Who Provides Credit in Times of Crisis? Evidence from the Auto Loan Market

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Disclaimer: The views expressed in this paper are solely those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

This Paper

Purpose:

- Analysis of the evolution of the auto loan market the last two decades, emphasizing the Great Recession and COVID-19
- Examine bank vs. nonbank contribution in the US auto loan market during times of economic stress.

Findings:

- Banks provided strong support during the Great Recession. This confirms findings documented by other authors.
- The Auto loan market experienced a trend of rising nonbank share post-Great Recession.
- that banks provided weak support during COVID-19, in contrast with the Great Recession.
- Non-Bank lenders provided stronger support, continuing the trend of rising nonbank share post-Great Recession.
- We observe stronger result for subprime borrowers, where the contribution of non-bank lenders is critical, and in counties with stronger bank presence.

Motivation

- Auto loan market in the US (2022Q4):
  - $1.55T outstanding balance
  - 3rd largest segment in consumer finance (after mortgage and student debt)
  - Important for household mobility, labor market opportunities
- Rise in Fintech/nonbank lending
  - Persistent in mortgage, auto, credit card, small business, etc.
- Bank vs. nonbank fragility in times of crisis
  - Open debate on liquidity support among economists and policymakers

Literature Contribution

- Nonbanks in financial markets: Buchak et al (2018), Gopal & Schnabl (2022), Irani et al (2021), Chernenko (2022)

- COVID-19 and consumer finance: Baker et al (2020), Horvath et al (2021), Cox et al (2020), Han et al (2020), Baker et al (2022), Dong et al (2021), Cherry et al (2021), Ben-David et al (2021)

- Auto loan market: Attanasio et al (2008), Mian & Sufi (2012), Benmelech et al (2017), Brevoort et al (2017), Argyle et al (2020)

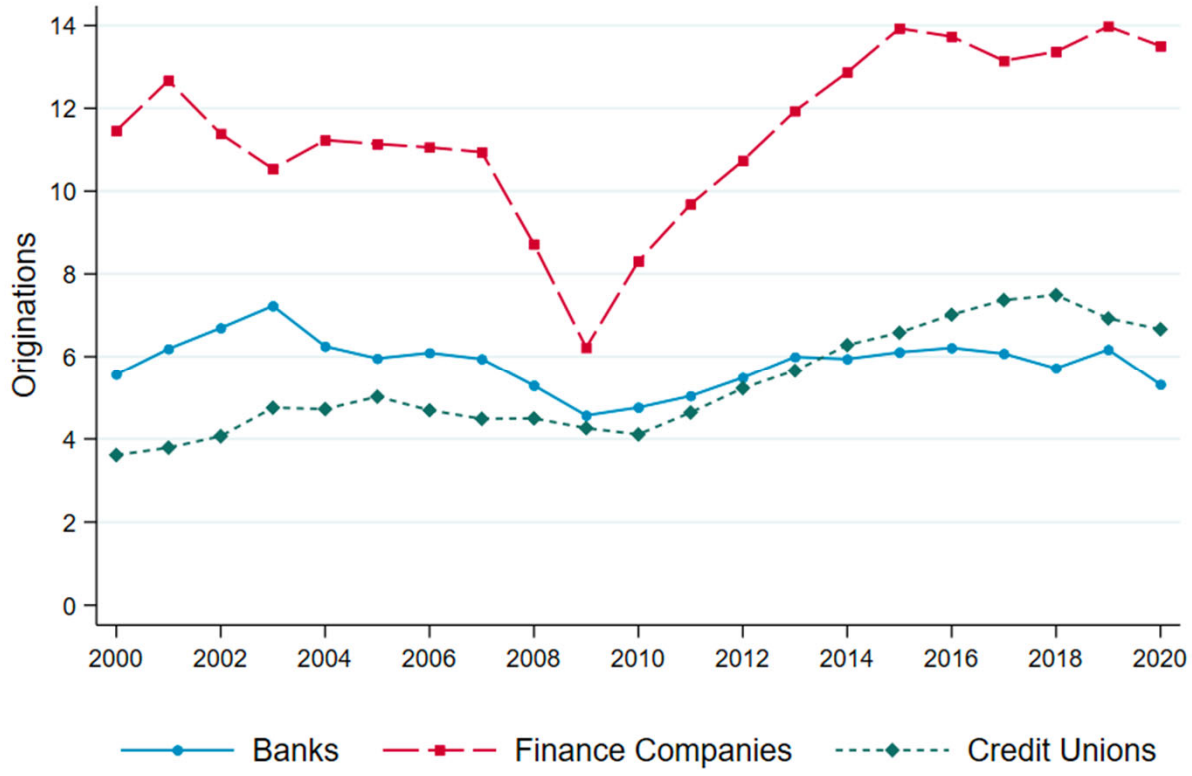
Data

- FRBNY Consumer Credit Panel/Equifax (CCP).
- Panel data of anonymized individual credit bureau reports from 1999 to the present.
- Nationally representative 5 percent random sample with credit history.
- Auto tradeline panel data of individual auto loans originated by the individuals in the CCP.

Variables and Definitions

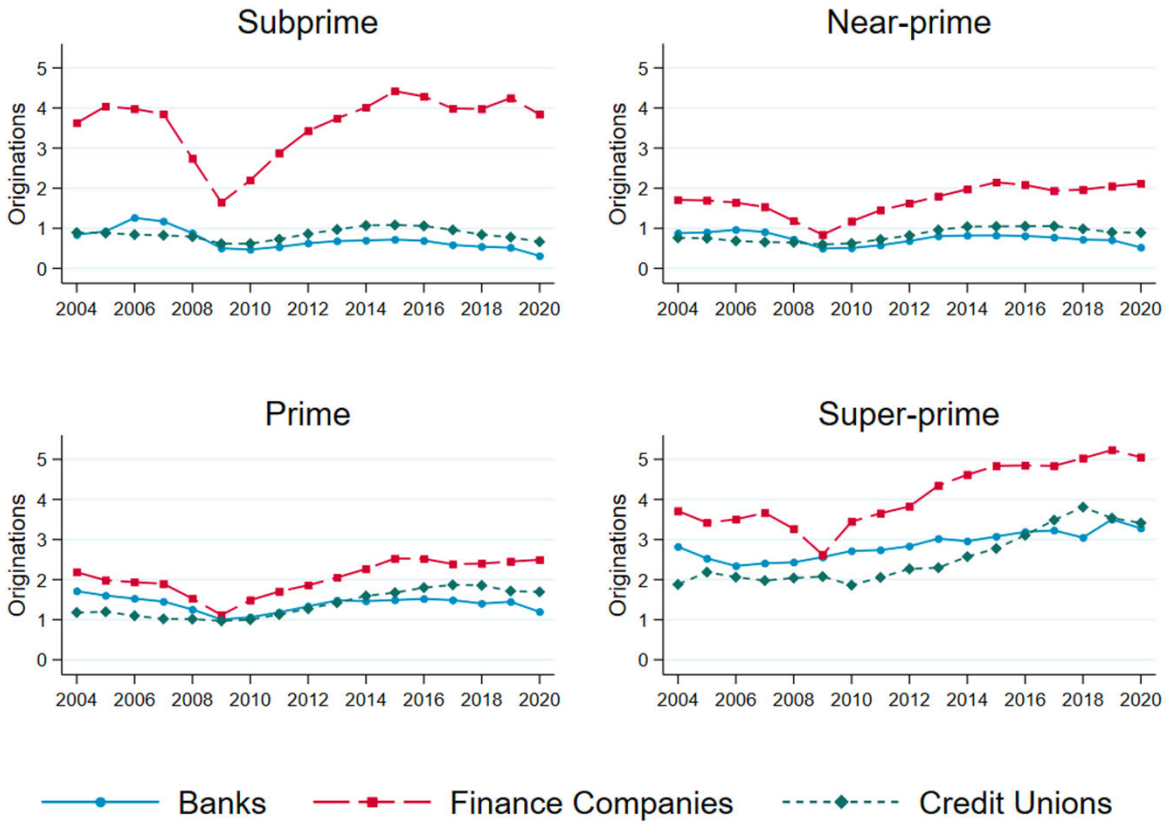
	Definition
CCP Variables	
Risk Score	Borrower Equifax Risk Score at observation time
Origination Date	The month that the reported loan is originated
Segmentation	
Risk Segment 1	Borrowers with Risk Score < 620 (subprime)
Risk Segment 2	Borrowers with Risk Score between 620 and 660 (near-prime)
Risk Segment 3	Borrowers with Risk Score between 660 and 720 (prime)
Risk Segment 4	Borrowers with Risk Score > 720 (super-prime)
Banks	Banks, Savings & Loans
Nonbanks	Dealers (used and new), auto and sales financing
Credit Union	Credit Unions (Equifax classification)

Historical Auto Loan Originations by Financing Source



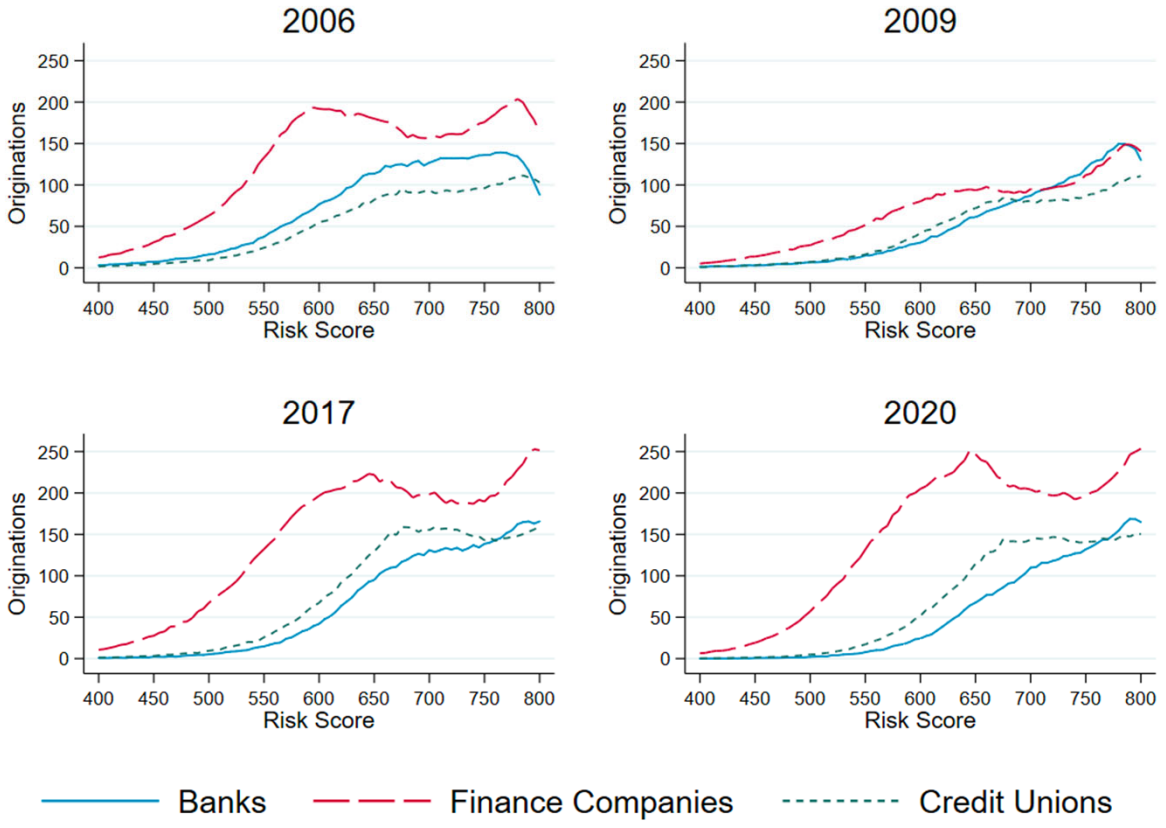
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Historical Auto Loan Originations by Risk Segment



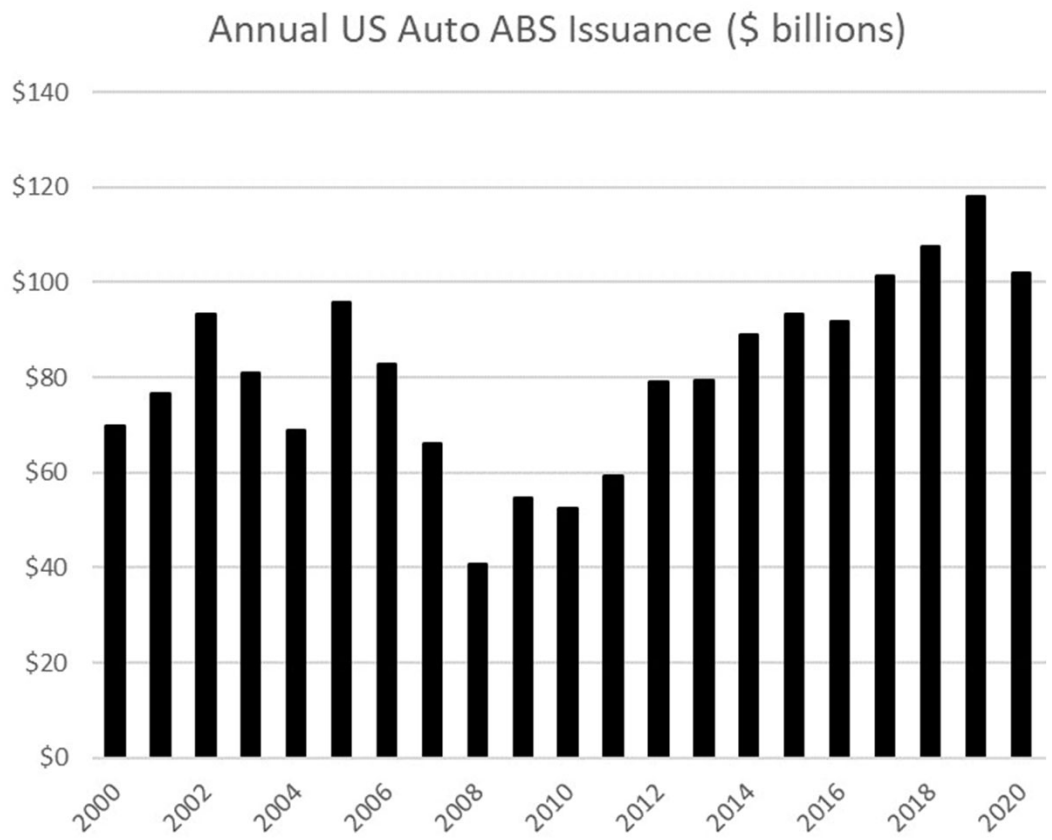
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Auto Loan Originations across Risk Scores during Crisis Periods



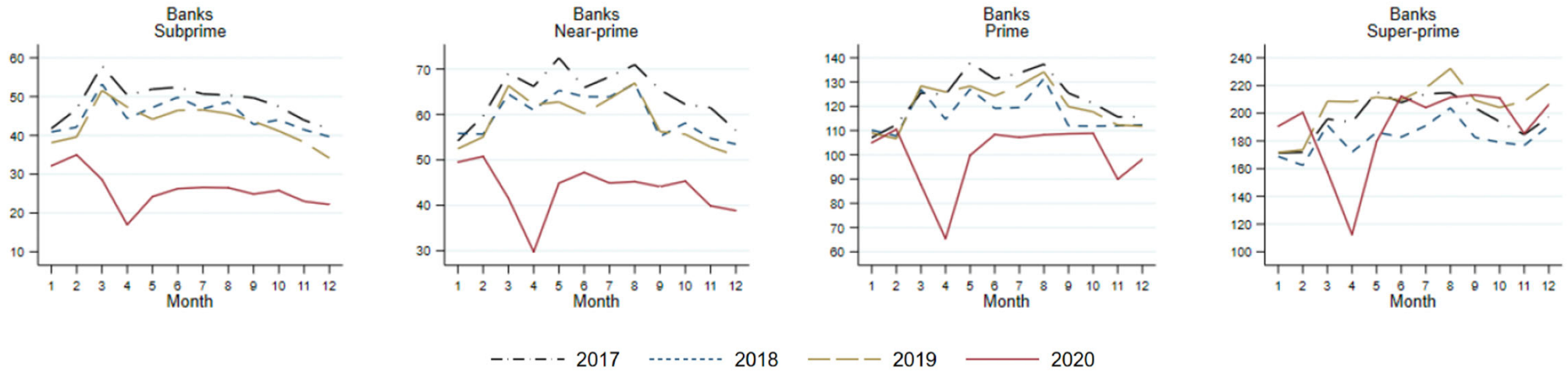
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Auto ABS Deals from 2000 to 2020



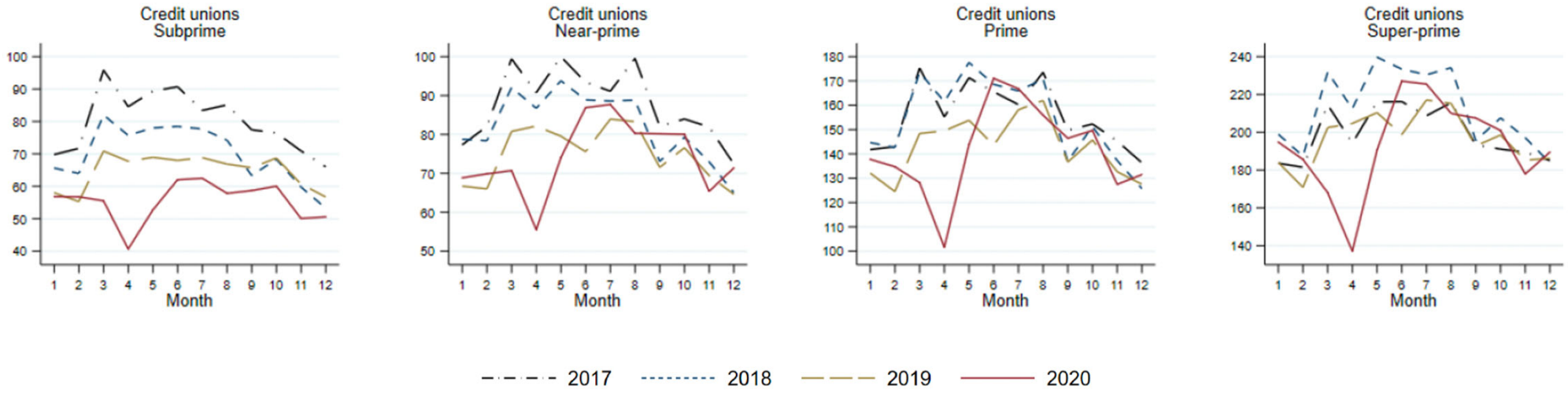
Sources: Auto ABS deals modeled by Intex Solutions

Monthly Auto Loan Originations 2017-2020: Banks



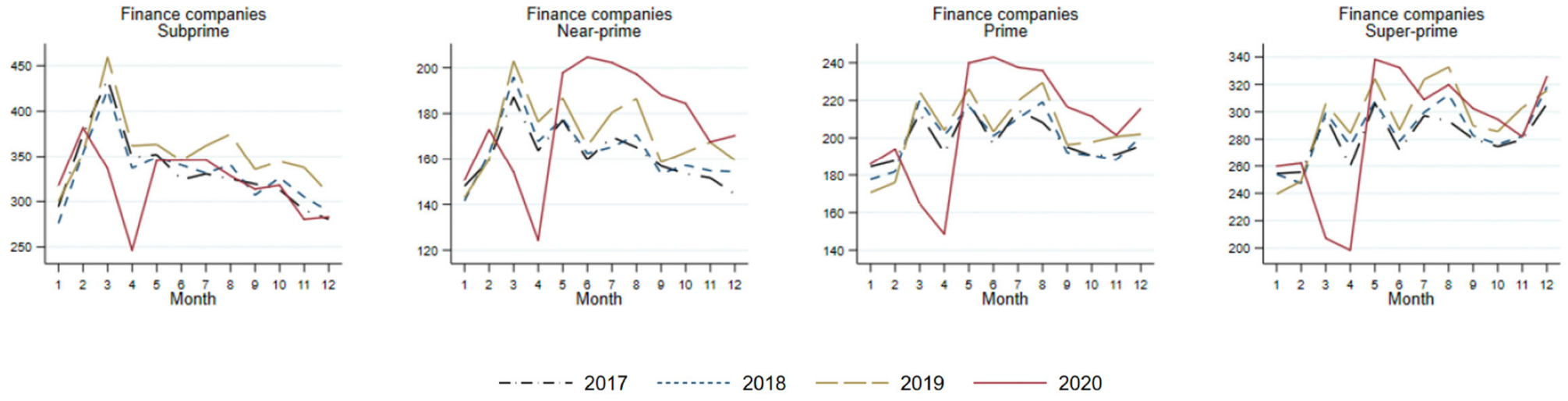
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Monthly Auto Loan Originations 2017-2020: Credit Unions



Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Monthly Auto Loan Originations 2017-2020: Finance Companies



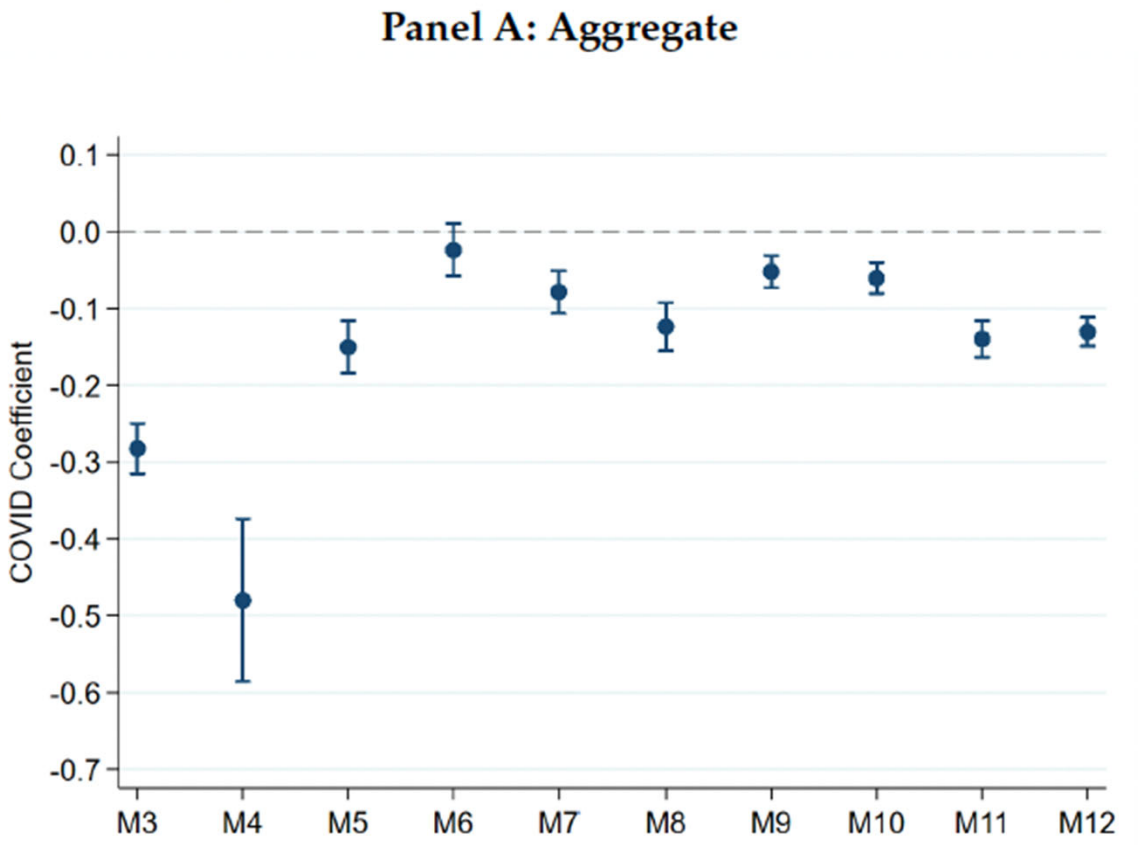
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

COVID-19 Effect Empirical Specification

$$\log(\text{Orig}_{irft}+1) = \delta(X_{irft})\, Y2020_t + \beta(X_{irft})\, \text{COVID}_t + \text{County } FE + \text{Month } FE + \varepsilon_{irft}$$

- Risk Score segment *r* using financing source *f* in county *i* in month *t*
- 2019 & 2020
- *COVID*: indicator variable 1 for 2020 March-December

Monthly Dynamics of the COVID-19 Effect



Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

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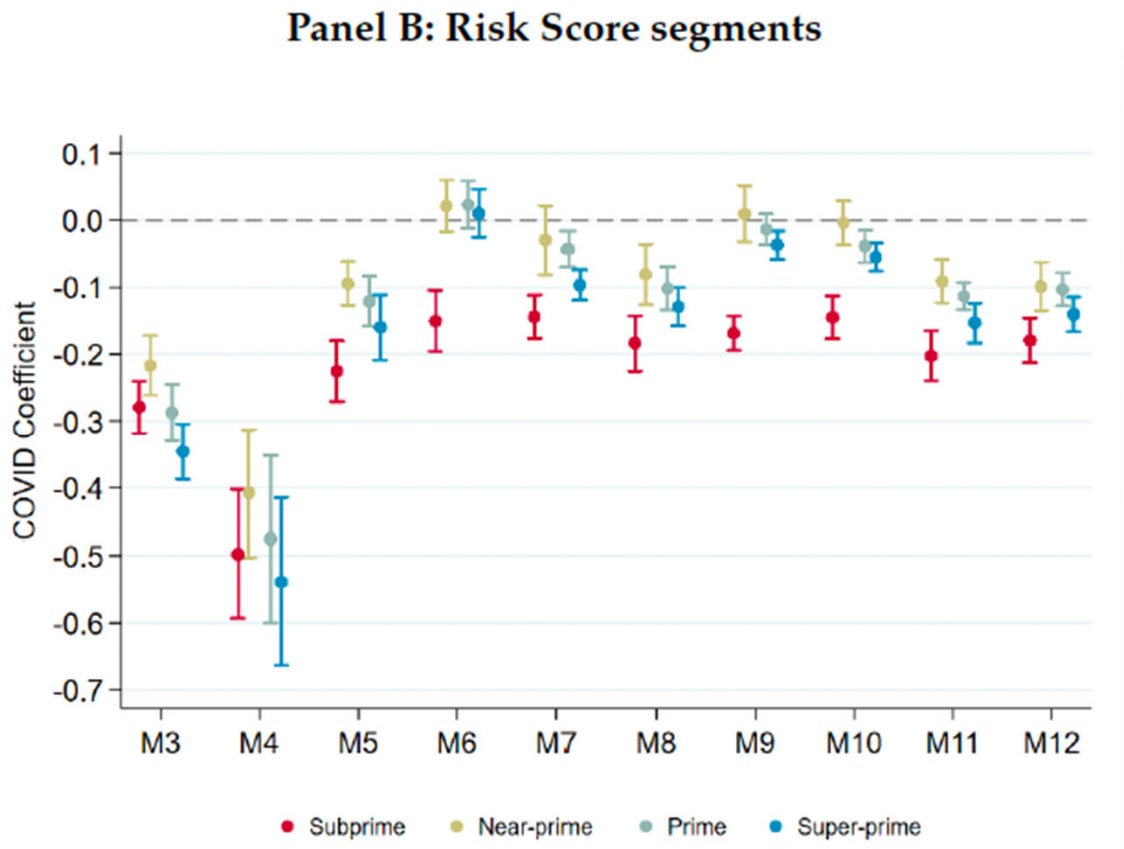
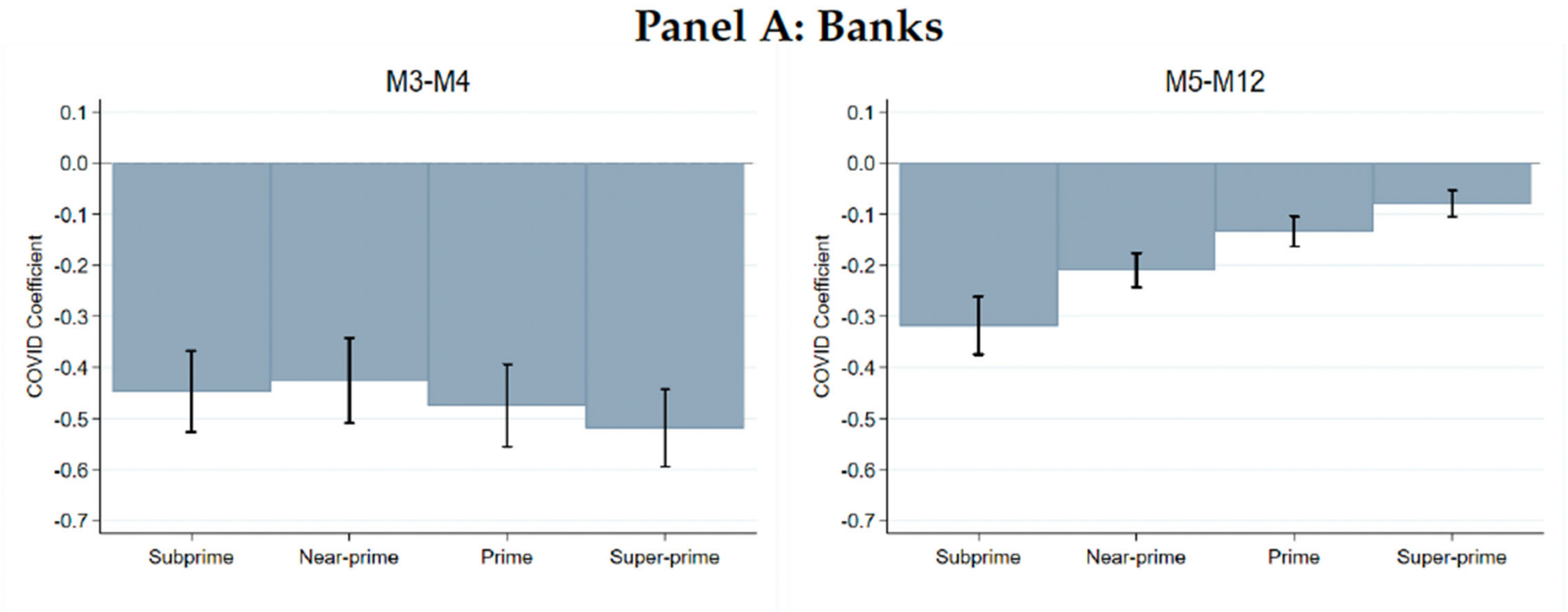


Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

COVID-19 and Auto Loan Growth by Risk Score and Financing Source



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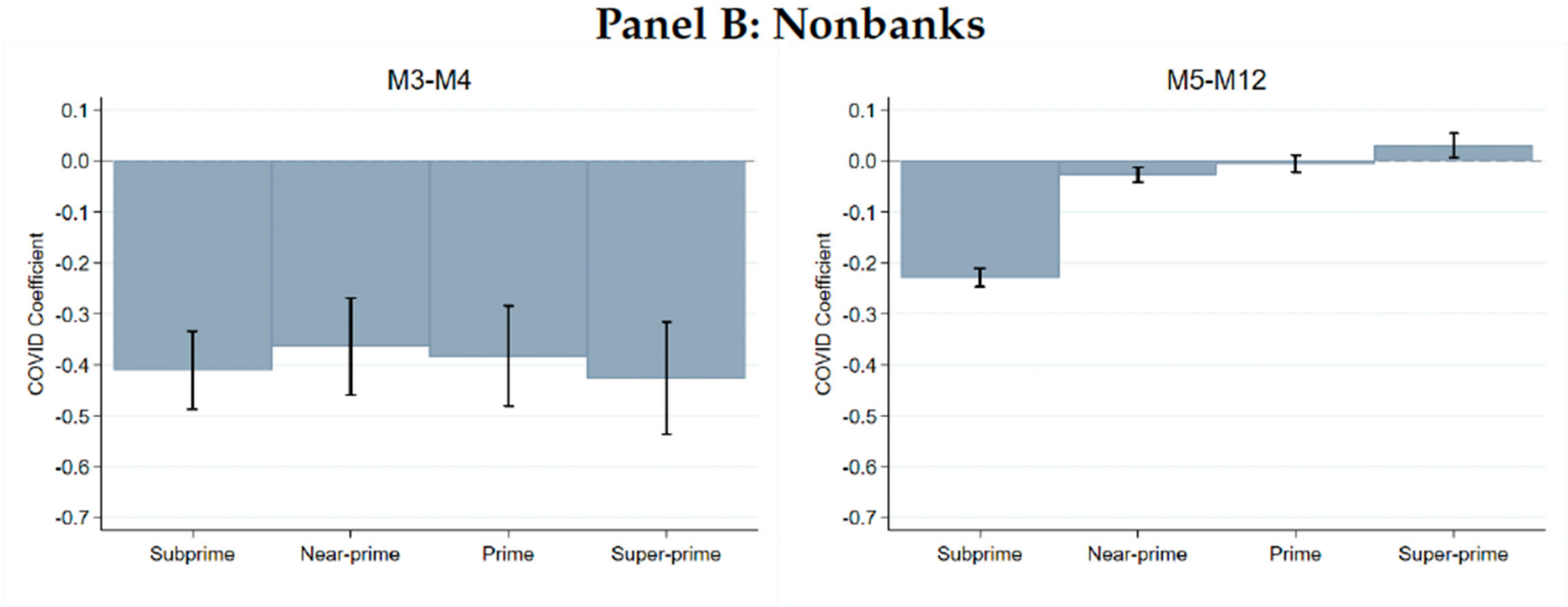

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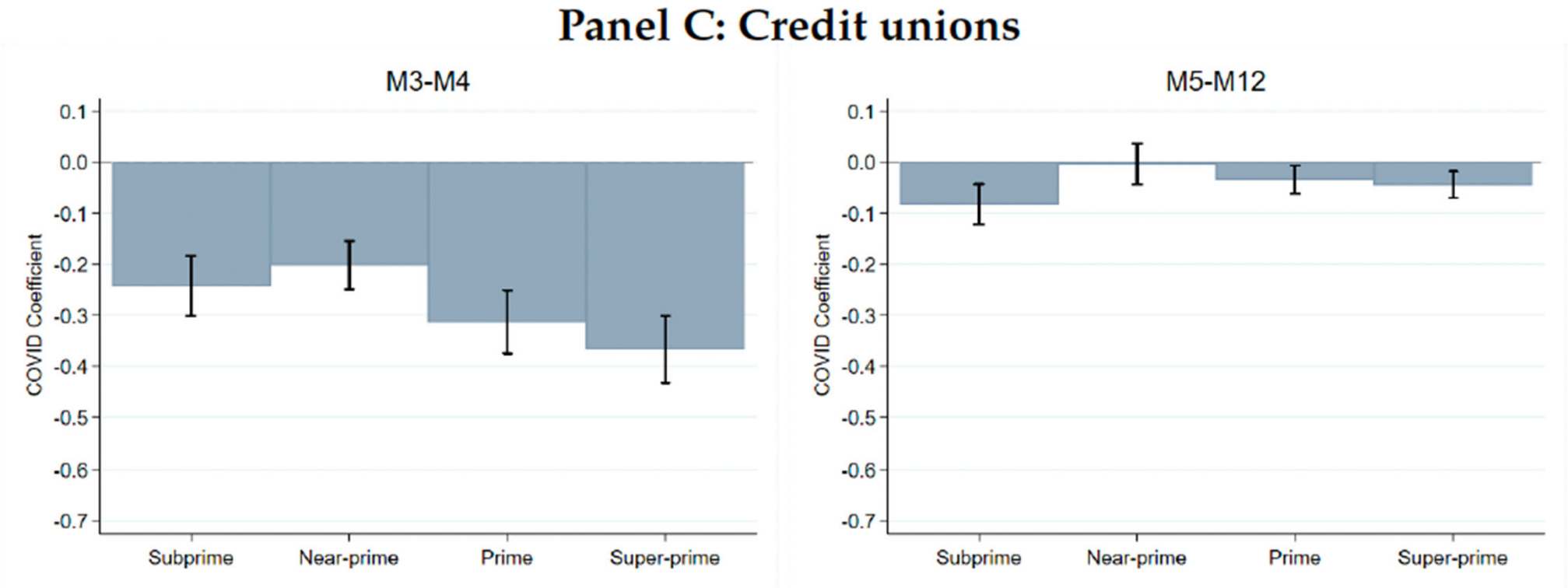


Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

COVID-19 and Auto Loan Origination Growth

	(1) All	(2) Subprime	(3) Near-prime	(4) Prime	(5) Super-prime
Year 2020	0.017***	-0.022**	-0.012	0.032***	0.071***
	(0.005)	(0.010)	(0.010)	(0.006)	(0.006)
COVID	-0.152***	-0.217***	-0.099***	-0.127***	-0.164***
	(0.009)	(0.013)	(0.014)	(0.010)	(0.011)
Observations	884,640	217,848	218,880	222,984	224,928
R^2	0.659	0.561	0.721	0.838	0.890
County FE	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Auto Loan Origination Growth and Financing Source

Panel A: Average COVID Effect

	(1) Banks	(2) Nonbanks	(3) Credit Unions
Year 2020	-0.014*	0.054***	0.012
	(0.008)	(0.006)	(0.011)
COVID	-0.241***	-0.126***	-0.089***
	(0.014)	(0.009)	(0.011)
Observations	294,168	298,008	292,464
R^2	0.652	0.900	0.729
County FE	Yes	Yes	Yes
Month FE	Yes	Yes	Yes

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Auto Loan Origination Growth and Financing Source

Panel B: Dynamic COVID Effect

	(1) Banks	(2) Nonbanks	(3) Credit Unions
Year 2020	-0.014*	0.054***	0.012
	(0.008)	(0.006)	(0.011)
COVID 2020m3-m4	-0.467***	-0.396***	-0.281***
	(0.037)	(0.048)	(0.024)
COVID 2020m5-m12	-0.185***	-0.058***	-0.041***
	(0.014)	(0.007)	(0.010)
Observations	294,168	298,008	292,464
R^2	0.653	0.902	0.730
County FE	Yes	Yes	Yes
Month FE	Yes	Yes	Yes

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

COVID-19 Effect on Bank Market Share

Panel A: Average COVID-19 Effect

	(1) All	(2) Subprime	(3) Near-prime	(4) Prime	(5) Super-prime
Year 2020	0.014	-0.107***	-0.097***	-0.055***	0.075***
	(0.009)	(0.017)	(0.016)	(0.011)	(0.009)
COVID	-0.102***	-0.137***	-0.161***	-0.101***	-0.114***
	(0.008)	(0.015)	(0.014)	(0.014)	(0.012)
Observations	71,923	57,609	52,290	59,292	66,384
R^2	0.453	0.262	0.235	0.284	0.331
County FE	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

COVID-19 Effect on Bank Market Share

Panel B: Dynamic COVID Effect

	(1) All	(2) Subprime	(3) Near-prime	(4) Prime	(5) Super-prime
Year 2020	0.014	-0.107***	-0.097***	-0.055***	0.075***
	(0.009)	(0.017)	(0.016)	(0.011)	(0.009)
COVID 2020m3-m4	-0.131***	-0.169***	-0.184***	-0.142***	-0.148***
	(0.012)	(0.021)	(0.033)	(0.016)	(0.019)
COVID 2020m5-m12	-0.095***	-0.129***	-0.155***	-0.091***	-0.106***
	(0.008)	(0.015)	(0.014)	(0.015)	(0.012)
Observations	71,923	57,609	52,290	59,292	66,384
R^2	0.454	0.262	0.235	0.284	0.331
County FE	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes

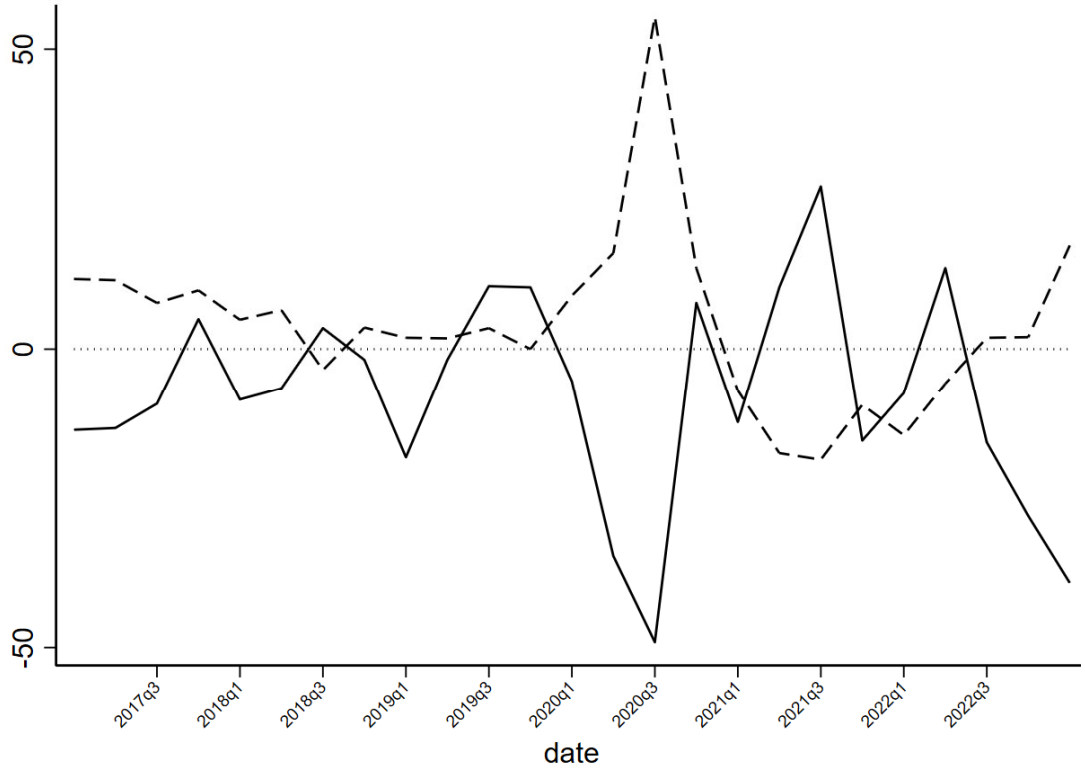
Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Bank Auto Loan Demand and Lending Standards

From The Senior Loan Officer Opinion Survey.

Solid line: Net % of Banks Reporting Strong Demand
Dash line: Net % of Banks Reporting Tighter Standards

Banks report weak demand and tightening standards in 2020 during COVID-19.



Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Bank Dependence Empirical Specification

$$\Delta \log(\text{Orig}_{i,2020m3:m12}) = \gamma \Delta \log(\text{Orig}_{i,2020m1:m2}) + \alpha \,\text{Bank share}_{i,2019} + X_i\beta + \text{State } FE + \varepsilon_i,$$

- ***Bank share***: market share of banks in all 2019 auto loan originations in county *i*
- *Analysis follows closely Benmelech, Meisenzahl and Ramcharan (2017) in their analysis of auto lending during the great recession.*

Bank Dependence and Origination Growth by Risk Segment

	(1) Subprime	(2) Near-prime	(3) Prime	(4) Super-prime
Bank originations	-1.491***	-1.256***	-1.070***	-0.975***
	(0.189)	(0.146)	(0.117)	(0.128)
Finance company originations	0.517***	0.578***	0.427***	0.337***
	(0.066)	(0.090)	(0.069)	(0.110)
Credit union originations	0.462***	0.629***	0.681***	0.580***
	(0.099)	(0.071)	(0.116)	(0.123)

Sources: FRBNY Consumer Credit Panel/Equifax (CCP) and US Census

Conclusions.

- Auto Loan Originations, Great Recession vs. COVID 19: Our analysis highlights significant differences in performance across lending channels over the two crisis periods.

- Illiquidity of nonbanks resulted in a significant contraction in car sales during the great recession (Benmelech et al., 2017).

- Nonbank lending gained significant market share in the years after the financial crisis.

- Nonbank lending played a significant role in sustaining the auto loan origination market during COVID-19.

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Conclusions.

- Bank lending contracted more during COVID-19 and lagged other origination channels in the recovery.
- Differences in the recovery across lending channels proved particularly pronounced for the subprime and near-prime segment.
- We find significant substitution from banks to finance companies and credit unions.

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Conclusions.

- We observe the largest substitution from banks to finance companies in the subprime and near-prime segments.

- The reduced role of banks during COVID-19 contrast with their role during the great recession.

- The evolution over time of auto lending across lending channels may have significant implications for the stability of the auto loan market in future crisis.

Sources: FRBNY Consumer Credit Panel/Equifax (CCP)

Thank you!