The Rise of Finance Companies and FinTech Lenders in Small Business Lending

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Abstract

We document that finance companies and FinTech lenders increased lending to small businesses after the 2008 financial crisis. We show that most of the increase substituted for a reduction in lending by banks. In counties where banks had a larger market share before the crisis, finance companies and FinTech lenders increased their lending more. By 2016, the increase in finance company and FinTech lending almost perfectly offset the decrease in bank lending. We control for firms' credit demand by examining lending by different lenders to the same firm, by comparing firms within the same narrow industry, and by comparing firms pledging the same collateral. Consistent with the substitution of bank lending with finance company and FinTech lending, we find that reduced bank lending had no significant long-term effect on employment, wages, new business creation, and business expansion. Our results show that finance companies and FinTech lenders are major suppliers of credit to small businesses and played an important role in the recovery from the 2008 financial crisis.

Keywords: banks, finance companies, small business lending, financial crises

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I Introduction

Business investment in the United States fell by more than 11% from June 2008 to December 2010. It is often asserted that the decline in firm-level investment was caused by a contraction in the supply of business credit due to the 2008 financial crisis. Consistent with this view, total bank lending to firms dropped by more than 20% over the same time period. The drop was even larger for lending to small and medium-sized firms, which declined by almost 40% between 2008 and 2010.

Starting in late 2010, firm-level investment and business lending recovered. Total investment increased by 56% from 2010 to 2016, with larger firms borrowing from banks and also raising financing in public and private markets. Yet, bank lending to small and medium-sized firms was never fully restored. Total new loans to small businesses in 2016 was 24% lower than before the financial crisis. The decline was particularly pronounced among the four largest U.S. banks, which reduced annual lending volume by more than 44%.

The lack of lending raised concerns that banks had permanently reduced the supply of credit to small and medium-sized firms, possibly due to regulatory constraints. A permanent reduction could have severe consequences for economic activity since small and medium-sized enterprises represent more than 95% of all firms and 47.5% of all employment, generating two out of every three new jobs. This concern is widespread and has found support among academics, policymakers, the press, and the broader financial community, with some arguing that the slow recovery is caused by a lack of credit available to small and medium-sized firms.

In this paper, we ask whether there was a permanent decline in the supply of credit to small and medium-sized businesses and, if so, whether the decline reduced economic activity. To answer these questions, we combine new data on the universe of secured, non-real estate U.S. business loans with data on local economic activity. The new dataset covers 13.7 million business loans filed under the Uniform Commercial Code ("UCC") across all 50 U.S. states and D.C. All lenders make UCC filings for all secured loans to preserve priority in bankruptcy. The filings include detailed information on the lender, the borrower, and the collateral pledged under the loan. Importantly, our dataset covers not only banks but also nonbank lenders, including finance companies and FinTech lenders.

Panel A of Figure 1 plots total annual loans originated by banks and nonbank lenders from 2006 to 2016. The figure shows that bank loan origination dropped by 26% between 2007 and 2010. After hitting a trough in 2010, bank lending slowly recovered from 2010 to 2016 but remained sluggish and never returned to trend.[1] At the same time, nonbank lenders greatly expanded their lending. In the aftermath of the financial crisis, nonbank lenders reduced lending by 17%, which was less than the reduction in bank lending. During the recovery period, nonbank lenders expanded annual lending by 70% from 2010 to 2016, significantly more than banks. By the end of 2016, nonbank lenders provided the majority of new secured, non-real estate loans to U.S. firms with a market share of 60%.

Panel B of Figure 1 plots total loans for the three largest types of nonbank lenders: captive finance companies, independent finance companies, and FinTech companies.[2] We find that both independent finance companies and FinTech companies greatly increased their lending from 2010 to 2016. Independent finance companies maintained a constant level of lending from 2008 to 2010 and increased lending by 89% from 2010 to 2016. FinTech lenders were effectively nonexistent before 2010 and took off afterward, accounting for almost a third of the total increase in nonbank lending after 2010. Captive finance companies also increased lending after 2010 but peaked in 2012 and gradually reduced it thereafter. Taken together, the figure shows that the increase in nonbank lending was primarily driven by independent finance companies and FinTech lenders.

The aggregate evidence raises the question of whether the rise of finance companies and FinTech lenders was caused by a negative shock to the supply of bank lending or increased demand for specialized loans offered by nonbanks. Under the supply-side argument, banks reduced lending, possibly due to newly enacted regulatory constraints, and finance companies and FinTech lenders responded by increasing their lending. Under the demand-side explanation, borrowers had a higher demand for the types of loans offered by finance companies and FinTech lenders, such as loans tailored to specific industries or collateral, and therefore switched from banks to nonbank lenders.

[1] These findings mirror aggregate evidence derived from bank balance sheets, small business lending data from the Community Reinvestment Act (CRA), and the small business lending survey.

[2] Captive finance companies are finance companies owned by a manufacturer that finance sales of the parent company. Independent finance companies lend more broadly. FinTech companies are lenders that primarily transact online.

We address this question by analyzing lending across different U.S counties. We measure a county's exposure to the broad decline in bank lending using the market share of banks relative to other lenders in 2006. The intuition behind this strategy is that banks reduced lending across the U.S. due to common factors such as higher capital requirements, increased regulatory scrutiny, and more conservative risk management. The impact of these factors varied regionally because some counties were more reliant on bank lending than others. This regional variation in bank lending created variation in lending opportunities for nonbank lenders that did not face the same constraints as banks. Under the supply-side explanation, nonbank lenders are expected to increase lending more in counties that were more exposed to banks, thereby offsetting the negative shock to bank lending.

Using detailed loan-level data on lending across U.S. counties from 2007 to 2016, we find that increased lending by nonbank lenders almost perfectly offset the reduction in bank lending. Comparing a county with a pre-crisis bank market share at the 90^{th} percentile (62.9% bank share) relative to a county at the 10^{th} percentile (30.4% bank share), we find an increase in the nonbank market share of 7.2 percentage points. The effect on total lending (sum of bank and nonbank lending) across counties is a precisely estimated null effect. We control for pre-crisis employment growth, economic growth, and state-time fixed effects, suggesting that there are not driven by regional trends or state-level changes. These findings show that counties with a higher bank share were more exposed to the decline in bank lending, but the decline was offset by increased nonbank lending, consistent with the credit supply explanation.

Next, we conduct several tests to control for firm's credit demand directly. First, we compare firms operating in the same narrow industry (2-digit and 4-digit SIC code) and firms pledging the same type of collateral. If the result is driven by firms' demand for industry- or collateral-specific expertise of finance companies or FinTech lenders, we expect the results to weaken. However, our results are unchanged when we control for highly disaggregated industry-level and collateral fixed effects. Even within narrow industries and holding collateral constant, nonbank lenders perfectly offset bank lending.

Second, we focus on firms that borrow from *both* banks and nonbanks before the 2008 financial crisis and examine their borrowing after 2008. For these firms, we can exploit

variation within firms and thereby control for changes in firms' credit demand. We find that firms are 3.7 percentage points more likely to get a new loan from a nonbank than a bank. Hence, even keeping credit demand at the firm-level constant, we find that lending by nonbank lenders replaces bank lending.

Third, we show that the rise in finance company and FinTech lending is preceded by a drop in bank lending. Specifically, from 2007 to 2010, counties with a higher bank share experienced a sharper decline in total lending, with nonbank lending fairly constant. From 2010 to 2016, counties with a higher bank share experienced a larger increase in finance company and FinTech lending and a greater increase in total lending in the county. The net effect on total lending from 2007 to 2016 is close to zero. Hence, the rise of finance companies and FinTech lending after 2010 is tightly linked to the decline in bank lending immediately after the 2008 financial crisis.

Fourth, we distinguish between finance companies that are owned by banks versus those owned by nonbanks. Finance companies owned by banks tend to serve similar borrowers as nonbank lenders but are regulated under the scope of the parent bank holding company. The lending behaviors of bank-owned finance companies and nonbanks diverge after the 2008 financial crisis. Finance companies owned by banks reduce their lending to the same extent as banks, while nonbank lenders expand their lending. Among the nonbank lenders, the increase is largest among independent finance companies, which lend against a broad set of collateral. This result indicates that it is constraints on banks that reduce bank lending rather than higher credit demand for nonbank lending.

To evaluate the consequences for the real economy, we examine the impact of lending on small business activity. Under the credit supply explanation, finance companies replaced bank lending, which should limit the long-term effect on the real economy. We evaluate four real outcome variables from 2007 to 2016 that capture the degree of small business activity: the growth rate in the number of establishments, the growth rate in employment, the growth rate in average wages, and the share of businesses that increase employment in a given year. We compare counties based on their pre-crisis bank share and find close to zero effect across all four outcome measures. The standard errors are sufficiently tight to rule out economically significant effects. The results suggest that small businesses were able to

substitute from bank lending to other lenders in the long-run.

Taken together, our results document the rise of finance companies and FinTech lenders in the aftermath of the 2008 financial crisis. Nonbank lenders emerged as major providers of capital to small businesses and originated 60% of small business loans by 2016. The increase in lending reduced the negative impact on total credit supply and alleviated the effect on the real economy. Hence, finance companies and FinTech lenders played an important role during the recovery from the 2008 financial crisis and can account for most of the "missing" bank lending after 2008.

Our paper relates broadly to three main strands of the literature. First, we contribute to the literature on the impact of the 2008 financial crisis on small businesses. The literature has emphasized that ongoing relationships between lenders and borrowers are particularly important for small businesses and affects their ability to substitute across lenders.[3] Focusing on the 2008 financial crisis, Chen, Hanson, and Stein (2017) show that small business lending by the four largest banks remained depressed through 2014, which negatively impacted wages. Bord, Ivashina, and Taliaferro (2018) show that the contraction in credit to small firms led to lower entrepreneurial activity through 2015. Cortés, Demyanyk, Li, Loutskina, and Strahan (2020) document that banks affected by stress tests reduce credit supply and raise interest rates on small business loans. Granja, Leuz, and Rajan (2018) show that the physical distance between banks and small businesses decreased during the crisis. Boot, Hoffmann, Laeven, and Ratnovski (2020) study the effects of technological change on financial intermediation. Greenstone, Mas, and Nguyen (2020) argue that the decline in small business lending by banks had limited impact on real economic outcomes during the Great Recession. Like these papers, we are interested in documenting the impact of the financial crisis on small businesses, but our contribution lies in emphasizing the important role played by nonbanks. A contemporaneous paper by Balyuk, Berger, and Hackney (2020) discusses the role of market structure in the growth of FinTech lending. Our paper, however, focuses

[3]For the importance of relationships in bank lending see Bernanke (1983); James (1987); Hoshi, Kashyap, and Scharfstein (1990); Petersen and Rajan (1994); Petersen and Rajan (1995); Berger and Udell (1995); Berger, Saunders, Scalise, and Udell (1998); Petersen and Rajan (2002); Berger, Miller, Petersen, Rajan, and Stein (2005); Degryse and Ongena (2005); Chava and Purnanandam (2011); Bolton, Freixas, Gambacorta, and Mistrulli (2016); DeYoung, Gron, Torna, and Winton (2015); Berger, Bouwman, and Kim (2017). For surveys, see Boot (2000), Ongena and Smith (2000), and Berger and Black (2014).

on a broader ranger of nonbank lenders (including finance companies) that have expanded lending in recent years.

Second, our work relates to the literature on the impact of bank lending on the real economy. This work focuses on the role of bank lending in the presence of private information, financial frictions, and collateral constraints (e.g., Bernanke (1983); Khwaja and Mian (2008); Paravisini (2008); Gormley (2010); Rampini and Viswanathan (2010); Amiti and Weinstein (2011); Chava and Purnanandam (2011); Schnabl (2012); Bolton, Freixas, Gambacorta, and Mistrulli (2016); Jimenez, Ongena, Peydro, and Saurina (2014); Chodorow-Reich (2014); Paravisini, Rappoport, Schnabl, and Wolfenzon (2015); Paravisini, Rappoport, and Schnabl (2015); Drechsler, Savov, and Schnabl (2017b); Amiti and Weinstein (2018); and Gilje (2019), Wang, Whited, Wu, and Xiao (2020)). Our findings highlight the role of finance companies and FinTech lenders in offsetting negative shocks to bank lending.

Third, our paper relates to the work on the role of nonbanks or shadow banks. Buchak, Matvos, Piskorski, and Seru (2018) and Buchak, Matvos, Piskorski, and Seru (2020) study the growth of shadow banks in the mortgage market and relate it to regulatory constraints on banks. Fuster, Plosser, Schnabl, and Vickery (2019) show that FinTech lenders use technology to respond more effectively to changes in credit demand. Chernenko, Erel, and Prilmeier (2019) document direct lending by nonbanks to mid-sized firms. Irani, Iyer, Meisenzahl, and Peydró (2020) examine the rise of nonbank lenders in the syndicated loan market due to increased bank regulation. Murfin and Pratt (2019) analyze the role of captive finance companies in supporting higher resale values for durable goods. Our paper is the first to focus on the role of nonbank lenders in small business lending.

The rest of the paper is organized as follows. Section II provides background on finance companies and documents their growth in small business lending following the financial crisis. Section III describes our novel data source, Section IV explains our identification strategy and provides the empirical results, and Section V concludes.

II The Rise of Finance Companies and FinTech Lenders

II.A Background on finance companies

Finance companies are financial firms whose primary business is to lend to consumers and businesses. They compete with banks in lending markets but do not issue deposits. Since they do not have deposits and do not benefit from deposit insurance, finance companies are not subject to bank regulation. However, like banks, they are subject to federal and state-level laws and regulations such as usury limits, collection laws, and other restrictions.

Finance companies are important lenders to small and medium-sized enterprises in the United States. Finance companies had total loans outstanding of $388.0 billion in 2016.[4] For comparison, U.S. commercial banks had total small business loans outstanding of $299.6 billion in 2016.[5] We find a similar picture when considering loan originations. We estimate that finance companies originated secured, non-real estate loans of $127 billion in 2016. For comparison, we estimate that banks issued a total of $116 billion secured, non-real estate small business loans in 2016.[6]

Table 1 lists the 20 largest lenders in the U.S. based on the UCC data in 2016. The table shows that small business lending is dominated by banks and finance companies with the market equally split between them. We classify a lender as a bank if the lender is a commercial bank, credit union, or thrift or is owned by a bank holding company (e.g., Wells Fargo Leasing). We classify a lender as a finance company if the finance company is not owned by a bank or bank holding company. We choose this classification because a finance company that is owned by a bank or bank holding company is subject to bank regulation. The six largest lenders are a mix of banks (Wells Fargo, U.S. Bank, J.P. Morgan Chase Bank) and finance companies (John Deere, CNH Capital America, Kubota Credit Corporation).

Among finance companies, we distinguish between captive finance companies and inde-

[4]See the Federal Reserve release at https://www.federalreserve.gov/releases/g20/20171226/.

[5]We compute small business loans from U.S. call reports. Small business loans are the sum of commercial and industrial loans to U.S. addressees in domestic offices with original amounts of $100,000 or less (rcon5571), loans with original amounts of more than $100,000 through $250,000 (rcon5573), and loans with original amounts of more than $250,000 through $1,000,000 (rcon5575).

[6]We estimate loan originations based on the loan-level UCC data. We impute loan volume using the information on the average loan size of equipment loans. The average size of an equipment loan in our sample is $216,896 for banks and $176,720 for finance companies.

pendent finance companies. Captive finance companies are owned by a manufacturer and lend almost exclusively against products produced by the parent company (e.g., John Deere lends primarily against equipment manufactured by John Deere). Independent finance companies are owned neither by a bank nor a manufacturer and lend more broadly (e.g., De Lage Landen, AGCO Finance, or Tower Loan). As discussed in more detail below, the rise of finance company lending was largely driven by independent finance companies though captive finance companies also increased their lending.

Banks are significantly larger than finance companies. The average assets of the 10 largest banks are $807 billion relative to $65 billion for finance companies. The reason is that banks engage in many activities besides small business lending, while finance companies tend to specialize in small business lending. Banks and finance companies are of similar size in terms of small business lending activity. Among the top 20 lenders, the average bank originates 14,851 loans per year relative to 17,435 loans for the average finance company. Similarly, total small business loans held on the balance sheet are $10.28 billion for the ten largest banks relative to $25.99 billion for the ten largest finance companies.[7]

Banks and finance companies use different sources of financing. Banks are primarily financed with deposits and other short-term debt. Finance companies primarily finance themselves with long-term debt, although some of them also issue short-term commercial paper.[8] The average share of long-term (non-deposit) debt is 25.0% for banks relative to 88.4% for finance companies. As shown by Drechsler, Savov, and Schnabl (2017a), even though deposits are nominally short-term, they effectively constitute long-term financing for banks. Hence, both banks and finance companies use long-term financing, but they come from different sources.

Finance companies are often described as "asset-based" lenders and banks as "cash flow" lenders.[9] The idea being, while underwriting a loan, banks focus more on projected cash

[7]The data for finance companies is based on the five publicly traded finance companies in Table 1.

[8]In 2015, commercial paper accounted for about 6% of total assets of business lenders, bank loans constituted 17%, loans from the parent company 18%, and other debt (non-recourse debt and bonds) 27%. See the 2015-2018 Federal Reserve Survey of Finance Companies at https://www.federalreserve.gov/publications/2018-june-survey-of-finance-companies-2015.htm.

[9]Lian and Ma (2020) analyze the extent of asset-based borrowing versus cash-flows based borrowing among large U.S. non-financial firms. Ivashina, Laeven, and Moral-Benito (2020) distinguish between asset-based loans, cash-flow loans, trade finance, and leasing and show that credit dynamics and banking channels

flow from operations, while finance companies focus on collateral as the ultimate source of payment, monitoring it closely after origination. This can lead to differences in the underlying collateral pledged to the different types of lenders. As discussed in more detail below, we are careful to control for the type of collateral when conducting our empirical analysis.

II.B Background on FinTech lenders

FinTech lenders are financial firms that primarily lend online and do not take deposits. The legal structure of FinTech lenders is still evolving and may change over time. The most common model is based on partnerships between FinTech lenders and banks. Specifically, a FinTech lender is incorporated as an independent legal entity and partners with a "funding bank". This way, a FinTech lender is not incorporated as a bank and not subject to bank regulation. FinTech lenders then offer loans online, arrange for the funding bank to make the loans, and purchase the loans from the funding bank at or shortly after origination. The funding bank is usually located in a jurisdiction that reduces regulatory constraints on their operations but makes loans across the country. This structure enables FinTech lenders to offer loans across different U.S. states while minimizing the impact of local regulation.[10]

The main type of FinTech lender in our sample is Merchant Cash Advance (MCA) companies. MCA companies make short-term loans repaid through deductions from future credit card and debit card sales. Even though MCA loans are often marketed as unsecured loans, they are registered in the UCC data because many MCA lenders require a blanket lien covering receivables and other business assets. MCA lenders are generally valued for their speed and convenience, but their services come at a steep price. They often require daily payments (a certain percentage of revenues) and charge high interest rates.[11]

Aside from MCA companies, an increasing number of specialized FinTech lenders offer

vary across the loan types.

[10]For example, WebBank is a popular funding bank among FinTech lenders. WebBank is registered in Utah, where banks face no restriction on the maximum loan interest rate. Under federal regulation, this allows WebBank to offer loans at high interest rates across all U.S. states, even if state-level regulation restricts high-interest loans for local lenders.

[11]See, for example, https://www.wsj.com/articles/with-alternative-lenders-flexibility-and-speed-come-at-a-cost-1408912050 and https://www.wsj.com/articles/small-businesses-rush-to-borrow-online-sparking-fears-of-high-rates-costly-terms-11577734013.

online loans. These companies provide a broader range of financial services than MCA companies, including long-term loans and credit lines. They usually offer both secured and unsecured funding, though the UCC data only captures the secured part of their lending. We, therefore, consider our results to be a lower bound for the rise in FinTech lending. The main three (non-MCA) FinTech lenders in our data are LEAF Capital Funding, Solar Mosaic Funding, and Funding Circle.

FinTech lenders mostly target young businesses and often focus on providing short-term debt. The average maturity is usually less than a year, and the average loan size is around $80,000.[12] This is significantly smaller than the loan size of finance companies or banks. Moreover, FinTech lenders tend to focus on receivables as collateral and often require a blanket lien on all assets. As discussed in more detail below, we are careful to control for differences in loan demand due to differences in borrower characteristics when comparing different lenders.

II.C Small business lending after the 2008 financial crisis

Our new data allows us to document the shift from banks to finance companies and FinTech lenders in the U.S. small business lending market after 2008. As shown in Figure 1, banks greatly reduced their lending during the 2008 financial crisis and slowly increased it after 2010. Table 2 reports annual loan originations for banks. In 2006, banks originated 463,734 loans. From 2006 to 2010, annual loan originations dropped by 27% to 338,787 loans. After 2010, loan originations increased again and reached 489,637 in 2016, about 5.6% higher than the 2006 level. For comparison, cumulative real GDP growth from 2006 to 2016 greatly exceeded bank lending over this period, with a total growth of 16.5%.

We find that the slow recovery in bank lending was accompanied by a reallocation of small business lending from the four largest banks ("Top4") to smaller banks. The Top4 banks originated 79,236 loans in 2006 and reduced lending by 35.4% by 2010. Top4 lending increased thereafter but was still 7.8% below its 2006 level in 2016. Smaller banks offset some of the declines in lending by the Top4. Their lending dropped by 25.2% between 2006

[12] https://www.fundera.com/business-loans/guides/average-small-business-loan-amount

and 2010, less than that for large banks, and originations increased by 44.8% from 2010 to 2016. Total loans by non-Top4 banks in 2016 was 8.3% above the 2006 level, still below GDP growth, but above Top4 lending growth.[13]

Importantly, we document that nonbank lenders increased their lending and offset most of the decline in bank lending. As shown in Panel A of Figure 1, nonbanks expanded their lending relative to banks, especially during the recovery after 2010. In 2006, nonbanks originated 514,791 loans. From 2006 to 2010, loan originations fell by 17.2%, which is less than the reduction in loan originations by banks. From 2010 to 2016, nonbanks increased lending by 69.5%, significantly more than banks. Total lending by nonbanks increased by 40.4% relative to the 2006 level and exceeded GDP growth over this period.

In Panel B of Figure 1, we plot the three largest types of nonbank lenders to analyze lending growth by type: captive finance companies, independent finance companies, and FinTech lenders. We find that nonbank lending is largely driven by the rise of independent finance companies and FinTech lenders. Captive finance companies initially increased their lending but reduced it after 2012.

As mentioned above, we examine whether the rise of nonbank lenders was caused by a negative shock to the supply of bank lending or increased demand for specialized loans offered by nonbank lenders. A negative shock to bank lending is a common shock to all firms and should have broad effects across the U.S. In contrast, demand for specialized loans is likely concentrated in certain regions, industries, or for certain collateral. We, therefore, examine whether we find the shift from banks to nonbanks when comparing firms operating in the same region, firms operating in the same industry, or firms pledging the same type of collateral.

Panel A of Figure 2 examines lending growth from 2007 to 2016 by county. We sort counties by total loan growth (sum of bank and nonbank lending) from 2007 to 2016 into 20 bins, i.e., each bin represents about 150 counties. We then compute bank lending and nonbank lending growth by county. We drop observations with less than 10 loans and

[13]These results mirror the evidence presented in Chen, Hanson, and Stein (2017). Using the CRA small business lending data, they document a large decline in bank lending during this period. They also show that the decline in bank lending was driven by a disproportionately large reduction in lending by the four largest banks. We confirm these findings using UCC data.

cap lending growth at +2 and -2. We plot the average bank and nonbank lending growth for each bin. We find that, across bins, nonbanks always have higher growth than banks. Put differently, the figure shows a broad shift from banks to nonbanks across all counties independent of total loan growth.

Panels B and C of Figure 2 examine the role of industry and collateral. Panel B of Figure 2 plots a similar analysis at the county-industry level. We compute total growth for each county and 2-digit industry (64 industries), i.e., each bin of the histogram represents about 950 county-industries. Again, we find a general shift from banks to nonbanks. Panel C of Figure 2 recreates the plot at the county-collateral level. We use 22 collateral types. A loan with multiple types of collateral pledged is assigned to the most common collateral type in the sample.[14] Again, we find that nonbank growth is higher than bank growth across the distribution.

To summarize, we find a remarkable increase in lending by nonbanks from 2006 to 2016. By 2016, nonbanks provided the majority of U.S. business loans with a market share of 60%. This shows that nonbanks played an important role in the recovery from the 2008 financial crisis. As discussed below, this increase in lending alleviated the impact of the reduction in bank lending on the real economy. To the best of our knowledge, this dramatic rise in nonbanks has largely gone unnoticed in the literature on this topic.[15]

III Data and Summary Statistics

An important contribution of our paper is the construction of a new dataset covering loan-level information on U.S. business lending. Previous research has focused almost exclusively on syndicated loans provided to large firms or small business lending data reported under the Community Reinvestment Act ("CRA data"). As discussed in more detail below, the

[14]Results qualitatively similar when the loan is assigned to the least common collateral type or when the loan is counted separately under each category.

[15]Chen, Hanson, and Stein (2017) allude to the growth of nonbanks and new FinTech lenders in their paper based on a subset of lenders that report to PayNet. They argue *"[...] counties with a larger initial Top 4 bank share experienced larger increases in the cost of small business credit after 2008, faster small business loan growth by both smaller banks and nonbank finance companies from 2010–2014, and a larger presence of new online lenders by 2014."* However, most of their paper focuses on the Top4 lenders, and they do not further analyze the shift to nonbank lenders, possibly because of data restrictions in PayNet.

existing data does not cover small business loans made by nonbank lenders (e.g., finance companies, FinTech lenders), which provide the majority of secured, non-real estate loans in the U.S. To the best of our knowledge, our paper is the first to put together a comprehensive loan-level dataset on U.S. small business loans covering both banks and nonbanks.

III.A UCC data

Our data are collected from public records on secured, non-real estate business loans. The records are filed under Article 9 of the Uniform Commercial Code (UCC). UCC is a set of laws governing commercial transactions, and Article 9 specifies creditor rights for business lending. Creditors have the right to file a record with the UCC registry specifying a loan and the underlying collateral, which is referred to as a "UCC filing". A UCC filing records the security interest in the underlying asset, analogous to mortgages for real estate, and determines the priority order of creditors in bankruptcy. If the borrower pledges a piece of collateral to multiple lenders, the lender with the earliest filing date has priority over other lenders.

While laws governing UCC transactions are uniform across the nation, each state has an independent registry to record UCC filings. A lender is required to make the filing in the state in which a business is incorporated (registered corporations) or headquartered (unincorporated organizations).[16] Lenders have a strong incentive to make UCC filings, and most lenders routinely do so. Without the UCC filing, lenders are considered unsecured creditors, who typically have much lower recovery rates in case of borrower default. The cost of filing is relatively low; all states accept electronic filings, and the filing fees are small, in the range of $15-$25 in most states. Each state provides public notice of UCC filings to other lenders and has a registry that can be searched for by borrower name.

UCC filings cover all collateral, excluding property with titles such as real estate. The reason is that real estate is recorded in local (usually, county) offices with each office responsible for a specific land area, which can be identified through its records. The need to link each real estate transaction to a local land registry necessitates local recording, which is not

[16]Before 2001 lenders were required to make filings in each state where the borrower had tangible property.

covered in our data. However, if a firm pledges real estate in combination with other types of collateral in a loan, it is included in our data because lenders make a state-level filing describing the personal property and often also mention the real estate pledged.

The UCC data includes both loans and leases. Lessors make UCC filings for capital leases (also called financing leases) because legal ownership of the asset is transferred to the buyer and lessors want to ensure that they have priority in bankruptcy, as with a regular secured loan. Lessors also routinely make UCC filings for operating leases (or, true leases) even though the lessor retains legal ownership of the asset. Making a UCC filing ensures priority to the lessor even if a court recharacterizes an operating lease as a capital lease in bankruptcy. These filing are commonly referred to as precautionary UCC filings.[17]

Figure A1 in the Appendix provides an example of a typical UCC filing. The filing specifies that First Choice Landscaping ("borrower") received a loan from Wells Fargo Vendor Financial Services ("lender"). The filing lists the addresses of both the borrower and the lender. The filing includes a detailed description of the underlying collateral. The collateral, in this case, is construction equipment produced by Bobcat. The filing includes the serial number of the equipment to ensure proper identification.

We received our data from a commercial vendor that covers UCC filings across all 50 U.S. states and D.C. for the years 2006 to 2016. The vendor collects UCC filing information on the borrower's name and address, the lender's name and address, and information on when the filing was made. The vendor further classifies collateral into 34 broad categories. If there is more than one type of collateral pledged, the vendor lists all types. The vendor adds the DUNS number, which is a widely used business identifier created by Dun & Bradstreet (D&B). The vendor also attaches industry information (4-digit SIC code), location information (FIPS county identifier), and firm ownership collected from other datasets. We use the DUNS number to link borrowers across filings and over time.[18]

The data does not include a common identifier for lenders, and hence, we construct our own. We start by creating consistent names by removing common leading and trailing patterns (LLC, Corp., etc.), expanding common abbreviations, fixing common typos, removing

[17] Eisfeldt and Rampini (2009) examine the tradeoff between borrowing via a secured loan and leasing.

[18] Almost all businesses in the U.S. have a DUNS number. We drop businesses without a DUNS number.

special characters, and removing non-name descriptions in the name field. After this, we manually inspect lender names to generate a uniform moniker. For lenders with at least 1,500 loans from 2006 to 2016, we manually classify their type (e.g., bank, finance company, FinTech lender). This procedure covers the largest 746 lenders, which make 75% of total loans.

We classify a lender as a bank if the lender is a depository institution (commercial banks, bank holding companies, credit unions, thrifts) or is owned by one. For example, loans made by Wells Fargo Bank and loans made by Wells Fargo Leasing are classified as bank loans made by Wells Fargo. We classify finance companies based on their name and information on their website. We further use this information to distinguish between captive finance companies and independent finance companies. As discussed in more detail below, we classify FinTech lenders based on information on their website or whether they use a UCC filing service.

For smaller lenders, we use patterns in names to complete the classification (for example, the occurrence of the terms "bank" or "credit union" vs. "leasing" or "financial services"). The remainder of the sample is mostly very small lenders. Upon inspection, these loans are found to belong mostly to non-financial businesses. One reason for non-financial businesses to have outstanding UCC liens is through the extension of trade credit. Our data has 16,714 such lenders with a minimum of 10 loans in the full sample, and with an average of fewer than 10 loans per year.

We conducted an extensive analysis to compare our dataset to data obtained from state-level UCC filings, some of which can be accessed online and downloaded in bulk. Specifically, we collected the universe of UCC filings for Texas covering the entire time period. We also collected the universe of UCC filings for California from 2011 to 2015. At the ZIP code-year level, the number of loans in our sample has a 91.6% correlation with state-level data from Texas and California. Our understanding is that the difference between our data and the state-level datasets arise because the state-level data has some observations with missing data that are dropped by the commercial data vendor. We find that the correlation is almost identical when focusing only on loans made by banks, finance companies, or FinTech Lenders.

We find that 201,000 loans (1.64% of the sample) are made by "UCC filing agencies".

UCC filing agencies are private companies (for example, Corporation Service Company) that do not lend to firms but make filings on behalf of lenders. An important benefit of using a filing agency is that the lender can conceal his identity. Discussions with industry experts suggest that these services are largely used by MCA companies, and we classify these loans as such.[19] As discussed above, MCA lenders are FinTech lenders that primarily make short term loans.[20]

We drop loans made by federal or state governments since these loans are usually government guaranteed. The most common of these are loans made by the Small Business Administration (SBA Loans). They also include loans made by the Department of Agriculture, Department of Housing and Urban Development, the Department of Energy, and the Department of Justice. Federal liens on business assets, such as ones placed by the IRS, are also dropped. We further drop all loans made to financial firms (SIC code - 60-67), utilities (SIC code - 49), public administration (SIC code - 91-98), and the United States Postal Service (SIC code - 4311).

We are only aware of three other academic papers that have used data on UCC filings. Those papers cover only a subset of our data. Edgerton (2012) uses filings from one state (California) over a five year period to examine the effect of financial distress of three lenders (Citibank, CIT, and Sunbridge) on equipment financing. Murfin and Pratt (2019) use data on equipment financing sourced from UCC filings ("EDA data") to study optimal pricing by captive finance companies. Ma, Murfin, and Pratt (2020) use the same EDA data to study the allocation of capital across young and old firms. To the best of our knowledge, our paper is the first one to use UCC filings for a comprehensive study of U.S. small business lending.

[19]MCA companies are particularly incentivized to hide their identity due to the infamous industry practice of "loan stacking", where a loan or cash advance is approved on top of a loan or advance that is already in place with similar characteristics and payback terms. The marketing brochure of Corporate Service Company, the largest UCC filing service agency, states that *"By [filing a UCC], the lender effectively puts its customer list into the public record for competitors to see. In certain lending markets, especially merchant cash advance, factoring and other non-bank business lending, competitors will use this information to target the customers of particular lenders."*

[20]To verify whether loans filed under UCC filing agencies are originated by MCA companies, we focus on the collateral pledged. MCA companies often require blanket liens on firm assets or personal guarantees to provide cash advances. Roughly 80% of the loans filed under the UCC filing agencies have blanket liens or a lien on business accounts and accounts receivables. In contrast, only 15% of the loans in the full sample have similar collateral. This provides additional suggestive evidence that the loans underlying UCC agency filings are issued by MCA companies.

III.B Other data

Bank-level data. We link the UCC filings to bank-level data from Call Reports. We follow the procedure outlined in Drechsler et al. (2018) to set up the Call Report data. We manually assign matches for the 20 largest banks covering 40% of total bank lending. For the remainder of the sample, we match the UCC filings to call reports using a fuzzy match based on lender names by location. We manually check the fuzzy name-match for all banks with at least 100 loans to ensure our algorithm is mapping to the right lender, and correct for mismatches. We achieve a high match rate and link 90.4% of loans made by banks to their respective call reports. We combine banks into a single bank if they merged during the sample period.[21]

Location data. The vendor maps the exact address of the borrower to its county, which we use for our analysis. Our results are similar if we instead map the ZIP code available in the UCC filings to counties using the U.S. Department of Housing and Urban Development's ZIP Code Crosswalk Files based on 2010 Census geographies.[22]

EDA data Since our main sample does not include information on loan volume, we supplement the UCC data with information on equipment lending from Equipment Data Associates (EDA). EDA sources its data from UCC filings and appends it with information on the value of the pledged equipment. Most loans are made against the full value of the collateral. This dataset tracks the financing of new and used equipment along with the exact serial number, model, year of make, and manufacturer of the equipment. The data is restricted to lending against construction equipment (e.g., tractors, excavators, crawlers). Lending by both banks and finance companies are covered. We utilize this information to impute lending volumes.

County and industry level real outcomes. We collect information on county and county-industry level employment, establishment count, and payroll from the Census Bureau's

[21] We combine loans in this way to be consistent with the results in Chen, Hanson, and Stein (2017). This adjustment affects the Top4 bank share because Top4 banks acquired several other banks during the 2008 financial crisis. Under this procedure, Top4 banks are assigned loans by the Top4 banks and loans originated by banks that were eventually acquired by the Top4 banks. Our main results are unaffected by this classification because we primarily focus on the distinction between lending by banks versus nonbanks.

[22] For ZIP codes that are a part of multiple counties, we value-weight the loan in proportion to the population of the ZIP code in the county.

County Business Patterns (CBP) database. Wages are calculated as a share of payroll per employee. Industry is at the 2-digit NAICS level. We obtain statistics on the establishment expansion rate from the Census Bureau's Statistics on U.S. Businesses (SUSB) database. The expansion rate is calculated as the fraction of total businesses that expanded employment in a given year. We gather information on local unemployment and labor force participation rates from the Bureau of Labor Statistics' Local Area Unemployment Statistics (LAUS) program. We use the annual average of the monthly surveys provided in the county tables. We obtain data on the annual population level from the U.S. county population database produced by the U.S. Census Bureau's Population Estimates Program in collaboration with the National Center for Health Statistics.

III.C Summary Statistics on Lenders and Loans

Panel A of Table 3 present summary statistics at the lender level. The panel is evenly balanced between banks and alternative lenders. The UCC sample consists of 3,967 banks and 4,144 nonbanks with at least 100 loans during the sample period. On average, banks made 1,315 loans from 2006 to 2016, while nonbanks made 1,384 loans. Among larger lenders with at least 1,500 loans, we have 330 banks and 416 nonbank lenders, originating 9,773 and 10,097 loans, respectively, during the sample period.

Panel B classifies nonbank lenders into five types. We restrict the tables to nonbank lenders that make at least 1,500 loans from 2006 to 2016. By far, the largest category is finance companies. Among finance companies, we distinguish between independent finance companies (192 lenders) and captive finance companies (95 lenders). The other categories are FinTech lenders (19 lenders), cooperatives (19 lenders), and investment companies such as hedge funds/ insurance companies (31 lenders).[23]

Panel C presents total loan origination by lender type. Banks and finance companies are the main lenders originating 4.9 million and 6.3 million loans, respectively. The 10 largest banks originated 1.6 million out of these and have a market share of 13.5% in new business lending. In comparison, the 10 largest finance companies originated 1.9 million loans

[23]The count for FinTech lenders does not include MCA companies because we cannot identify MCA companies separately in our data.

and have 15.8% of the market share. Among finance companies, captive finance companies originated 2.3 million loans, independent finance companies originated 1.4 million loans, and FinTech lenders originated around 262,000 loans. The highest growth from 2006 to 2016 was among independent finance companies with an increase of 73,837 loans, and FinTech lenders with 72,405 additional loans. As discussed above, lending by non-financials mostly represents trade credit.

Panel D presents data on collateral. Firms can pledge more than one type of collateral. The most commonly pledged collateral categories in our sample are equipment (66.2% of all loans), deposit accounts (31.6%), general intangibles (30.0%), chattel paper (25.1%), and inventory (23.1%).

Panel E presents data on loan maturity. Loan maturity is computed for a subsample of our loans. We can compute loan maturity if we observe both the initial origination filing and the loan termination filing in our data. Based on this sample, we estimate that the average loan maturity is about 31 months, with the median at 27 months and the modal maturity of 36 months.

Panel F presents data on the average loan size. To estimate loan size, we use equipment values from the EDA data. We note that since EDA only tracks the value of equipment pledged in each loan while ignoring the value of any other assets, the imputed volume is a lower bound on the loan size. Under the assumption of zero haircut on equipment value, we estimate an average loan size of $216,896 for banks and $176,720 for finance companies. Applying a 50% haircut on used equipment value and retaining full value for new equipment, we estimate an average loan size of about $129,000 for bank and finance companies.

III.D UCC filings versus other datasets on lending

III.D.1 CRA data

The most commonly used data on small business lending is the data collected under the Community Reinvestment Act (henceforth, CRA data). While there is an overlap between

the UCC data and the CRA data, there are also significant differences that are important for interpreting our results. We briefly review the main differences.

First, our data covers banks, finance companies, FinTech lenders, and other nonbank lenders. The CRA data only covers lending by banks whose assets exceed $1 billion. Hence, our data covers lenders (small banks and nonbanks) that are not included in the CRA data.

Second, the CRA data is collected under the Community Reinvestment Act and is used to compute a bank's CRA rating. The CRA rating affects whether regulators approve proposed mergers and acquisitions. Hence, banks have incentives to report lending in certain ways, and there is anecdotal evidence that banks adjust their reported lending accordingly.[24] Hence, reporting incentives may affect the quality of the CRA data when used to measure new credit. In contrast, our data is collected from UCC filings. Lenders make UCC filings to preserve priority in bankruptcy and have strong incentives to report correctly.

Third, the CRA data includes both secured and unsecured credit. By definition, UCC filings only cover secured credit. This means our analysis does not cover unsecured credit to businesses. Our understanding is that the main source of unsecured credit is credit cards issued to small businesses. For business credit cards, the CRA calculates the loan amount as the total credit limit.[25]

Fourth, the CRA data reports changes in credit limits as new lending even if the change does not result in lending.[26] This applies to both credit lines and credit cards. It is our understanding that such changes in credit limits are important when interpreting CRA data. UCC data does not include changes in credit limits. Moreover, CRA data counts loan refinancing as new loan originations, while the UCC filings do not. Hence, there is a concern that the CRA may overstate changes in new lending.

[24] See, for example, https://www.wsj.com/articles/never-mind-the-ferrari-showroom-bank-regulators-say-this-a-poor-neighborhood-1495108800.

[25] As of 2013, there were 28.3 million business cards. For more information, see the 2013 Federal Reserve Payments Study, which can be found at https://www.frbservices.org/assets/news/research/2013-fed-res-paymt-study-detailed-rpt.pdf.

[26] The CRA guidelines explicitly ask banks to report such changes. *"Lines of credit are considered originated at the time the line is approved or increased; and an increase is considered a new origination. Generally, the full amount of the credit line is the amount that is considered originated. In the case of an increase to an existing line, the amount of the increase is the amount that is considered originated and that amount should be reported."* For more information, see the guidelines at https://www.ffiec.gov/cra/pdf/2015_CRA_Guide.pdf

Fifth, the UCC data has no size cutoff. The CRA data only includes commercial and industrial loans (C&I loans) of less than $1 million. The Government Accountability Office (GAO) has pointed out that the $1 million cutoff (which has remained unchanged since 1992) leads to mismeasurement of lending to small businesses.[27]

Sixth, CRA data are collected at a higher level of aggregation than UCC data and cannot be matched to firm-level data. CRA is collected at the bank-county level. The UCC data is collected at the loan-level and contains information on the exact borrower. The UCC also collects information on the underlying collateral.

Seventh, neither CRA nor UCC contain data on individual loan amounts. In the CRA data, average loan amounts can be estimated based on total lending volume and loans counts at the bank-county level. In the UCC data, loan amounts can be estimated based on the underlying collateral (e.g., lending for new construction equipment is usually provided for the full amount.)

Overall, we see the two datasets are complementary. The UCC has detailed loan-level data and collateral information that can be matched at the firm-level. It covers both banks and nonbanks but does not include unsecured loans. CRA data includes unsecured lending. However, CRA cannot be matched at the firm-level, has no information on collateral and larger loans, does not cover nonbank lenders or small banks, does not include larger loans and counts increases in credit limits as new loan origination. Both datasets may suffer from potential reporting biases. At a minimum, our data provides a way to assess the validity of the widely used CRA data.[28] Moreover, it can be used to analyze dimensions of small business lending that are not covered by the CRA data (e.g., lending by finance companies, collateral, firm-level characteristics such as industry).

III.D.2 Syndicated loan data

Another commonly used data source on business lending comes from DealScan. DealScan covers syndicated lending to large businesses. The average size of a syndicated loan in 2016

[27] https://www.gao.gov/reports/GAO-18-312/

[28] As discussed above, we show that the UCC data can be used to replicate the shift in lending from Top4 banks to non-Top4 as documented by Chen, Hanson, and Stein (2017) using the CRA data.

was $417 million. Syndicated loan borrowers are large firms with average annual sales of $9 billion in 2016. While syndicated lending is covered by our data, it only constitutes a small fraction of the *number* of loans. In 2016, there were about 4,300 syndicated loans made to 2,400 companies. For comparison, there were 1.25 million loans made to over 790,000 firms in the UCC data. Syndicated loans account for less than 0.35% of the UCC data.

IV Results

IV.A Empirical strategy

We examine the determinants behind the rise of nonbank lenders after the 2008 financial crisis. Broadly speaking, the rise of nonbank lenders could be caused by a negative shock to the supply of bank lending or increased demand for specialized loans offered by nonbank lenders. Under the supply-side explanation, banks reduced the supply of lending and in response nonbanks expanded their credit supply. Under the demand-side explanation, borrowers had a higher demand for specialized loans offered by nonbanks and demanded fewer loans from banks.[29]

We turn to the cross-section to ask whether the rise of nonbank lenders was due to a negative supply shock to bank lending. We start from the observation that the decline in bank lending was caused by a negative shock to the entire banking sector. The negative shock may have been the result of several factors, including increased regulation of banks, tighter supervision of large banks due to newly introduced bank stress tests, banks' reassessment of the validity of their internal risk models, and losses incurred due to the 2008 financial crisis. The key idea is that this shock is nationwide but plays out differently across different regions. Regions that relied more on bank lending *before* the financial crisis were more affected by the reduction in bank lending than regions that relied less on bank lending. We, therefore, expect to see a larger increase in nonbank lending in regions with a higher pre-crisis bank market share. The identification assumption is that bank market share has no direct effect on the demand for nonbank lending.

[29]Chen, Hanson, and Stein (2017) provide a detailed discussion of the reasons behind the decline in bank lending.

We conduct several identification tests that directly control for specialized loan demand. First, we control for industry specialization in our regressions. Nonbanks tend to specialize in certain industries (e.g., construction), and controlling for industry fixed effects is likely to pick up specialized loan demand. Second, we control for the type of collateral pledged to the lender. Lenders can specialize in certain collateral (e.g., agricultural equipment), and controlling for collateral type compares lenders that accept a similar type of collateral. Third, we focus on the subset of firms that had taken out loans with both banks and nonbanks before the 2008 financial crisis. By doing so, we can control for the firm's credit demand and focus on their choice of lender after 2008 ("within-firm estimator"). Fourth, we examine the dynamics of the financial crisis and recovery. This allows us to connect the timing of the crisis with the underlying credit supply shock. Fifth, we compare lending by bank-owned finance companies with nonbank lending. This allows us to control for borrower composition since bank-owned finance companies and other nonbank lenders serve similar borrowers.

IV.B Summary statistics by county

Figure 3 presents a map of the pre-crisis bank market share. We compute bank dependence as the county-level bank market share in the UCC lending data in 2006. Panel A shows that there is significant variation in bank market shares across the U.S. There is some clustering of counties with low market shares on the West Coast and counties with high market shares in the center of the country. Yet, there remains lots of variation both across and within states. To address clustering, we include state fixed effects in many of our regressions. Panel B plots the increase in nonbank market shares from 2006 to 2016. The map shows significant variation across the U.S. and a high correlation to the initial bank shares in Panel A. There is no evidence of geographical clustering.

Table 4 presents summary statistics at the county-level. We present statistics for the full sample and the subsamples above and below the median of bank market share in 2006. The average bank market share is 46.8%, with a standard deviation of 13.2%. The average nonbank lending growth between 2007 and 2016 was 30%, and the average increase in nonbank market share was 6.3 percentage points. The average increase was larger in counties with

above-median bank share versus below median bank share at 9 percentage points versus 3.7 percentage points. This shows that nonbanks greatly expanded during this period and more so in regions that relied more on banks before the crisis.

We find that counties with below and above median bank share are roughly comparable in terms of observable characteristics. Counties with an above-median bank share had an average population of 97,920 compared to 93,790 in counties with a below-median bank share. Counties below and above median bank share are comparable in terms of local employment conditions in 2005 with an unemployment rate of 5.4% vs. 5.5%, labor force participation rate of 49.6% vs. 48.6%, and average wages of $27,663 vs. $27,638. They also have similar pre-trends from 2002 to 2006 with labor force participation growth of 2.7 ppt vs. 3.5 ppt, the change in the unemployment rate of -0.82 ppt vs. and -0.80 ppt, the growth in the number of establishments of 2.6% vs. 2.8%, and wage growth of 14% compared to 13.8%.

IV.C Results on lending

IV.C.1 Lending and bank share

In this section, we examine the impact of pre-crisis bank share on nonbank lending and total lending at the county level. Panel A of Figure 4 presents a binscatter plot of the change in the nonbank lending market share from 2007 to 2016 against the bank share in 2006.[30] There is a strong positive relationship: the market share of nonbank lending grew by 1.5 percentage points from 2007 to 2016 in counties with a bank share of 25%, versus 12.5 percentage points for counties with a bank share of 75%. Hence, consistent with a credit supply shock explanation, the increase in nonbank lending is larger in counties that had a higher bank presence in 2006.

Panel B presents the corresponding binscatter plot of the growth in nonbank lending from 2007 to 2016 against the bank share in 2006. We find the same relationship: counties with a high bank share experienced much higher growth in nonbank lending than counties with a low bank share. Nonbank lending grew by 15% in counties with a bank share of 25%, versus 45% growth for counties with a bank share of 75%.

[30] As discussed above, we control for state fixed effects to address any geographic clustering.

Panel C presents the effect on total lending by showing a binscatter plot of the growth in total lending from 2007 to 2016 against the bank share in 2006. We find that the relationship between total lending growth and bank share is flat. This shows that the increase in nonbank lending almost perfectly offset a decrease in bank lending.

We confirm these results running OLS regressions of the form:

$$\Delta Y_c = \alpha_s + \gamma BankShare_{06,c} + \delta X_c + \varepsilon_c, \quad (1)$$

where ΔY_c is the change in the market share of loans originated by nonbanks in county c from 2007 to 2016, the log change in nonbank loans originated in county c from 2007 to 2016, or the log change in total loans originated in county c from 2007 to 2016. $BankShare_{06,c}$ is the market share of loans originated by banks in county c in 2006. X_c are county-level control variables and α_s are state-level fixed effects. Standard errors are clustered at the county level.

Panel A of Table 5 presents our preferred specification with state fixed effects and the full set of county-level controls.[31] The coefficient is 0.221 for the increase in the market share of nonbanks (Column 1) and 0.545 for the growth in nonbank lending (Column 2). Both coefficients are statistically significant at the 1%-level. The coefficients imply that moving from the 10^{th} percentile (bank share 30.4%) to the 90^{th} percentile (bank share 62.9%) of the bank share distribution leads to an increase in the nonbank market share of 7.2 percentage points and an increase in nonbank lending of 17.8%. The coefficient on total lending is close to zero at 0.015 (Column 3). This shows that the growth in nonbank lending completely offsets the decline in lending by banks.

Panels B shows that our results are unchanged if we estimate the regressions without controlling for state fixed effects. The coefficients on nonbank market share, nonbank lending, and total lending remain almost unchanged. The coefficients imply that moving from the 10^{th} percentile to the 90^{th} percentile of the bank market distribution leads to an increase in the nonbank market share of 7.1 percentage and an increase in nonbank lending of 21.2%.

[31] The controls are county-level employment growth, wage growth, and business establishment growth from 2002 to 2006, the level of unemployment rate, labor force participation rate, wages, and population in the county in 2005.

This shows that our results are robust to using both variations within and across states.

IV.C.2 Controlling for industry specialization

We control for lender specialization across industries by only comparing firms operating in the same narrow industry. We start by computing lending by county and industry from 2007 to 2016. We construct this dataset at the 2-digit SIC level (64 industries) and the 4-digit SIC level (636 industries). To make sure that the results are not driven by outliers, we require that both banks and nonbanks lend within a county-industry observation at the beginning and end of our sample.[32]

Panel A of Figure 5 presents a binscatter plot of the growth in nonbank market share at the county-industry level from 2007 to 2016. The figure includes the full set of fixed effects at the 2-digit industry. The relationship is positive: the nonbank market share stayed almost flat from 2007 to 2016 in counties with a market share of 25% while it grew 7.5 percentage points in counties with a bank share of 75%. Panel B finds the same relationship for nonbank lending growth. Nonbank lending grew by 10% from 2007 to 2016 in counties with a bank share of 25%, versus 27% growth for counties with a bank share of 75%. Panel C shows that bank lending and nonbank lending almost completely offset each other.

We then run the following OLS regression:

$$\Delta Y_{j,c} \quad = \quad \alpha_j + BankShare_{06,c} + \delta X_c + \varepsilon_c, \tag{2}$$

where $\Delta Y_{j,c}$ is the change in the market share of nonbanks in industry j and county c from 2007 to 2016, the log change in the nonbank loans to firms operating in industry j and county c from 2007 to 2016, or the log change in total loans to firms in industry j in county c between 2007 and 2016. $BankShare_{06,c}$ is the bank share of county c in 2006. X_c are county-level control variables and α_j are industry-fixed effects.

Table 6 presents the results. Panel A shows the results with industry fixed effects at the 4-digit industry level. We also include the full set of controls from Table 5. Again, we find a positive effect on nonbank market share, a positive effect on nonbank lending growth, and

[32]Summary statistics at the industry-county level are in Appendix Table A1.

no effect on total lending. Moving from the 10^{th} percentile to the 90^{th} percentile of the bank market share distribution leads to an increase in the nonbank market share of 4.0 percentage points and an increase in nonbank lending of 10.7%. Panel B shows that the result is similar when controlling for differences at the 2-digit industry level. Remarkably, the effects are almost identical to our baseline, suggesting that specialized loan demand by industry cannot account for the increase in nonbank lending.

IV.C.3 Controlling for collateral specialization

We control for collateral specialization by comparing firms that pledge the same type of collateral to secure the loan. We compute lending at the county-collateral type level by assigning loans to a single type of collateral based on the 34 broad categories of collateral available in our data. Loans with multiple types of collateral are assigned to the most common collateral type based on the relative frequency of the collateral in our data. This leads to a total of 23 collateral categories.[33] To compare the behavior of banks and nonbanks, we require that both banks and nonbanks lend to the same county-collateral group at the beginning as well as the end of our sample.[34]

Panel A of Figure 6 presents a binscatter plot of the growth in nonbank market share from 2007 to 2016. The figure controls for collateral fixed effects. Consistent with the results presented before, this relationship is positive. The nonbank market share increased by 2 percentage points from 2007 to 2016 in counties with a bank share of 25%, versus 11 percentage point change for counties with a bank share of 75%. Panel B finds the same relationship for nonbank lending. Panel C shows that nonbank growth was slightly greater than the decline in bank lending.

We then run the following OLS regression:

$$\Delta Y_{k,c} \quad = \quad \alpha_k + BankShare_{06,c} + \delta X_c + \varepsilon_c, \tag{3}$$

[33]For example, suppose a firm pledges both inventory and vehicles. We code the loan as pledging inventory because, across all loans, inventory is more commonly used than vehicles. Our regression results are robust to assigning the loan to the least common type of collateral, taking combinations of the different types of collateral jointly pledged, or counting the loan towards every collateral category.

[34]Summary statistics at the collateral-county level are in Appendix Table A1.

where $\Delta Y_{k,c}$ is the change in the market share of nonbanks in collateral type k and county c from 2007 to 2016, the log change in the nonbank loans to firms with collateral type k and county c from 2007 to 2016, or the log change in total loans to firms with collateral type k in county c between 2007 and 2016. $BankShare_{06,c}$ is the bank share of county c in 2006. X_c are county-level control variables and α_k are collateral-fixed effects.

Table 7 presents the results. Panel A shows the coefficients controlling for collateral and state fixed effects. We also include the full set of controls from Table 5. Again, we find a large positive effect on nonbank market share, a positive effect on nonbank lending, and no effect on total lending. Moving from the 10^{th} percentile to the 90^{th} percentile of the bank market distribution leads to an increase in the nonbank market share of 7.0 percentage points and an increase in nonbank lending of 16.5%. Panel B shows that the result is similar when including only collateral fixed effects.

IV.C.4 Within-firm estimator

We control for credit demand by examining firms that borrow from both banks and nonbanks before the financial crisis. We restrict the analysis to firms that took out at least one loan with a bank and at least one with a nonbank in the years 2006 or 2007. This sample includes 146,497 firms.We then examine whether the firm received another loan ("repeat loan") from a bank or nonbank after 2008. Specifically, we estimate the following OLS regression:

$$RepeatLoan_{i,b} = \alpha_i + \beta Nonbank_b + \delta X_i + \varepsilon_c, \quad (4)$$

where $RepeatLoan_{i,b}$ is an indicator variable equal to 1 if the firm i received a repeat loan from lender type b and zero otherwise, $Nonbank_b$ is an indicator variable equal to 1 if the lender type is a nonbank and zero otherwise, α_i are firm fixed effects, and X_i are firm-level control variables. We weight each observation by the number of pre-crisis loans from lender b to firm i in 2006-07 to account for firm size. We cluster standard errors at the industry and county level.

Panel A of Table 8 presents the results. Column 1 shows that borrowers are 3.7 percentage points more likely to receive a repeat loan from a nonbank than a bank *after* controlling

for firm-fixed effects. Column 2 shows that the likelihood of a repeat loan from a nonbank is higher by 4.8 percentage points when controlling for industry and country fixed effects instead.[35] Column 3 finds the coefficient to be 5.4 percentage points when controlling for county fixed effects only. Hence, these findings indicate that the results are not driven by loan demand because the coefficients are roughly similar with and without firm fixed effects.

To further examine variation across firms, we analyze the sample of firms that had taken out at least one loan with either a bank or a nonbank in 2006 or 2007, but not both. Our sample consists of 821,438 firms. We estimate the following OLS regression:

$$RepeatLoan_i = \alpha + \beta Nonbank_i + \delta X_i + \varepsilon_c, \quad (5)$$

where $RepeatLoan_i$ is an indicator variable equal to 1 if the firm i receives a repeat loan and zero otherwise, $Nonbank_i$ is an indicator variable equal to 1 if the lender is a bank and zero otherwise, X_i are firm-level control variables, and α is a constant. We cluster standard errors at the industry and county level.

Panel B of Table 8 presents the results. Column 1 shows that nonbank borrowers are 5.6 percentage points more likely to receive a repeat loan than bank borrowers *after* controlling for county and industry fixed effects. When controlling for just county fixed effects, the coefficient in Column 2 increases to 9.4 percentage points. Column 3 shows that, without controls, borrowers of nonbanks are 9.8 percentage points more likely to get a repeat loan. These results show that pre-crisis nonbank borrowers had better access to loans after the 2008 financial crisis than pre-crisis bank borrowers.

IV.C.5 Crisis vs. recovery period

So far, the analysis focuses on the change in lending from 2007 to 2016. We now examine the dynamics of the crisis. Panel A of Figure 7 shows binscatter plots for the total lending change from 2007 to 2010 (financial crisis) and from 2010 and 2016 (post-crisis). As shown in the left column, we find that total lending declined more between 2007 and 2010 in regions with a higher bank share. As shown in the right column, total lending grew more rapidly

[35] We cannot include both since firm-fixed effects are collinear with industry and county fixed effects.

after 2010 in those same regions, mostly offsetting the 2007-10 decline.

Panels B and C show the binscatter plots for nonbank lending growth and the change in nonbank market share, respectively. We find that nonbank lending and nonbank market share grew more in the most affected counties from 2007 to 2010, but the effect was quantitatively small. This explains why total lending falls more in areas with a high bank share. In contrast, the recovery after 2010 is driven by strong growth in nonbank lending. We find that nonbank lending and nonbank market share grew strongly in affected counties from 2010 to 2016, thereby offsetting the decline in total lending from 2007 to 2010.

These results suggest that the decline in bank lending triggered a decline in total bank lending in the three years after the financial crisis. Even though nonbanks continued to lend during this time, it was insufficient to offset the decline in lending. After 2010, nonbanks greatly expanded their operations and eventually offset the decline in lending. Hence, it took almost a decade to transition to a new equilibrium with the bulk of the lending coming from nonbanks.

Table 9 presents the corresponding OLS regressions. Panel A presents results at the county-level, and Panel B presents results at the county-industry level. The regressions estimate the same specification and include the same controls as in Tables 5 and 6. Again, we find that there is a drop in total lending from 2007 to 2010. From 2010 to 2016, we find that total lending recovers, driven mostly by the increase in nonbank lending. This pattern is robust to controlling for differences in industry.

We also examine the dynamics of the crisis on access to credit at the firm-level. We control for firm fixed effects to examine the effect of pre-crisis bank share on access to credit for the same firm over time. Specifically, we estimate the following OLS regression:

$$Loan_{it} \quad = \quad \alpha_i + \delta_t + \gamma_t BankShare_{06,c} + \varepsilon_c, \tag{6}$$

where $Loan_{it}$ is an indicator variable equal to 1 if firm i receives a new loan in year t and 0 otherwise, $BankShare_{06,c}$ is the county-level bank share in 2006, α_i are firm-fixed effect, and δ_t are year fixed effects. The set of coefficient γ_t captures the effect of bank share on receiving a loan in year t. Standard errors are clustered at the industry and county level.

Table 10 presents the results. We find that firms located in counties with a higher bank share were less likely to take out a new loan than firms located in counties with a low bank share immediately after the financial crisis. As shown in Column 1, the negative effect on new loans is largest with a coefficient of -0.038 in 2011 and then gradually disappears. By 2015, the coefficient is 0.001 and remains statistically insignificant thereafter. As shown in Column 3, the negative effect is caused by a decline in new bank loans. As shown in Column 2, nonbank loans offset the decline in bank lending, leading to no differences in overall lending by the end of the sample. Again, this shows that total lending initially declined due to lower bank lending but eventually recovered because of greater nonbank lending.

Taken together, these findings provide further support for the credit supply shock explanation. Specifically, we show that the dynamics in the cross-section match the dynamics in the aggregate. As discussed above and shown in Figure 1, aggregate lending by both banks and nonbanks declined from 2007 to 2010. After 2010, total bank lending recovered back to the level in 2006, while total nonbank lending grew by over 40% above the 2006 level. In the cross-section, we find that this pattern is stronger in areas with a higher bank share. This suggests that the increase in nonbank lending was driven by a negative shock to bank lending.

IV.C.6 Bank vs. Bank-Affiliated Finance Companies

We test whether the observed change in bank lending is driven by post-crisis regulation or differences in businesses served by banks and nonbanks. While our within-firm regressions address concerns about firm-level differences in demand, it does not address concerns about lender-specific demand. To be clear, banks and nonbanks could serve borrowers for different types of loans. If the demand for loans provided by nonbanks increases in the post-crisis period, this could explain observed patterns, uncorrelated to bank-level regulation.

To address this, we examine the role of bank-affiliated finance companies and compare them to nonbank-affiliated finance companies and other nonbanks. Bank-affiliated finance companies (e.g., Wells Fargo equipment finance) serve similar sectors and lines of business as nonbanks while they are regulated as banks (through the bank that owns the bank affiliate).[36]

[36]Bank-affiliated finance companies provide services such as equipment financing, leasing, and vendor

If demand-side differences drive observed lending patterns, we would expect bank-affiliated finance companies to behave similarly to nonbanks. If regulation drives the change in lending, bank-affiliated finance companies are likely to respond in line with banks.

Table 11 presents the results. We find that bank-affiliated finance companies experience a decline in the market share between 2007 and 2016, dropping 1.5 percentage points, a large drop compared to their initial average market share of 5.3%. Nonbanks experience significant growth during this time. Independent finance companies and nonbanks increase their market share (coefficients of 0.104 and 0.223 in Columns 2 and 3, respectively). These results indicate that the decline in bank lending was driven by post-crisis regulation rather than differences in credit demand.

IV.C.7 Robustness

This section provides additional tests to distinguish between the credit supply and credit demand explanations.

Captive vs. Independent Finance Companies. We analyze changes in lending by captive versus independent finance companies.[37] Since captive finance company lending decisions are directed by the parent manufacturing company, lending growth in the post-crisis period could be driven by the manufacturer's need to increase sales. If this were the case, observed lending growth could be unrelated to the fact that banks reduced small business lending during the financial crisis. To test if the observed growth is driven by such lenders, we split the nonbank sample into captive and independent finance companies.

The results are presented in the Appendix in Table A2. Panel A presents results for the change in lending for the full sample (2007-16). We find that independent finance companies increase lending to a significantly larger extent than captive finance companies for a given level of change in pre-crisis bank share (coefficient of 1.022 vs. 0.600). A one standard

financing. We are not the first to examine the role of bank-affiliated subsidiaries. Demyanyk and Loutskina (2016) analyze whether bank used mortgage subsidiaries to circumvent regulation before the 2008 financial crisis.

[37]Finance companies can be classified into captive finance companies that are held and operated by manufacturers and independent finance companies that operate independently. Captive finance companies are specialized in lending against products manufactured by the parent company while independent finance companies lend against a diverse set of collateral and to a broad range of sectors.

deviation (13.2%) increase in pre-crisis bank share increases lending by independent finance companies by 13.7% and captive finance company growth by 8.0%. Panel B and Panel C of Table A2 provide the results on lending for the crisis and post-crisis sub-periods and find similar results. These findings suggest that the observed lending growth is primarily driven by independent finance companies.

Controlling for Top4 Share. We control for the Top4 deposit share to study whether the effect of nonbank growth can be explained solely by the drop in Top4 lending. Appendix Table A3 presents the results. Panel A shows that the inclusion of the Top4 deposit share does not explain nonbank growth. In fact, regions with a high Top4 deposit share see a greater drop in nonbank lending and total lending, and no growth in nonbank market shares. Furthermore, the inclusion of the Top4 deposit share as controls in the sub-period analysis provides results consistent with our baseline specification. In short, our results are unaffected when controlling for Top4 deposit share.

Large Counties. Our results are robust to focusing on large counties. We present the baseline results weighted by total lending in the county in 2007. Table A4 presents the results. In the weighted regression, a one standard deviation increase in pre-crisis bank share increases nonbank market share by 4.0 percentage points and leads to a 12.8% increase in lending by nonbanks. These results are comparable to a change in nonbank market share of 2.9 percentage points and nonbank lending by 8.6%, respectively, in the unweighted baseline regression. Results are qualitatively similar when the sample is weighted by county population (Panel B) or when the sample is restricted to just the 500 largest counties in the U.S. by population (Panel C).

IV.D Results on real economy

We examine the real consequences of the credit supply shock on small businesses. We follow the same empirical strategy as above. Specifically, we estimate the following OLS regression:

$$\Delta Y_c = \alpha + BankShare_{c,06} + \delta X_c + \varepsilon_c, \tag{7}$$

where ΔY_c is the change in outcome variable Y in county c from 2007 to 2016, $BankShare_{06,c}$ is the bank share of county c in 2006, and X_c are county-level control variables. Standard errors are clustered at the county-level.

We examine four commonly used outcome variables to evaluate the impact on small businesses and the local labor market. The variables are the growth rate in the number of establishments, the growth in employment, the growth rate in average wages, and the business expansion rate. The expansion rate is the share of businesses that increase employment in a given year.

Panel A of Table 12 presents the results. The control variables are the same as in Table 5. We also control for state trends by adding state fixed effects. We find that the bank share has a limited effect on real outcomes between 2007 and 2016. The effect of bank share on the growth in establishments (Columns 1 and 2) and employment growth (Columns 3 and 4) is close to zero and statistically insignificant. We find a negative and statistically significant effect of -0.052 on wages conditional on controls (Columns 5) but the result is not robust to estimation when including state fixed effects (Column 6). We find no effect on the expansion rate with controls (Column 7) and a small, positive effect of 0.018 with state fixed effects (Column 8).

One advantage of our dataset is that we have loan-level information at the industry level. We can, therefore, examine real outcomes conditional on industry composition. This is likely to be important in our setting because we evaluate the impact over a decade, which means that industry composition could have changed significantly. It also allows us to control for state trends by adding state fixed effects.

We estimate results at the 2-digit industry NAICS level because the County Business Pattern is reported under NAICS industry classifications. We estimate the following OLS regression:

$$\Delta Y_{i,c} \quad = \quad \alpha_i + BankShare_{c,06} + \delta X_c + \varepsilon_c, \tag{8}$$

where $\Delta Y_{i,c}$ is the change in outcome variable Y in county c and industry i between 2007 and 2016, $BankShare_{06,c}$ is the bank share of county c in 2006, X_c are county-level control

variables and α_i is the industry fixed effect. The outcome variables are the same ones as above measured at the county-industry level. Standard errors are clustered at the county and industry level.

Panel B of Table 12 presents the results. Again, we find no effect on establishment growth (Columns 1 and 2). The effect on employment growth is negative but not statistically significant in the baseline specification (Column 3). The effect on employment growth is statistically significant at the 10% level with a coefficient of -0.071 when controlling for state fixed effects (Column 4). We find no impact on wages with or without controls for state fixed effects (Columns 5 and 6). The effect on business expansions is close to zero without controlling for state fixed effects (Column 7) and statistically significant at the 10% level with a coefficient of 0.014 after adding state fixed effects (Columns 8).

Taken together, we find that the bank share has a limited effect on a broad set of real outcomes for small businesses when evaluated at the end of our sample in 2016. This result is consistent with the substitution from banks to nonbanks over this time period. To be clear, our results do not rule out significant real effects in the immediate aftermath of the 2008 financial crisis. Rather, they suggest that any short-term real effect was alleviated when evaluated over a longer time horizon.

V Conclusions

This paper examines the credit supply to small businesses in the aftermath of the 2008 financial crisis. We find that bank lending dropped by 27% between 2006 and 2010 and did not recover by 2016. However, nonbank lenders, such as finance companies and FinTech lenders, significantly increased their lending and market share over the same time period.

Through cross-sectional tests, we argue that nonbank lenders almost perfectly offset the decline in bank lending. Regions with high initial dependence on banks saw a greater drop in credit supply after the 2008 financial crisis. It is precisely in these counties that nonbank lenders expanded after 2010. To address borrower-level differences, we estimate a within-firm regression and show that the same firm is less likely to get a bank loan in the aftermath of the financial crisis. Consistent with the substitution of bank lending with nonbank lending,

we show that there are no long-term real effects for small businesses. We find no effect of regional bank dependence on employment growth, new business creation, and business expansion by 2016.

Our paper highlights an important, and until now, ignored fact about the change in the composition of lenders to small businesses. While it may have been involuntary, small businesses have gradually shifted away from their reliance on banks. In fact, nonbank lenders provide 60% of new loans by 2016. We believe our paper is the first one to document this structural change. This is important because most prior work has almost exclusively focused on the role of banks and the importance of bank-lending relationships. Going forward, it is crucial to expand our understanding of nonbanks, especially finance companies and FinTech lenders, who differ from banks along many dimensions, from regulation to their liability and asset structure.

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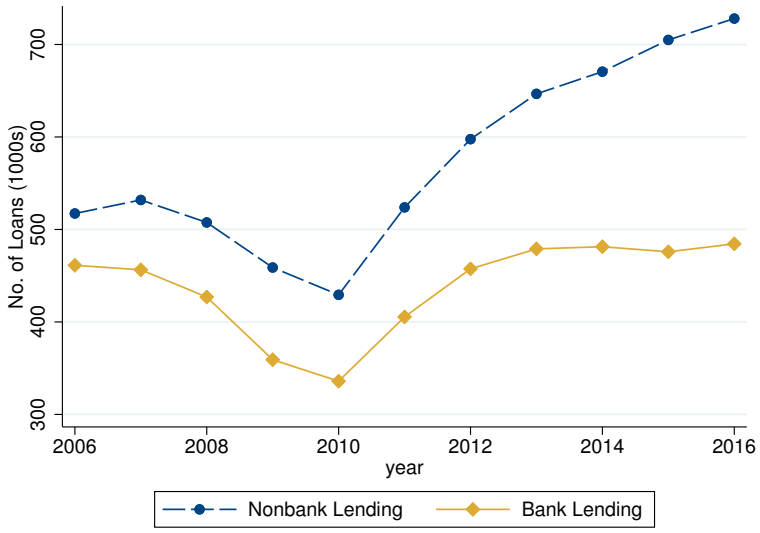
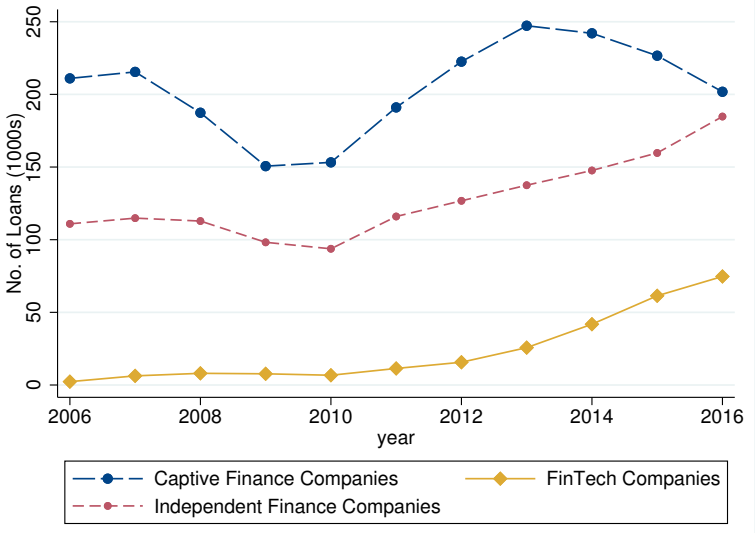
Figures

Figure 1: Number of New Loan Originations

Panel A - Bank vs. nonbank loan origination



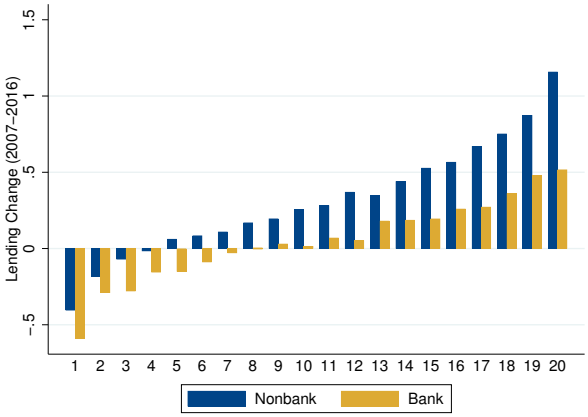
Panel B - Loan origination by nonbank lender-type



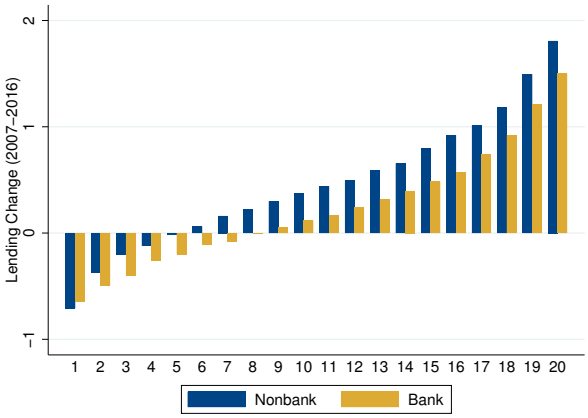
This figure plots the number of loans originated annually between 2006 and 2016. Panel A shows total bank and nonbank lending. Bank lending captures loans originated by depository institutions (commercial banks, credit unions, thrifts, and nonbank subsidiaries of bank holding companies). Nonbank Lending captures loans originated by all non-depository institutions. Panel B shows total lending for the three largest types of nonbanks: captive finance companies (financing arms of manufacturing companies), independent finance companies, and FinTech lenders. Data on loan originations is obtained from UCC filings.

Figure 2: Comparing Bank vs. Finance Company Lending Growth (2007-16)

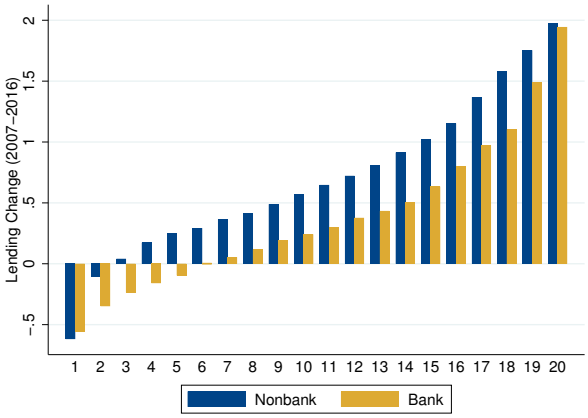
Panel A - County Lending



Panel B - County-Industry Lending



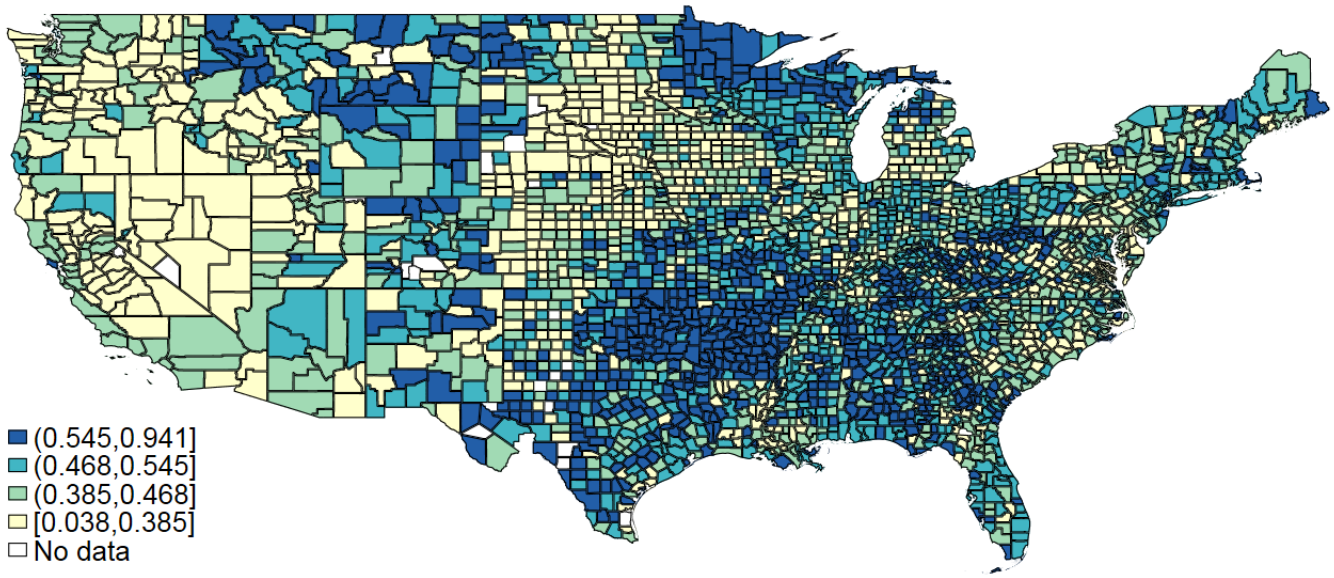
Panel C - County-Collateral Lending



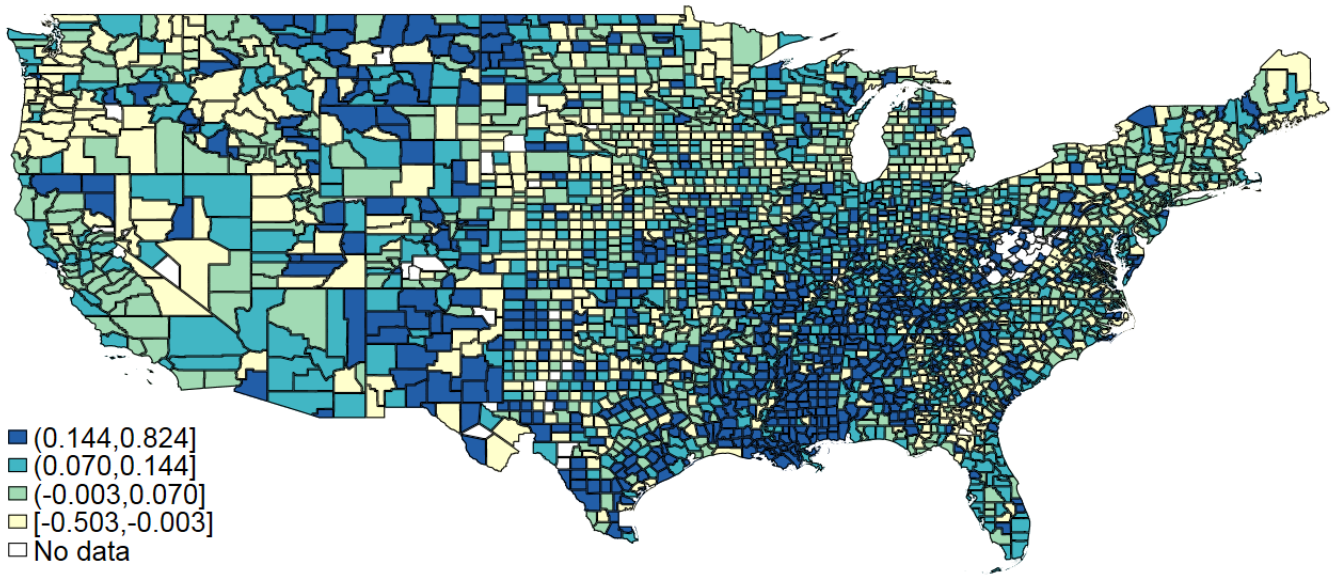
This figure plots the change in lending by banks and nonbanks between 2007 and 2016. We sort observations by total (sum of bank and nonbank) loan growth between 2007 and 2016 and divide them into 20 equally-sized groups. We plot average bank and nonbank lending growth by group. The observations are by county (Panel A), county-industry (64 2-digit SIC industries, Panel B), and county-collateral type (34 collateral types, Panel C). Data on loan originations is obtained from UCC filings.

Figure 3: Geographical Distribution of Bank Shares

Panel A - 2006 bank shares



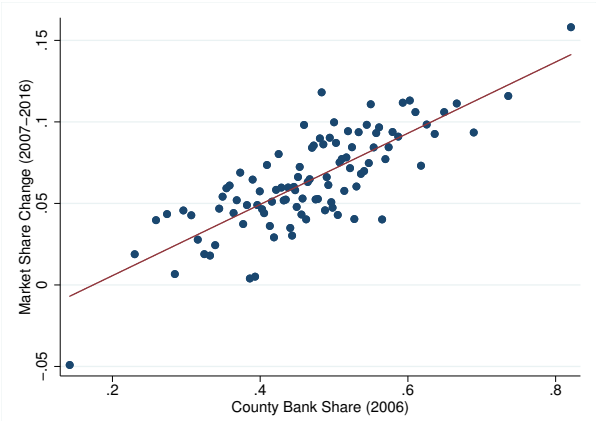
Panel B Change in nonbank shares (2006-16)



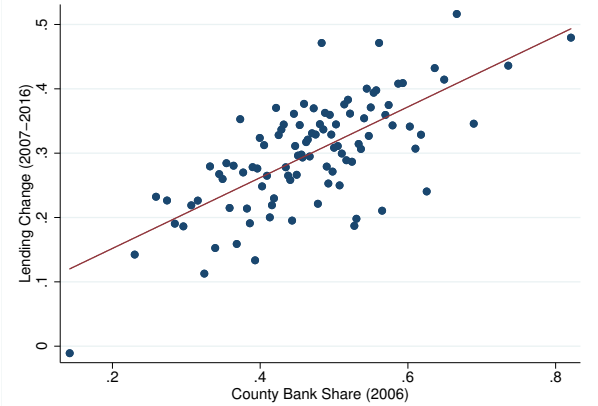
Panel A maps the geographical distribution of bank shares in the U.S. in 2006. Bank share is the share of total county lending in 2006 originated by banks. Panel B maps the geographical distribution of change in nonbank market share between 2006 and 2016. Change in nonbank share is the change in the share of total county lending by nonbank lenders between 2006 and 2016. Data on loan originations is obtained from UCC filings

Figure 4: 2007-2016 Lending Growth at the County Level

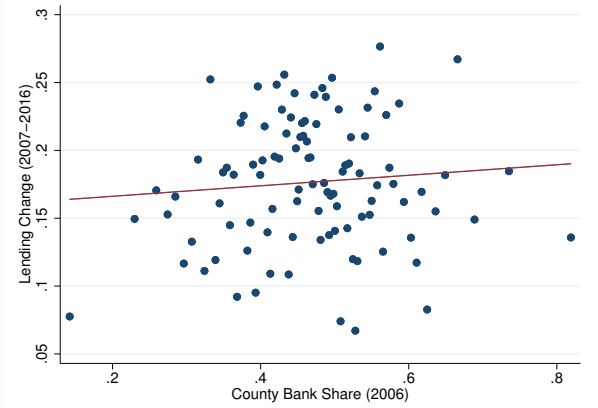
Panel A - Nonbank Market Share



Panel B - Nonbank Lending



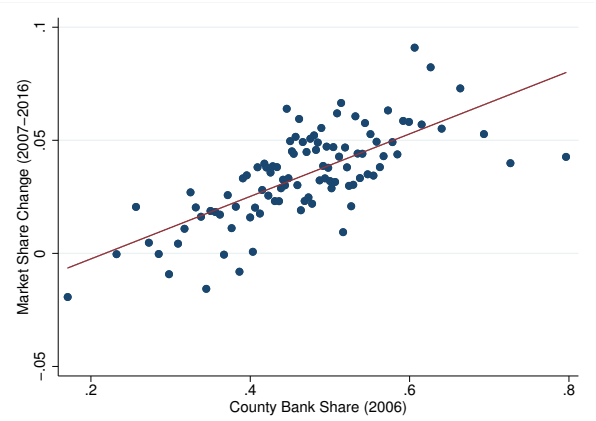
Panel C - Total Lending



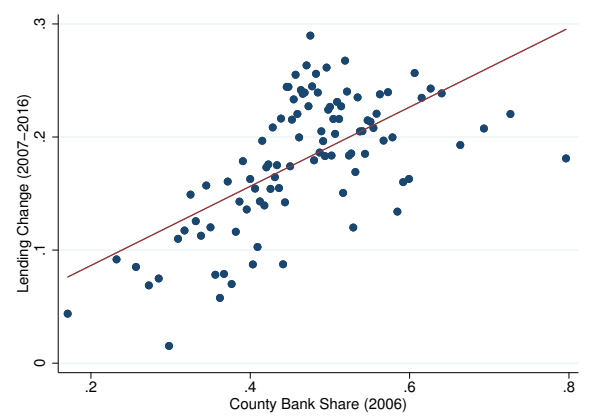
This figure presents binscatter plots of change in nonbank market share (Panel A), nonbank lending (Panel B), and total lending (Panel C) from 2007 to 2016 at the county-level as a function of 2006 county bank shares. County bank share represents the share of county lending accounted for by banks based on 2006 loan origination. Change in nonbank market share is measured as the change in the share of total county lending by nonbanks. Lending changes are measured as the log change in the number of loans. State fixed effects are included. Data on loan originations is obtained from UCC filings.

Figure 5: 2007-2016 Lending Growth at the County-Industry Level

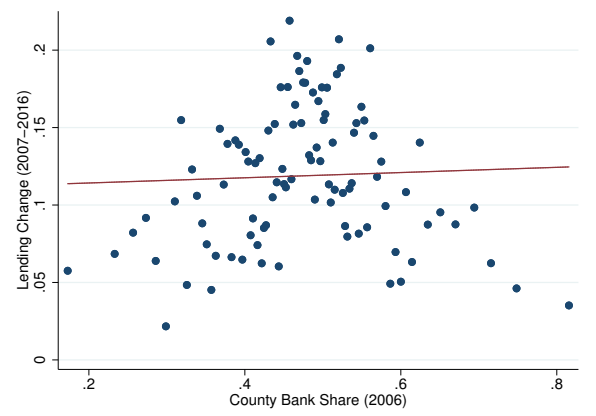
Panel A - Nonbank Market Share



Panel B - Nonbank Lending



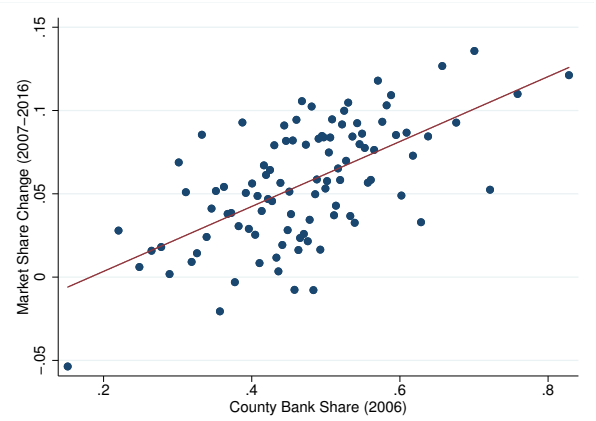
Panel C - Total Lending



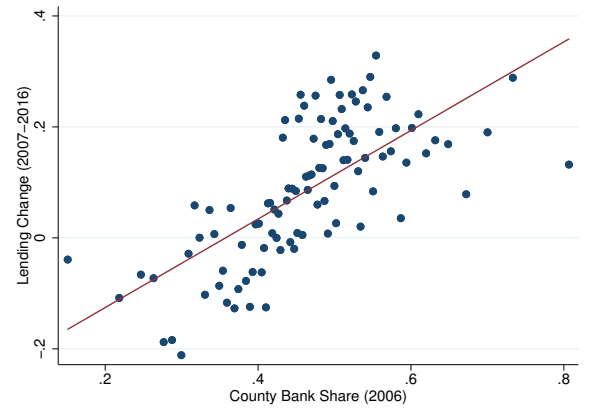
This figure presents binscatter plots of change in nonbank market share (Panel A), nonbank lending (Panel B), and total lending (Panel C) from 2007 to 2016 at the county-industry level as a function of 2006 county bank shares. County bank share represents the share of county lending accounted for by banks based on 2006 loan origination. Change in nonbank market share is measured as the change in the share of total county-industry lending by nonbanks. Lending changes are measured as the log change in the number of loans. 2-digit SIC industry fixed effects (64 industries) are included. Data on loan originations is obtained from UCC filings.

Figure 6: 2007-2016 Lending Growth at the County-Collateral Level

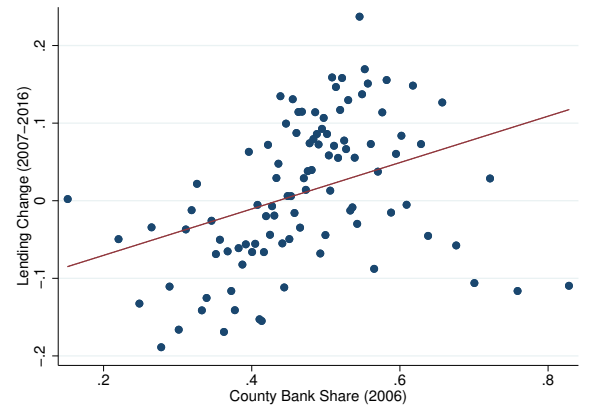
Panel A - Nonbank Market Share



Panel B - Nonbank Lending



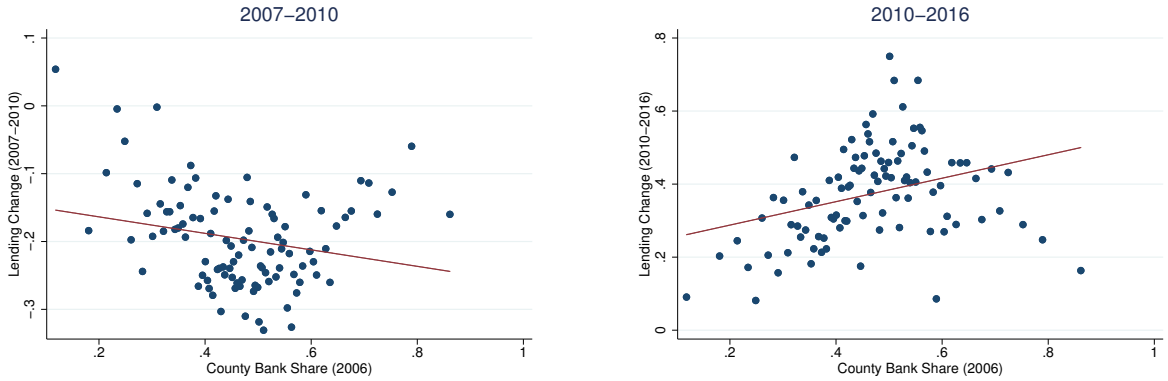
Panel C - Total Lending



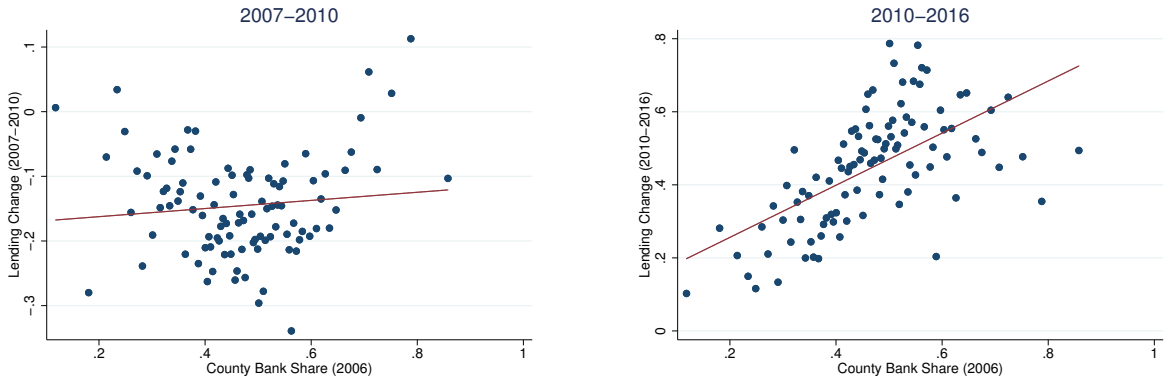
This figure presents binscatter plots of change in nonbank market share (Panel A), nonbank lending (Panel B), and total lending (Panel C) from 2007 to 2016 at the county-collateral level as a function of 2006 county bank shares. County bank share represents the share of county lending accounted for by banks based on 2006 loan origination. Change in nonbank market share is measured as the change in the share of total county-collateral lending by nonbanks. Lending changes are measured as the log change in the number of loans. Loans with multiple types of collateral are assigned to the most common collateral in the sample. Collateral type fixed effects (23 types) are included. Data on loan originations is obtained from UCC filings.

Figure 7: County Lending (Subperiods)

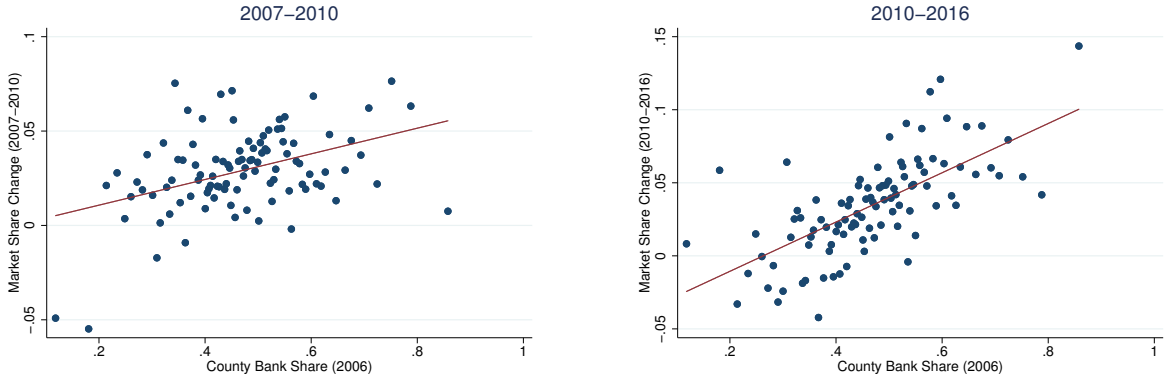
Panel A - Total Lending



Panel B - Nonbank Lending



Panel C - Nonbank Market Share



This figure presents binscatter plots of change in total lending (Panel A), change in nonbank lending (Panel B), and change in nonbank market shares (Panel C) between 2007 and 2010 (financial crisis) and between 2010 and 2016 (post-crisis period) at the county-level as a function of 2006 county bank shares. County bank share represents the share of county lending accounted for by banks based on 2006 loan origination. Lending changes are measured as the log change in the number of loans. Change in nonbank market share is measured as the change in the share of total county lending by nonbanks. Data on loan originations is obtained from UCC filings.

Table 1: Summary Statistics - Largest Lenders

This table presents summary statistics for the largest 20 lenders in the sample. Average annual loans are the number of new loans per year from 2006 to 2016 based on UCC data. Bank is an indicator variable equal to one if the lender is a bank and zero otherwise. We collect the variables *Total Assets, Total Loans Outstanding, Long-term debt, and Short-term debt* from 2016 financial statements, where available.

Lender	Average Annual Loans	Bank	Total Assets (2016, mil $)	Loans Outstanding (2016, mil $)	Long-term debt (2016, mil $)	Short-term debt (% of assets)
John Deere	56,695	0	34,068	28,641	16,569	15.8%
Wells Fargo	32,283	1	1,727,235	24,436	232,061	77.5%
U.S. Bank	30,914	1	441,010	10,818	51,723	77.8%
CNH Capital America	26,236	0	14,043	12,825	3,267	3.6%
Kubota Credit Corporation*	22,671	0				
JPMorgan Chase Bank	17,430	1	2,082,803	13,653	397,216	71.1%
Bank of America	16,232	1	1,677,490	29,370	137,249	79.6%
Caterpillar Financial Services	15,746	0	33,615	26,212	20,537	21.1%
General Electric Capital**	15,569	0	267,725	33,750	187,991	9.4%
Branch Banking and Trust	15,122	1	214,433	5,273	18,340	78.2%
Snap-on Credit*	10,105	0				
Citizens Bank	8,267	1	116,940	2,461	17,367	71.2%
Citibank	7,678	1	1,349,581	7,930	323,986	65.3%
Bank of the West	7,267	1	83,730	2,468	9,279	74.4%
De Lage Landen	7,197	0	39,434	28,525	27,542	12.2%
AGCO Finance*	7,126	0	2,278		1,610	7.7%
TCF National Bank	6,948	1	21,455	2,373	1,709	81.1%
Tower Loan*	6,764	0				
PNC Bank	6,374	1	355,999	4,030	54,236	73.7%
Toyota Motor Credit Corp***	6,248	0				

Notes:
* - private finance company with no financial reports filed
** GE Capital sold most of its financial arms and became a private corporation in October 2015. Statistics are as of 2014.
*** Filings consolidated to include both consumer and business loans. Break up not available.

Table 2: Annual Loan Originations

Data on loan originations are obtained from UCC filings. Top4 banks refer to the four largest banks by assets, i.e., JPMorgan Chase, Bank of America, Wells Fargo, and Citibank, after adjusting for mergers. All other depository institutions are classified as Small Banks. Nonbanks refer to non-depository taking institutions. Panel A shows the level and change in the annual number of new loan originations, while Panel B shows levels and changes in market share by lender-type.

Panel A - Number of Loans by Lender-Type and Year

	All Banks	Top4 Banks	Small Banks	Nonbanks	Total
2006	463,734	79,236	384,498	514,791	978,525
2007	459,053	84,067	374,986	529,254	988,307
2008	429,795	77,231	352,564	504,704	934,499
2009	362,207	47,671	314,536	455,812	818,019
2010	338,787	51,201	287,586	426,499	765,286
2011	409,900	62,867	347,033	519,449	929,349
2012	462,412	70,269	392,143	592,646	1,055,058
2013	484,003	69,554	414,449	641,661	1,125,664
2014	486,193	69,807	416,386	665,780	1,151,973
2015	481,131	65,264	415,867	699,642	1,180,773
2016	489,637	73,084	416,553	722,839	1,212,476
2006-2010 change (%)	-26.94	-35.38	-25.20	-17.15	-21.79
2010-2016 change (%)	44.53	42.74	44.84	69.48	58.43
2006-2016 change (%)	5.59	-7.76	8.34	40.41	23.91

Panel B - Market Share by Lender-Type and Year

	All Banks	Top4 Banks	Small Banks	Nonbanks
2006	47.39	8.10	39.29	52.61
2007	46.45	8.51	37.94	53.55
2008	45.99	8.26	37.73	54.01
2009	44.28	5.83	38.45	55.72
2010	44.27	6.69	37.58	55.73
2011	44.11	6.76	37.34	55.89
2012	43.83	6.66	37.17	56.17
2013	43.00	6.18	36.82	57.00
2014	42.21	6.06	36.15	57.79
2015	40.75	5.53	35.22	59.25
2016	40.38	6.03	34.36	59.62
2006-2010 change (ppt)	-3.12	-1.41	-1.71	3.12
2010-2016 change (ppt)	-3.89	-0.66	-3.22	3.89
2006-2016 change (ppt)	-7.01	-2.07	-4.94	7.01

Table 3: Lender and Loan Summary Statistics

This table presents statistics on the lenders in the UCC filings. Panel A presents statistics on the number of lenders and the average number of loans originated by lender type. Panel B presents the type of lenders in the sample. Panel C presents the change in loan origination by lender type between 2006 and 2016.

Panel A - Banks and Nonbank Lenders

	Number of Lenders		Average number of loans	
	$\geq$ 100 loans	$\geq$1500 loans	$\geq$100 loans	$\geq$1500 loans
Bank	3,967	330	1,315	9,773
Nonbank	4,144	416	1,384	10,097

Panel B - Lenders by Lender Type ($\geq$ 1500 loans)

	Count
Banks	330
Nonbanks	416
Captive Finance	95
Independent Finance Companies	192
Cooperatives	19
Fintech	19
Investment Companies	31

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Panel C - Loan Origination by Lender Type

	2006	2016	Total Sample	2006-16 Growth Rate
Total Banks	463,734	489,637	4,866,852	5.59
Total Nonbanks	514,791	722,839	6,273,077	40.41
Captive Finance Companies	211,020	201,813	2,249,066	-4.36
Independent Finance Companies	110,923	184,760	1,402,955	66.57
Cooperatives	16,245	25,567	264,867	57.38
FinTech	2,313	74,718	261,875	$\gg$ 100
Investment Companies	10,857	11,503	116,488	5.95
Non-financials	161,910	222,658	1,945,651	37.52

Lender and Loan Summary Statistics (contd.)

This table presents statistics on characteristics of the loans in the UCC filings. Panel D presents information on the types of collateral pledged. A single loan can have multiple types of collateral pledged. Panel E provides loan characteristics and statistics on lending relationships. Panel F provides estimates for loan volumes as measured from the EDA data. For loan volume calculation without haircuts, all new and used equipment amounts are estimated based on new equipment values. For loan volume calculation with haircuts, used equipment is valued at 50% of the new equipment's value.

Panel D - Most Common Types of Collateral

	Full Sample	Banks	Nonbanks
	Mean	Mean	Mean
Equipment	0.662	0.651	0.670
Deposit Accounts	0.316	0.416	0.241
General Intangibles	0.300	0.391	0.231
Chattel Paper	0.251	0.302	0.212
Inventory	0.231	0.321	0.162
Fixtures	0.178	0.247	0.126
Computer Equipment	0.146	0.178	0.121
Vehicles	0.094	0.120	0.073
Negotiable Instruments	0.079	0.124	0.044
Farm Products/ Crops	0.045	0.067	0.028

Panel E - Loan Characteristics

	Mean	Median
Maturity (months)	31.25	27
No. Lending Relationships	2	1
No. Loans	3.5	2

Panel F - Estimated Loan Volume

Loan Size (EDA)	Bank	Nonbank
Without haircut	216,896	176,720
With haircut	129,736	129,268

Table 4: Summary Statistics

This table presents summary statistics at the county-level. Median is based on 2006 county bank shares. County bank share represents the share of county lending accounted for by banks based on 2006 loan origination. Data on loan origiantions is obtained from UCC filings.

	Full Sample		Below Median		Above Median	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Outcome Variables						
Δ(Nonbank Lending)$_{2007-16}$	0.300	0.508	0.210	0.471	0.391	0.527
Δ(Nonbank Market Share)$_{2007-16}$	0.063	0.126	0.037	0.120	0.090	0.125
Δ(Nonbank Lending)$_{2007-10}$	-0.145	0.381	-0.147	0.373	-0.144	0.389
Δ(Nonbank Market Share)$_{2007-10}$	0.029	0.113	0.024	0.112	0.035	0.113
Δ(Nonbank Lending)$_{2010-16}$	0.447	0.567	0.359	0.531	0.537	0.588
Δ(Nonbank Market Share)$_{2010-16}$	0.034	0.127	0.013	0.122	0.054	0.130
Δ(Employment)$_{2007-16}$	-0.021	0.147	-0.022	0.149	-0.021	0.145
Δ(Establishments)$_{2007-16}$	-0.057	0.094	-0.058	0.092	-0.056	0.095
Δ(Wages)$_{2007-16}$	0.227	0.102	0.236	0.103	0.219	0.101
Δ(Expansion Rate)$_{2007-14}$	0.004	0.046	0.004	0.048	0.004	0.044
Controls						
Bank Share$_{2006}$	0.468	0.132	0.367	0.079	0.570	0.087
Top4 Deposit Share$_{2005}$	0.105	0.167	0.120	0.186	0.090	0.145
Population$_{2005}$	95,854	306,011	93,790	348,703	97,920	256,371
Unemployment Rate$_{2005}$	5.423	1.741	5.350	1.840	5.496	1.634
Labor Force Participation Rate$_{2005}$	0.491	0.062	0.496	0.062	0.486	0.061
Average Wage ('1000s \$)$_{2005}$	27.651	6.587	27.663	6.747	27.638	6.425
Δ(Labor Force)$_{2002-2006}$	0.031	0.070	0.027	0.069	0.035	0.070
Δ(Unemployment Rate)$_{2002-2006}$	-0.812	1.151	-0.821	1.170	-0.802	1.133
Δ(Establishments)$_{2002-2006}$	0.027	0.082	0.026	0.085	0.028	0.080
Δ(Wage)$_{2002-2006}$	0.139	0.105	0.140	0.103	0.138	0.106
Observations	3079		1540		1539	

Table 5: Lending Growth at the County Level

This table presents county-level regression for change in loan originations between 2007 and 2016. Change in nonbank market share is measured as the change in the share of total county lending by nonbanks. Lending change is measured as the log change in the number of new loan originations and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. Panel A includes state fixed effects. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county level.

Panel A - Including State FE and Controls

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$	0.221***	0.545***	0.015
	(0.024)	(0.078)	(0.059)
Controls	Y	Y	Y
State FE	Y	Y	Y
Obs.	3,006	3,006	3,006
R^2	0.232	0.526	0.566

Panel B - Including Controls

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$	0.218***	0.651***	0.109*
	(0.020)	(0.072)	(0.060)
Controls	Y	Y	Y
State FE	N	N	N
Obs.	3,006	3,006	3,006
R^2	0.087	0.123	0.080

Table 6: Lending Growth at County-Industry Level

This table presents county-industry level regression for change in loan originations between 2007 and 2016. Change in nonbank market share is measured as the change in the share of total county-industry lending by nonbanks. Lending change is measured as the log change in the number of new loan originations and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. In Panel A, industry is measured at the 4-digit SIC level (636 industries). In Panel B, industry is measured at the 2-digit SIC level (64 industries). Panel A includes 4-digit industry fixed effects, and Panel B includes 2-digit industry fixed effects. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors clustered at the county and industry level.

Panel A - 4-digit SIC

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$(County)	0.124***	0.330***	−0.007
	(0.019)	(0.074)	(0.065)
Industry FE	Yes	Yes	Yes
Controls	Y	Y	Y
Obs.	41,931	41,931	41,931
R^2	0.050	0.152	0.195

Panel B - 2-digit SIC

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$(County)	0.128***	0.356***	0.010
	(0.020)	(0.070)	(0.061)
Industry FE	Yes	Yes	Yes
Controls	Y	Y	Y
Obs.	35,029	35,029	35,029
R^2	0.023	0.145	0.201

Table 7: Lending Growth at the County-Collateral Level

This table presents county-collateral level regression for change in loan originations between 2007 and 2016. Change in nonbank market share is measured as the change in the share of total county-collateral lending by nonbanks. Lending change is measured as the log change in the number of new loan originations and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. A loan is counted as belonging to a collateral category if the specified type of collateral is pledged in the loan. Loans with multiple collateral types are assigned to the most common collateral type. Panel A includes state fixed effects. Both Panels include collateral type fixed effects. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county level.

Panel A - Including State FE and Controls

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$(County)	0.214***	0.508***	0.029
	(0.026)	(0.106)	(0.091)
Collateral FE	Y	Y	Y
State FE	Y	Y	Y
Obs.	9,771	9,771	9,771
R^2	0.162	0.337	0.328

Panel B - Including Controls

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$(County)	0.218***	0.632***	0.092
	(0.021)	(0.101)	(0.085)
Collateral FE	Y	Y	Y
State FE	N	N	N
Obs.	9,771	9,771	9,771
R^2	0.140	0.275	0.267

Table 8: Within-firm estimation

This table presents changes in firm-level lending. The dependent variable is an indicator variable equal to 1 if the firm receives a repeat loan and zero otherwise. A loan is a repeat loan if the firm obtains a new loan from the same lender-type in 2008-16 as in 2006-07 (pre-period). Sample in Panel A is restricted to firms with both bank and nonbank loans in the pre-period. Sample in Panel B is restricted to firms that had loans from only one type of lender in the pre-period. Nonbank is an indicator variable equal to 1 if the lender is a nonbank and zero otherwise. Industry FE is at the 4-digit SIC level. The regression is weighted by the number of loans to the firm from the lender-type in 2006-07.

Panel A - Firms with loans from both banks and nonbanks

	(1)	(2)	(3)
Nonbank	0.037***	0.048***	0.054***
	(0.006)	(0.006)	(0.006)
Firm FE	Y	N	N
County FE	N	Y	Y
Industry FE	N	Y	N
Obs.	292,994	292,994	292,994
Cluster	County, Ind	County, Ind	County, Ind
R^2	0.702	0.089	0.033

Panel B - Firms with loans from either a bank or a nonbank

	(1)	(2)	(3)
Nonbank	0.056***	0.094***	0.098***
	(0.007)	(0.010)	(0.013)
Firm FE	N	N	N
County FE	Y	Y	N
Industry FE	Y	N	N
Obs.	821,438	821,438	821,448
Cluster	County, Ind	County, Ind	County, Ind
R^2	0.099	0.045	0.010

Table 9: Comparing the Crisis vs. Recovery Period

This table displays the results on lending changes in two subperiods - the financial crisis (2007-2010), and the post-crisis recovery period (2010-2016). Changes are presented at the county level (Panel A), county-industry (2-digit SIC level, Panel B), county-collateral level (Panel C; sample restricted to county-collateral cells with at least 5 loans in 2007). Change in nonbank market share is measured as the change in the share of total lending by nonbanks. Lending change is measured as changes in the log number of new loans and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county level.

Panel A - County Lending

	2007-2010			2010-2016		
	(1) Nonbank Market Share	(2) Nonbank Lending	(3) Total Lending	(4) Nonbank Market Share	(5) Nonbank Lending	(6) Total Lending
Bank Share$_{06}$	0.073***	0.150**	−0.059	0.145***	0.518***	0.159**
	(0.018)	(0.061)	(0.047)	(0.020)	(0.078)	(0.067)
Controls	Y	Y	Y	Y	Y	Y
Obs.	3,003	3,003	3,003	3,003	3,003	3,003
R^2	0.017	0.120	0.142	0.078	0.190	0.156

Panel B - County-Industry Lending

	2007-2010			2010-2016		
	(1) Nonbank Market Share	(2) Nonbank Lending	(3) Total Lending	(4) Nonbank Market Share	(5) Nonbank Lending	(6) Total Lending
Bank Share$_{06}$	0.077***	0.198***	−0.017	0.071***	0.191***	0.009
	(0.015)	(0.051)	(0.051)	(0.017)	(0.064)	(0.064)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Y	Y	Y	Y	Y	Y
Obs.	27,387	27,387	27,387	27,387	27,387	27,387
R^2	0.025	0.068	0.077	0.022	0.170	0.230

Table 10: Yearly Impact of Bank-shares on Firm Funding Availability

This table presents results on lending changes at the firm-level. The dependent variable is a dummy that takes a value of 1 if the firm gets a new loan (column 1), a new loan from a nonbank (column 2), and a new loan from a bank (column 3) in the given year and zero otherwise. The sample is a balanced panel of all firm-year observations between 2006 and 2016. Bank Share measures the share of bank lending in the county in 2006. Standard errors are clustered at the county and 4-digit SIC industry level.

	(1)	(2)	(3)
	New Loan	Nonbank Loan	Bank Loan
Bank Share$_{06}$ x 2007	−0.023***	0.013***	−0.039***
	(0.006)	(0.003)	(0.005)
Bank Share$_{06}$ x 2008	−0.027***	0.017***	−0.046***
	(0.008)	(0.005)	(0.006)
Bank Share$_{06}$ x 2009	−0.021***	0.024***	−0.047***
	(0.008)	(0.006)	(0.006)
Bank Share$_{06}$ x 2010	−0.024***	0.042***	−0.064***
	(0.009)	(0.007)	(0.007)
Bank Share$_{06}$ x 2011	−0.038***	0.023***	−0.059***
	(0.010)	(0.008)	(0.007)
Bank Share$_{06}$ x 2012	−0.040***	0.014	−0.052***
	(0.010)	(0.009)	(0.006)
Bank Share$_{06}$ x 2013	−0.033***	0.023***	−0.052***
	(0.009)	(0.008)	(0.006)
Bank Share$_{06}$ x 2014	−0.010	0.047***	−0.048***
	(0.014)	(0.009)	(0.008)
Bank Share$_{06}$ x 2015	0.001	0.058***	−0.048***
	(0.021)	(0.014)	(0.011)
Bank Share$_{06}$ x 2016	0.045	0.090***	−0.036**
	(0.045)	(0.029)	(0.017)
Firm FE	Y	Y	Y
Year FE	Y	Y	Y
Obs.	36,671,646	36,671,646	36,671,646
R^2	0.171	0.209	0.168

Table 11: Bank vs. Bank-Affiliated Finance Companies

This table displays the results on lending changes at the county level. Change in market share is measured as the change in the share of total county lending by the lender-type. Bank Share measures the share of bank lending in the county in 2006. Bank affiliated finance companies are wholly owned nonbank subsidiaries of bank holding companies. Independent finance companies are finance companies that are owned neither by manufacturers nor by banks. Nonbanks include all non-bank-owned, non-depository institutions. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county-level.

Panel A - 2007-2016 Changes

	2007-2016		
	(1) Bank-Affliated FC Market Share	(2) Independet FC Market Share	(3) Nonbank Market Share
Bank Share$_{06}$	-0.015^{*}	0.104^{***}	0.223^{***}
	(0.008)	(0.017)	(0.021)
Controls	Y	Y	Y
Obs.	2,249	2,911	3,030
R^2	0.014	0.086	0.081

Panel B - 2007-2010 Changes

	2007-2010		
	(1) Bank-Affliated FC Market Share	(2) Independet FC Market Share	(3) Nonbank Market Share
Bank Share$_{06}$	-0.006	0.007	0.074^{***}
	(0.009)	(0.012)	(0.019)
Controls	Y	Y	Y
Obs.	2,093	2,906	3,048
R^2	0.013	0.008	0.014

Panel C - 2010-2016 Changes

	2010-2016		
	(1) Bank-Affliated FC Market Share	(2) Independet FC Market Share	(3) Nonbank Market Share
Bank Share$_{06}$	-0.017^{**}	0.092^{***}	0.149^{***}
	(0.008)	(0.016)	(0.021)
Controls	Y	Y	Y
Obs.	2,052	2,906	3,030
R^2	0.023	0.088	0.066

Table 12: Real Effects (2007-16)

This table presents results on the real effects. Bank Share measures the share of bank lending in the county in 2006. Outcome variables are the log change in the number of establishments (columns 1/2), log change in the number of employees (columns 3/4), log change in average wages (measured as the share of payroll per employee) (columns 5/6), and change in expansion rate (measured as the fraction of establishments that increase employment in a given year) (columns 7/8) between 2007 and 2016. The expansion rate is only available until 2014. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county level in Panel A. Panel B measures outcome variables at the county-industry (2-digit NAICS) level, and the standard errors are double clustered at the county and industry level.

Panel A- County Level

	Δ(Establishments)		Δ(Employment)		Δ(Wages)		Δ(Expansion Rate)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank Share$_{06}$	0.014	−0.000	−0.024	−0.032	−0.052***	−0.026	0.001	0.018**
	(0.014)	(0.016)	(0.023)	(0.029)	(0.016)	(0.018)	(0.008)	(0.009)
Baseline Controls	Y	Y	Y	Y	Y	Y	Y	Y
State FE	N	Y	N	Y	N	Y	N	Y
Obs.	3048	3048	3021	3021	3021	3021	3048	3048
R^2	0.164	0.313	0.072	0.140	0.104	0.211	0.072	0.181

Panel B- County-Industry Level

	Δ(Establishments)		Δ(Employment)		Δ(Wages)		Δ(Expansion Rate)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank Share$_{06}$	−0.010	−0.017	−0.043	−0.071*	0.012	0.026	0.002	0.014*
	(0.025)	(0.018)	(0.043)	(0.038)	(0.033)	(0.045)	(0.009)	(0.008)
Industry	Y	Y	Y	Y	Y	Y	Y	Y
Baseline Controls	Y	Y	Y	Y	Y	Y	Y	Y
State FE	N	Y	N	Y	N	Y	N	Y
Obs.	53268	53268	53268	53268	34749	34749	53055	53055
R^2	0.058	0.068	0.028	0.035	0.043	0.047	0.013	0.018

Appendix A Additional Figures

Figure A1: Sample UCC Filing

[redacted]

File Number: 20180091764K
Date Filed: 9/5/2018 11:53:00 AM
Elaine F. Marshall
NC Secretary of State

UCC FINANCING STATEMENT
FOLLOW INSTRUCTIONS

A. NAME & PHONE OF CONTACT AT FILER (optional)
Corporation Service Company

B. E-MAIL CONTACT AT FILER (optional)
FilingDept@cscinfo.com

C. SEND ACKNOWLEDGMENT TO: (Name and Address)

Corporation Service Company
801 Adlai Stevenson Dr
Springfield, IL 62703

THE ABOVE SPACE IS FOR FILING OFFICE USE ONLY

1. DEBTOR'S NAME: Provide only one Debtor name (1a or 1b) (use exact, full name; do not omit, modify, or abbreviate any part of the Debtor's name); if any part of the Individual Debtor's name will not fit in line 1b, leave all of item 1 blank, check here ☐ and provide the Individual Debtor information in item 10 of the Financing Statement Addendum (Form UCC1Ad)

1a. ORGANIZATION'S NAME
First Choice Landscaping, Inc.

OR

1b. INDIVIDUAL'S SURNAME	FIRST PERSONAL NAME	ADDITIONAL NAME(S)/INITIAL(S)	SUFFIX

1c. MAILING ADDRESS	CITY	STATE	POSTAL CODE	COUNTRY
596 BURRAGE ROAD	CONCORD	NC	28025	USA

2. DEBTOR'S NAME: Provide only one Debtor name (2a or 2b) (use exact, full name; do not omit, modify, or abbreviate any part of the Debtor's name); if any part of the Individual Debtor's name will not fit in line 2b, leave all of item 2 blank, check here ☐ and provide the Individual Debtor information in item 10 of the Financing Statement Addendum (Form UCC1Ad)

2a. ORGANIZATION'S NAME

OR

2b. INDIVIDUAL'S SURNAME	FIRST PERSONAL NAME	ADDITIONAL NAME(S)/INITIAL(S)	SUFFIX

2c. MAILING ADDRESS	CITY	STATE	POSTAL CODE	COUNTRY

3. SECURED PARTY'S NAME (or NAME of ASSIGNEE of ASSIGNOR SECURED PARTY): Provide only one Secured Party name (3a or 3b)

3a. ORGANIZATION'S NAME
Wells Fargo Vendor Financial Services, LLC

OR

3b. INDIVIDUAL'S SURNAME	FIRST PERSONAL NAME	ADDITIONAL NAME(S)/INITIAL(S)	SUFFIX

3c. MAILING ADDRESS	CITY	STATE	POSTAL CODE	COUNTRY
PO Box 35701	Billings	MT	59107	USA

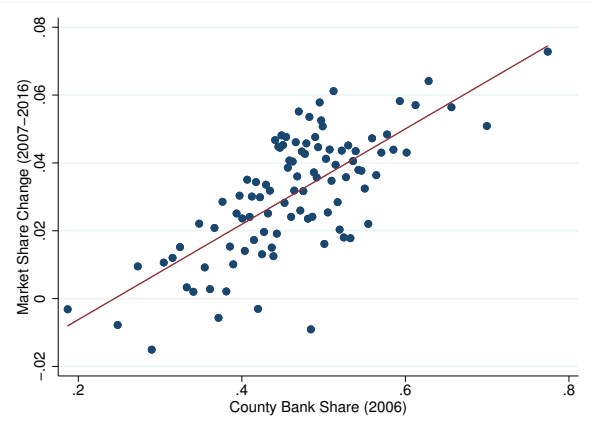
4. COLLATERAL: This financing statement covers the following collateral:

This Financing Statement covers the equipment and other assets described below and/or on any annex, schedule and/or exhibit hereto (which is to be considered an integral part hereof), plus all existing and future replacements, exchanges and substitutions therefor, attachments, accessories, accessions and additions thereto, and insurance, lease, sublease and other proceeds thereof.

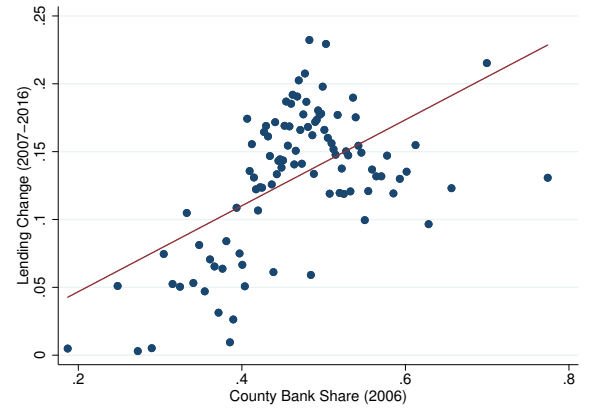
Equipment: ONE (1) BOBCAT COMPACT TRACK LOADER, MODEL#: T595 S/N: B3NK18740
ONE (1) BOBCAT SOIL CONDITIONER, MODEL#: 72in HYDRAULIC S/N: S6TE03123
ONE (1) BOBCAT TRENCHER, MODEL#: LT313 3FT DEPTH S/N: 045414032
ONE (1) BOBCAT SOIL CONDITIONER, MODEL#: 84in HYDRAULIC S/N: A6TG03041

Figure A2: 2007-2016 Lending Changes at the County-Industry Level (4-digit SIC)

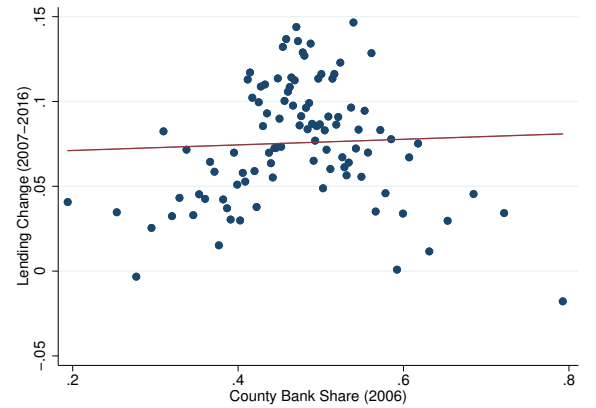
Panel A - Nonbank Market Share



Panel B - Nonbank Lending



Panel C - Total Lending



This figure presents binscatter plots of change in nonbank market share (Panel A), nonbank lending (Panel B) , and total lending (Panel C) between 2007 and 2016 at the county-industry level as a function of 2006 county bank shares. County bank share represents the fraction of county lending accounted for by banks based on 2006 loan origination. Change in nonbank market share is measured as the change in the share of total county-industry lending by nonbanks. Lending changes are measured as the log change in the number of loans. Figures are plotted after absorbing 636 4-digit SIC industry fixed effects. Data on loan originations is obtained from UCC filings.

Appendix B Additional Tables

Table A1: Additional Summary Statistics

Median is based on 2006 county bank shares. County bank share represents the fraction of county lending accounted for by banks based on 2006 loan origination. Data on loan originations is obtained from UCC filings.

Panel A - County- Industry (4-digit SIC) Summary Statistics

	Full Sample		Below Median		Above Median	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Δ(Nonbank Lending)$_{2007-16}$	0.189	0.928	0.155	0.918	0.219	0.935
Δ(Nonbank Market Share)$_{2007-16}$	0.036	0.246	0.028	0.242	0.043	0.250
Δ(Nonbank Lending)$_{2007-10}$	-0.182	0.839	-0.194	0.830	-0.172	0.846
Δ(Nonbank Market Share)$_{2007-10}$	0.015	0.235	0.010	0.230	0.019	0.239
Δ(Nonbank Lending)$_{2010-16}$	0.376	0.914	0.346	0.908	0.401	0.920
Δ(Nonbank Market Share)$_{2010-16}$	0.026	0.239	0.020	0.234	0.031	0.242
Observations	42052		19330		22722	

Panel B - County- Industry (2-digit SIC) Summary Statistics

	Full Sample		Below Median		Above Median	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Δ(Nonbank Lending)$_{2007-16}$	0.202	0.868	0.163	0.858	0.237	0.876
Δ(Nonbank Market Share)$_{2007-16}$	0.042	0.231	0.032	0.228	0.051	0.234
Δ(Nonbank Lending)$_{2007-10}$	-0.206	0.787	-0.221	0.783	-0.193	0.791
Δ(Nonbank Market Share)$_{2007-10}$	0.017	0.221	0.012	0.219	0.022	0.223
Δ(Nonbank Lending)$_{2010-16}$	0.408	0.864	0.380	0.855	0.433	0.871
Δ(Nonbank Market Share)$_{2010-16}$	0.026	0.226	0.021	0.223	0.031	0.228
Observations	35035		16306		18729	

Summary Statistics (contd.)

Median is based on 2006 county bank shares. County bank share represents the fraction of county lending accounted for by banks based on 2006 loan origination.

Panel C - County- Industry (2-digit SIC) Real Outcomes

	Full Sample		Below Median		Above Median	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
$\Delta(\text{Employment})_{2007-16}$	0.182	0.652	0.184	0.659	0.179	0.646
$\Delta(\text{Establishments})_{2007-16}$	-0.041	0.327	-0.039	0.329	-0.043	0.324
$\Delta(\text{Wages})_{2007-16}$	0.067	0.396	0.062	0.404	0.072	0.389
$\Delta(\text{Expansion Rate})_{2007-14}$	0.004	0.233	0.003	0.242	0.004	0.224
Observations	54319		27150		27169	

Panel D - County- Collateral Summary Statistics

	Full Sample		Below Median		Above Median	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
$\Delta(\text{Nonbank Lending})_{2007-16}$	0.136	1.221	0.066	1.196	0.205	1.243
$\Delta(\text{Nonbank Market Share})_{2007-16}$	0.050	0.225	0.033	0.224	0.067	0.225
$\Delta(\text{Nonbank Lending})_{2007-10}$	-0.162	0.899	-0.202	0.895	-0.122	0.902
$\Delta(\text{Nonbank Market Share})_{2007-10}$	0.043	0.246	0.040	0.243	0.046	0.249
$\Delta(\text{Nonbank Lending})_{2010-16}$	0.311	1.073	0.273	1.035	0.350	1.110
$\Delta(\text{Nonbank Market Share})_{2010-16}$	0.008	0.261	-0.008	0.255	0.023	0.266
Observations	9845		4923		4922	

Table A2: Captive vs. Non-Captive Finance Companies

This table displays the results on lending changes at the county level. Change in market share is measured as the change in the share of total county lending by lender-type. Lending change is measured as the change in the log number of new loans and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. Nonbanks include all non-bank-owned, non-depository institutions. Captive finance companies are financing-arms of manufacturing companies. Independent finance companies are finance companies not associated with manufacturing firms or banks. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county-level.

Panel A - 2007-2016 Changes

	2007-2016			
	(1) Nonbank Market Share	(2) Captive FC Lending	(3) Independent FC Lending	(4) Total Lending
Bank Share$_{06}$	0.214***	0.600***	1.022***	0.109*
	(0.019)	(0.085)	(0.108)	(0.060)
Controls	Y	Y	Y	Y
Obs.	3,006	2,975	2,922	3,006
R^2	0.086	0.079	0.135	0.080

Panel B - 2007-2010 Changes

	2007-2010			
	(1) Nonbank Market Share	(2) Captive FC Lending	(3) Independent FC Lending	(4) Total Lending
Bank Share$_{06}$	0.071***	0.199**	0.003	−0.064
	(0.018)	(0.083)	(0.093)	(0.047)
Controls	Y	Y	Y	Y
Obs.	3,006	2,972	2,897	3,006
R^2	0.016	0.134	0.055	0.141

Panel C - 2010-2016 Changes

	2010-2016			
	(1) Nonbank Market Share	(2) Captive FC Lending	(3) Independent FC Lending	(4) Total Lending
Bank Share$_{06}$	0.144***	0.381***	0.988***	0.167**
	(0.020)	(0.090)	(0.109)	(0.067)
Controls	Y	Y	Y	Y
Obs.	3,006	2,966	2,922	3,006
R^2	0.076	0.122	0.192	0.155

Table A3: Top 4 Deposit Share

This table displays the results on lending changes at the county level. Change in nonbank market share is measured as the change in the share of total county lending by nonbanks. Lending change is measured as the change in the log number of new loans and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. Top4 deposit share is measured as of 2005. Top4 refers to the 4 largest commercial banks by asset size (JPMorgan Chase, Bank of America, Wells Fargo, and Citibank, after adjusting for mergers). Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. Standard errors are clustered at the county-level.

Panel A - 2007-2016 Changes

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$	0.222***	0.632***	0.085
	(0.020)	(0.074)	(0.061)
Top4 Deposit Share	0.018	−0.106*	−0.137***
	(0.017)	(0.064)	(0.050)
Controls	Y	Y	Y
Obs.	3,003	3,003	3,003
R^2	0.088	0.124	0.083

Panel B - 2007-2010 Changes

	2007-2010		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$	0.066***	0.113*	−0.084*
	(0.018)	(0.061)	(0.047)
Top4 Deposit Share	−0.037**	−0.187***	−0.131***
	(0.017)	(0.048)	(0.037)
Controls	Y	Y	Y
Obs.	3,003	3,003	3,003
R^2	0.020	0.125	0.146

Panel C - 2010-2016 Changes

	2010-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank Lending	Total Lending
Bank Share$_{06}$	0.156***	0.530***	0.157**
	(0.020)	(0.077)	(0.067)
Top4 Deposit Share	0.056***	0.059	−0.015
	(0.018)	(0.068)	(0.058)
Controls	Y	Y	Y
Obs.	3,003	3,003	3,003
R^2	0.082	0.190	0.157

Table A4: Large County Results

This table displays the results on lending changes at the county level. Change in nonbank market share is measured as the change in the share of total county lending by nonbanks. Lending change is measured as the change in the log number of new loans and is winsorized at the 1% level. Bank Share measures the share of bank lending in the county in 2006. Controls include the county unemployment rate, labor force participation rate, average wage, and log population in 2005, change in the unemployment rate in the county, change in labor force participation rate in the county, change in the number of establishments in the county, and wage growth in the county between 2002-2006. The population estimate is based on 2005 levels. Standard errors are clustered at the county level.

Panel A - Weighted by total county lending in 2007

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank	Total
Bank Share$_{06}$	0.302***	0.972***	0.289***
	(0.033)	(0.128)	(0.087)
Controls	Y	Y	Y
Obs.	3,003	3,003	3,003
R^2	0.184	0.184	0.113

Panel B - Weighted by county population

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank	Total
Bank Share$_{06}$	0.288***	0.995***	0.360***
	(0.033)	(0.119)	(0.085)
Controls	Y	Y	Y
Obs.	3,003	3,003	3,003
R^2	0.172	0.158	0.088

Panel C - Largest 500 counties by population

	2007-2016		
	(1)	(2)	(3)
	Nonbank Market Share	Nonbank	Total
Bank Share$_{06}$	0.352***	1.175***	0.463**
	(0.068)	(0.267)	(0.185)
Controls	Y	Y	Y
Obs.	500	500	500
R^2	0.212	0.201	0.139