers receive offers from both Fintech and Traditional lenders – we more or less ignore this in our specification. We treat each offer as a separate independent event
  - We cluster standard errors at the consumer level to account for clustering around individual consumer

Personal Loans and Credit Cards

PERSONAL LOANS: FINTECHS VS. BANKS

Personal Loans: Prob of Fintech Offers vs. Banks	(1)	(2)	(3)	(4)
Income $25K-$50K	0.0126	-0.0009	0.0255***	-0.0013
Income $50K-$75K	0.0402***	0.0167*	0.0644***	0.0173*
Income >$75K	0.0549***	0.0308***	0.0847***	0.0306***
Near prime_d	-0.0835***	-0.0759***	-0.0938***	-0.0747***
Prime_d	-0.268***	-0.238***	-0.284***	-0.236***
Super prime_d	-0.460***	-0.398***	-0.472***	-0.393***
# accounts >=60 DPD	-0.0397***	-0.0284***	-0.0441***	-0.0294***
Bankruptcy_d	0.261***	0.272***	0.250***	0.271***
Rural area_d	0.0243	-0.00892	0.00732	-0.00998
% minority in zip code	0.0007***	0.0007***	0.0007***	0.0007***
Med. income zip ($1,000)	0.0002*	0.0001	0.0003***	0.0002
Mean Equifax Risk Score zip	0.0001***	0.0001**	0.0001**	0.0001**
Banks per 100k	0.0000	0.0000	-0.0000	0.0000
% card offers (consumer)	0.0038***	0.0029**	0.0048***	0.003***
Card offers per 100K (zip)	-0.0001*	-0.0002**	-0.0001*	-0.0001**
Ln(Non-Revolving Bal)		0.0119***		0.0109***
Ln(Revolving Bal)		0.0131***		0.0133***
Utilization revolving a/c		0.0015***		0.0015***
# bankcard accounts	0.0126***			
# non-bankcard accounts	0.0025***			
Credit_denials_d			0.0514***	0.0382***
Observations	51,814	51,349	51,814	51,349
Month-Year Dummies	YES	YES	YES	YES

Personal Loan & Credit Card Offers -- Fintech Offers vs. Bank Offers

Personal Loan & Credit Card Offers: Prob of Fintech Offers vs. Bank Offers	(1)	(2)	(3)	(4)
Income $25K-$50K	0.0466***	0.0240***	0.00976**	0.00979**
Income $50K-$75K	0.0811***	0.0381***	0.0151***	0.0153***
Income >$75K	0.0921***	0.0414***	0.0201***	0.0201***
Near prime_d	-0.0224***	-0.0111***	-0.0245***	-0.0235***
Prime_d	-0.121***	-0.0985***	-0.112***	-0.110***
Super prime_d	-0.199***	-0.183***	-0.177***	-0.175***
Num. accounts >=60 DPD	-0.0660***	-0.0456***	-0.0397***	-0.0401***
Bankruptcy_d	0.0947***	0.122***	0.158***	0.156***
Rural area	-0.0219*	0.0613***	0.0499***	0.0480***
Percent minority in zip code	0.0003***	-0.0001*	-0.0001	-0.0001
Med. income zip ($1,000)	0.0000	-0.0002***	-0.0004***	-0.0003***
Mean Equifax Risk Score zip	0.0001**	0.0000	0.0001**	0.0000*
Card offers per 100K		-0.0009***	-0.0010***	-0.0010***
Ln(Revolving Bal)			0.0261***	0.0263***
Ln(Non-Revolving Bal)			0.0101***	0.0096***
Utilization revolving a/c			0.0006***	0.0006***
# bankcard accounts		0.0208***		
# non-bankcard accounts		0.00237***		
Cred_denials_d				0.0202***
Observations	193,984	193,984	186,486	186,486
Month-Year Dummies	YES	YES	YES	YES

PERSONAL LOANS – FINTECH VS. BANKS

- Fintech firms target subprime consumers
- Higher-income consumers more likely to receive offers from Fintech firms
- Consumers who have recently filed for bankruptcy are much more likely to receive Fintech offer – around 25 percentage points
- Consumers whose credit requests have been recently denied are more likely to get a Fintech offer
- Mixed conclusions on whether Fintechs are targeting underserved consumers -- Fintechs might target consumers who recently had good credit but overextended themselves and saw deterioration in their scores

PERSONAL LOANS: FINTECH VS. SHADOW BANKS

Variable		
Income $>75k	0.160***	0.0501***
Prime_d	0.214***	0.188***
Bankruptcy_d	0.0730***	0.116***
Banks per 100k	-0.0001	-0.0001
# card offers	0.0154***	0.0106***
Ln(Non-Revolving Bal)		0.0061***
Ln(Revolving Bal)		0.0501***
Utilization on revolving accts		-0.0007***
Credit_denials_d	-0.0511***	-0.0480***

*** p<0.01, ** p<0.05, * p<0.1

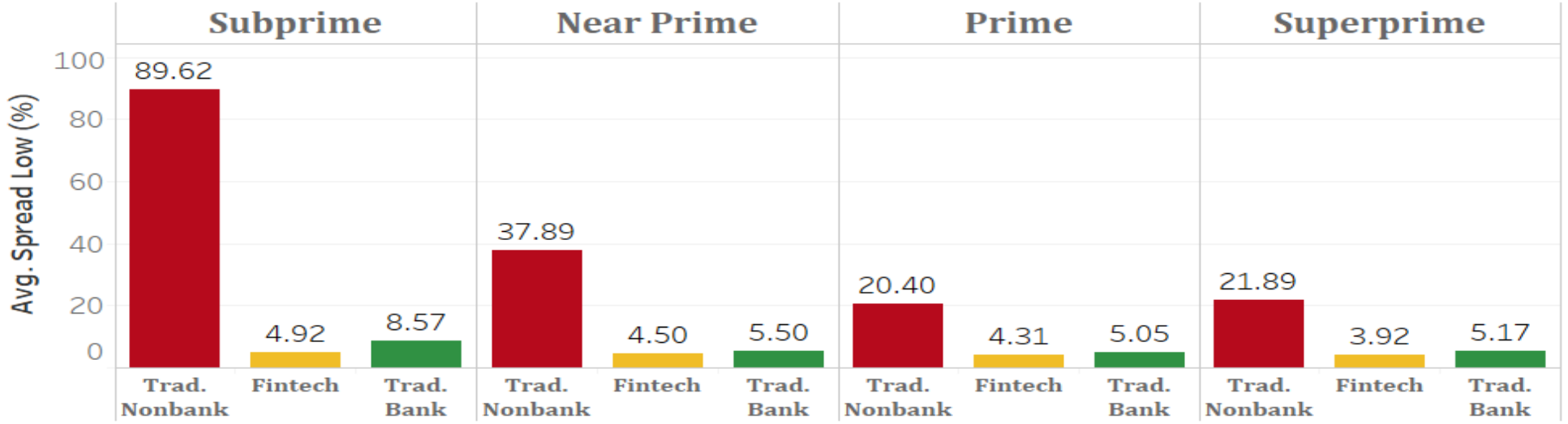
- Shadow banks target lower-income, more subprime consumers relative to Fintechs.
- Consumers who have bankruptcy on their credit file are more likely to receive Fintech offers.
- Number of card offers, log balances, and credit denials variables all indicate that other nonbanks are more proactive than Fintechs in reaching out to the "underserved" consumers, (but they also charge much higher APR interest rate).

COMPARISON OF INTEREST RATES OFFERED

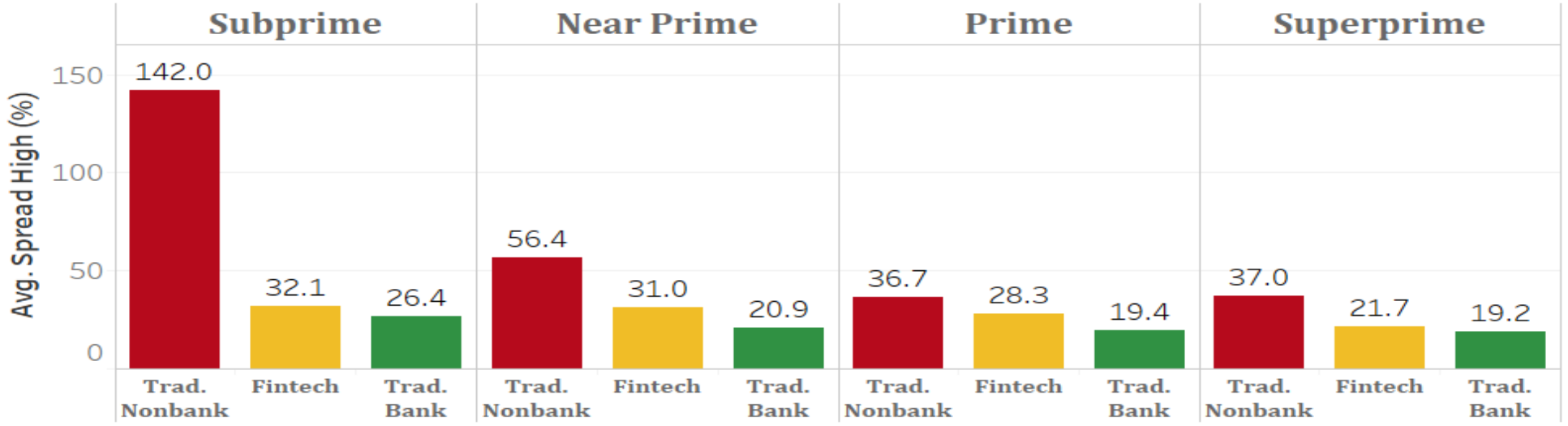
- Rates are offered as a range (e.g. 15-24%)
- *Lower Bound Rates:* When looking at the lower bound of the offered rate, Fintech firms tend to offer lower rates than traditional banks – and the difference can be quite sizeable (400 bp) – and Fintechs charge much lower rates than Shadow banks
- *Upper Bound Rates:* However, Fintechs offer higher upper bound rates than banks -- and the difference here is also sizeable (sometimes as much as 900 bp). The range of the rates is much wider for Fintech firms
- Overall, rates offered by Shadow Banks are much higher than either Fintech or Traditional Banks

Spread on Offered Rate – Personal Loans

Lowest Rate Spread



Highest Rate Spread



Source: Mintel-TransUnion (2018)

SUMMARY – PERSONAL LOANS

- Mixed evidence of whether firms are reaching out to underserved consumers
- Fintechs target subprime consumers and those who have recently been denied credit or recently filed for a personal bankruptcy
- However, consumers with higher balances and more credit cards are also more likely to get Fintech offers.
- Fintechs expand credit access to those who have trouble accessing credit and provide lower rates to subprime consumers
- Most creditworthy borrowers (in any VantageScore 3.0 band) may obtain lower interest rates from Fintechs than from banks.

Mortgage Loans

Mortgage Offers: Probability of Fintech Offers vs. Bank Offers

Mortgage Offers: Prob of Fintech vs. Banks	(1)	(2)	(3)	(4)
Income $25K-$50K	0.0558***	0.0557***	0.0552***	0.0542***
Income $50K-$75K	0.0356*	0.0355*	0.0347*	0.0355*
Income >$75K	-0.00350	-0.00367	-0.00472	-0.00353
Near prime_d	-0.0284	-0.0283	-0.0288	-0.0310
Prime_d	-0.0756***	-0.0756***	-0.0763***	-0.0760***
Super prime_d	-0.151***	-0.151***	-0.152***	-0.150***
Num. accounts >=60 DPD	0.0076	0.0075	0.0075	0.0059
Bankruptcy_d	-0.0035	-0.0035	-0.0021	-0.0033
Num. credit inqs.	0.0101**	0.0101**	0.001**	-0.0005
FHA Purchase_d	0.385***	0.385***	0.385***	0.383***
VA Purchase_d	-0.209***	-0.210***	-0.210***	-0.212***
Refinance_d	0.476***	0.476***	0.476***	0.476***
Percent minority in zip code	-0.0007***	-0.0007***	-0.0007***	-0.0006***
Med. income zip ($1,000)	-0.0002	-0.0002	-0.0002	-0.0003
Mean Equifax Risk Score zip	-0.0001	-0.0001	-0.0002	-0.0002
Banks per 100k	-0.0005**	-0.0005**	-0.0005**	-0.0005**
# total accounts		0.0000		
Ln(Total Bal)			0.0009	0.0002
Credit_denials_d				0.0560***
Observations	11,007	11,007	11,007	11,007
Year Dummies	YES	YES	YES	YES

Mortgage Offers (Exclude Refinance): Fintechs vs. Banks

Mortgage Offers (Exclude Refinance) Prob of Fintech Offers vs. Banks	(1)	(2)	(3)	(4)
Income $25K-$50K	0.0152	0.0125	0.0161	0.0135
Income $50K-$75K	-0.0170	-0.0232	-0.0158	-0.0165
Income >$75K	-0.0307	-0.0415	-0.0291	-0.0305
Near prime_d	0.0145	0.0183	0.0148	0.0108
Prime_d	-0.0322	-0.0312	-0.0316	-0.0302
Super prime_d	-0.0836***	-0.0815***	-0.0825***	-0.0779***
Num. accounts >=60 DPD	-0.00622	-0.00737	-0.00612	-0.00916
Bankruptcy_d	0.00131	0.00283	-6.42e-05	0.00375
Num. credit inqs.	0.0187***	0.0165***	0.0189***	0.00527
FHA Purchase_d	0.569***	0.573***	0.568***	0.564***
VA Purchase_d	-0.130***	-0.132***	-0.130***	-0.133***
Rural area	0.0331	0.0284	0.0325	0.0202
Percent minority in zip code	-0.0000	0.0000	-0.0000	0.0000
Med. income zip ($1,000)	0.000200	0.000219	0.000201	0.000206
Mean Equifax Risk Score zip	-0.0003*	-0.0002*	-0.0003*	-0.0003*
Banks per 100K	-0.0005	-0.0005	-0.0005	-0.0005
# total accounts		0.00134***		
Ln(Total Bal)			-0.000908	-0.00166
Credit_denials_d				0.0841***
Observations	4,292	4,292	4,292	4,292
Year Dummies	YES	YES	YES	YES

Summary: Mortgage Offers – Fintechs vs. Banks

- In the mortgage sector, Fintechs target lower-income, subprime consumers
- Fintech firms are more likely to send offers for FHA mortgages than banks do
- Fintechs seem to target areas that are less-served by banks (banks per 100k variable) – decrease of 100 banks per 100k associated with 5 percentage-point increase in probability of receiving Fintech offers
- Fintech firms are more likely to send offers to consumers whose credit requests have recently been denied (i.e., the credit-constrained consumers).

MORTGAGE OFFERS: FINTECH VS. SHADOW BANKS

Variable		
Income $25-50K	0.0282	0.0278
Income >$75K	-0.0416***	-0.0419***
Prime_d	0.0352***	0.0346***
Refinance_D	0.200***	0.200***
Banks per 100k	0.0007***	0.0007***
Credit_Denials_D		-0.0291***
Ln(Total Balances)	-0.0196***	-0.0191***

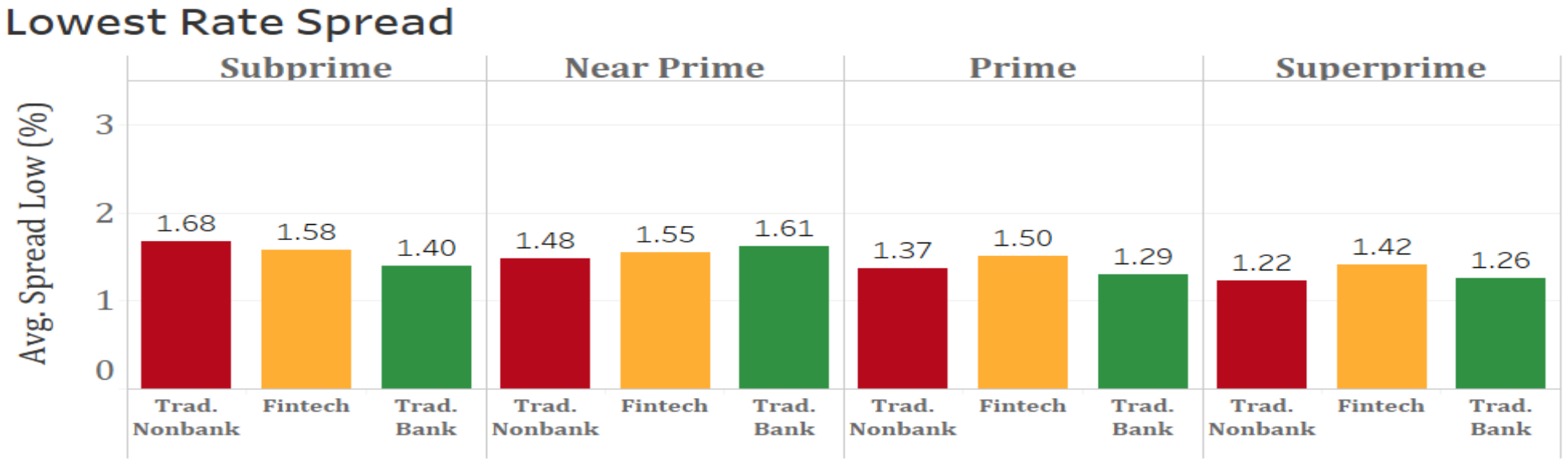
*** p<0.01, ** p<0.05, * p<0.1

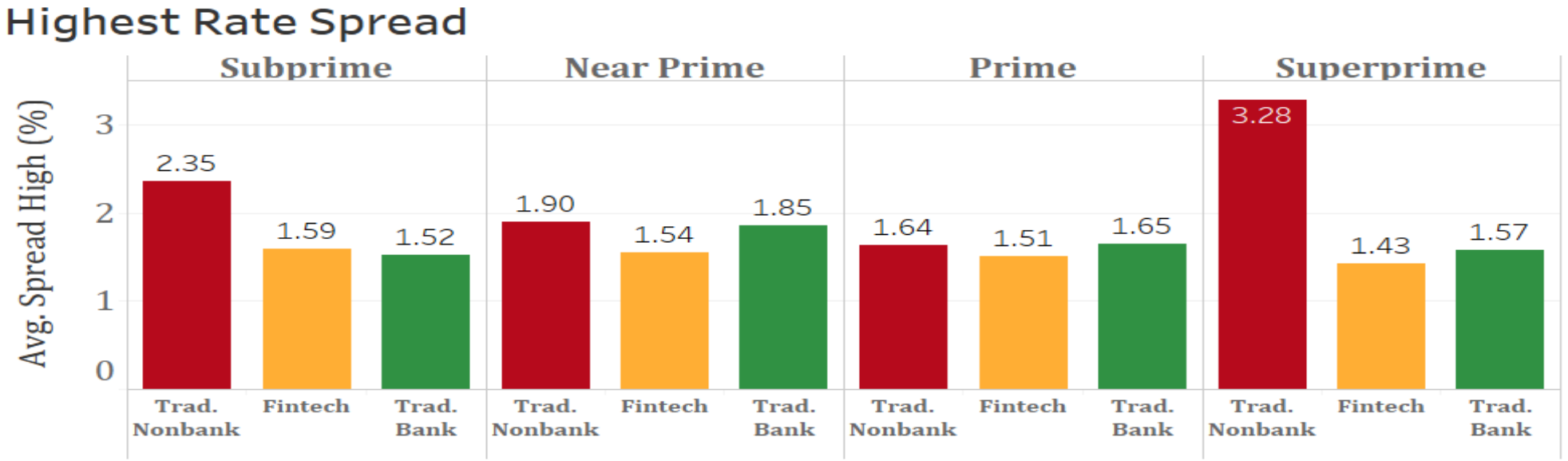
- Fintech firms target lower-income consumers even relative to other nonbanks
- Fintech firms do not target subprime consumers as heavily as other nonbanks
- Mortgage offers are more likely to be from other nonbanks than Fintechs for those whose credit requests were denied.
- Offers to consumers with high loan balances are less likely to be from Fintechs than other nonbanks.

COMPARISON OF RATES OFFERED: MORTGAGE

- Mortgage rates are also offered as ranges
- The overall pattern is reversed relative to personal loan offers – Fintech firms offer higher lower-bound rate and lower upper-bound rate
- Difference in APR offers between Fintech and banks rates are small (10-20 basis points)
- Difference in APR offers between Fintech and other nonbanks are also much smaller for mortgage offers than for personal loan offers.

Spread on Offered Rate – Mortgage Loans





Source: Mintel-TransUnion (2018)

SUMMARY: MORTGAGE LOAN OFFERS

- Fintech firms are more likely to target "underserved" populations in the mortgage market compared to banks – lower-income consumers, those in areas with fewer banks branches, consumers who have experienced a credit denial, etc.
- Jagtiani, Lambie-Hanson, and Lambie-Hanson (2021) suggests that the use of alternative data in the mortgage market is limited. In addition, fintech mortgage loans (actual origination) are highly correlated with refinancing or for FHA purchases.
- Buchak, Matvos, Piskorski, and Seru (2018) perform a similar analysis using actual mortgage originations – find that growing nonbank mortgage market share has been driven partly by the regulatory burden on banks and partly by the technology.

CONCLUSIONS AND POLICY IMPLICATIONS

- We find evidence of fintech's roles in making mortgage credit and personal unsecured credit more accessible to "underserved" and credit-constrained consumers.
- Fintech lenders compete with banks in offering personal and mortgage loans without being subject to the same regulatory constraints. Mester (2020) points out that existing regulatory and supervisory structures need to adapt to keep pace with the new financial landscape — such as activity-based regulations (rather than entity-based)
- "If it walks like a duck and quacks like a duck, it should be treated like a duck."

CONCLUSIONS AND POLICY IMPLICATIONS

- Our results suggest that with access to technology and better data through fintech partnerships, banks would be in a better position to compete and to identify creditworthy borrowers from the subprime pools – potentially result in more credit offers from banks to subprime consumers than we currently observe.
- Overall, bank/fintech partnerships could potentially expedite digitization in banking – allowing banks to offer new products, expand customer base, digital customer onboarding, increase portfolio diversification through a greater geographic footprint, improve operational efficiency, and enhance customer satisfaction.

NOTE: POTENTIAL LIMITATIONS

- Dataset only shows whom Fintech firms send mail (credit offers) to. We don't know which consumers accepted the offers and the loans were actually originated at the offer rates.
- Our analysis of credit offers focus on the supply side of credit --find evidence of Fintech lenders' willingness to serve those credit-constrained consumers -- willingness to fill the credit gaps.
- It is possible that some Fintech firms may be targeting certain zip codes (or other geographic areas) rather than particular consumers?
- The dataset contains a range of potential interest rates offered – we do not know at what rates (APR) the loans were actually originated.
- Jagtiani and Lemieux (2019) compare actual APR of personal loans originated by LendingClub vs. APR on loans from bank cards.

LITERATURE CITED

- Bhutta, N., J. Bricker, A.C. Chang, J. Dettling, S. Goodman, J.W. Hsu, K.B. Moore, S. Reber, A. H. Volz, and R.A. Windle. (2020). "Changes in U.S. family finances from 2016 to 2019: Evidence from the survey of consumer finances." Federal Reserve Bulletin, 106(2), 1–42.
- Buchak, G., Matvos, G., Piskorski, T., and Seru, A. (2018). "Fintech, regulatory arbitrage, and the rise of shadow banks." *Journal of Financial Economics*, 130, pp. 453-483.
- Jagtiani, J. and C. Lemieux (2019) "The Roles of Alternative Data and Machine Learning in Fintech Lending: Evidence from LendingClub Consumer Platform," *Financial Management*, Winter 2019, 48: 4, 1009–1029.
- Jagtiani, J., L. Lambie-Hanson, and T. Lambie-Hanson (2021) "Fintech Lending and Mortgage Credit Access," *The Journal of FinTech*, 2021:1.
- Jagtiani, J. and W. Li "Credit Access and Credit Performance after Consumer Bankruptcy Filing: New Evidence," *American Bankruptcy Law Journal* 89 Number 2 (2015), 327-362.
- Perkins, D.W. (2018). "Marketplace Lending: Fintech in Consumer and Small-Business Lending." Congressional Research Service Report.
- TransUnion (2019). "Fintech continues to drive personal loan growth." available at: https://newsroom.transunion.com/fintechs-continue-to-drive-personal-loans-to-record-levels/