Local Bankruptcy and Geographic Contagion in the Bank Loan Market*

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October 8, 2019

Abstract – We examine whether corporate bankruptcies influence bank loan characteristics of geographically proximate firms. Controlling for industry contagion and local economic conditions, firms headquartered near a bankruptcy event experience a seven basis point increase in loan spreads. The effect is transitory and cannot be fully explained by local correlated information or lenders' financial health. Instead, the effect is more pronounced for informationally opaque bankruptcies and borrowers, and weakened among loans with relationship lenders and lenders with significant local presence.

Keywords: Corporate bankruptcy; geographic contagion; bank loans

JEL classification: G21, G33, E51.

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1 Introduction

A growing finance literature investigates contagion effects of corporate bankruptcies (e.g., Lang and Stulz (1992), Hertzel, Li, Officer, and Rodgers (2008), Benmelech and Bergman (2011)). Hertzel and Officer (2012) examine banks' provision of debt financing following a bankruptcy filing, and suggest that financial intermediaries such as banks are likely to play an important role in transmitting bankruptcy shocks across the bankrupt firm's industry peers. While industry contagion effects in the bank loan market have been previously documented, the existence and extent of geographic pricing effects in banks' financing decisions remains an open question. In this paper, we examine the impact of local bankruptcies on the pricing of debt capital for geographically proximate firms. We also identify potential channels through which geographic contagion effects arise in the bank loan market.

In theory, a bankruptcy filing might induce a negative or positive effect on loan terms of local firms. Theories on contagions effect predict that an individual distress event can propagate and generate negative spillover effects on local firms via information, liquidity, or risk-based channels (Kaminsky, Reinhardt, and Vegh (2003), Brunnermeier and Pedersen (2009), Vayanos (2004)). In contrast, endogenous growth models (e.g., Medearis (1997), Aghion and Howitt (1992)) highlight the role of competition and posit that a removal of a competitor, as a result of a bankruptcy filing, improves market power of surviving firms. As a result, these firms may receive more favorable loan terms in the aftermath of a bankruptcy. Given these competing theoretical views, the impact of a bankruptcy filing on loan characteristics of local firms is an open empirical question.

Using data on bankruptcy filings of all publicly listed firms in the U.S. between 1990 and 2013, we show that spreads on new and renegotiated loans increase significantly for firms that are located in a 50 kilometer county-radius surrounding a firm entering bankruptcy. This geographic contagion effect is transitory and lasts for about one year following a local bankruptcy.

Specifically, in univariate tests, we find that loan spreads increase by over 7 basis points, on average, in the year following a local bankruptcy. Further, in multivariate regressions where we control for a large set of firm- and loan-level characteristics, as well as various sets of time varying fixed effects at the industry and state-year level, we again find an average increase in local loan spreads of 7 basis points. This magnitude represents an increase of 3.4% in the cost of debt financing relative to the average loan spread in our sample. Results increase to 10 basis points if we perform a propensity score matching and still amount to 6.2 basis points if we condition on within-borrower variation by including borrower fixed effects. In addition to an increase in loan spreads, we also observe increases in covenant and collateral requirements, as well as a decrease in loan maturities.

We conduct several additional tests to ensure the robustness of our results. For example, one may argue that the local contagion effect we document might be attributed to a selection bias whereby only firms with impecunious business outlook would apply for a loan after a local bankruptcy. To address this concern, we follow Altonji, Elder, and Taber (2005), and measure the degree of selection bias on observables to make inferences about selection bias on unobservables. Specifically, we show that the effect of unobservables would need to be 3.78 times stronger than the effect of two important control variables, ROA and asset tangibility, to deplete our main effect to zero, which is highly unlikely.

Next, we conduct additional tests to ensure our results are distinct from the industry contagion effects documented in Hertzel and Officer (2012). Specifically, we re-estimate our main specification after excluding all geographically proximate firms that operate in the same industry as the firm filing for bankruptcy. In addition, based on BEA Input-Output data, we exclude local firms operating in industries with significant economic exposure to that of the filing firm. As a further robustness test, we relax the definition of geographic proximity and define local firms as those located in a 100 or 200 kilometer county radius surrounding a filing firm, respectively. We also adjust our geographic proximity measure for variation in population density. In all cases, the local bankruptcy effect remains statistically significant and economically meaningful.

We also examine potential mechanisms that could generate geographic contagion in the bank loan market. Longstaff (2010) describes three possible mechanisms for contagion effects. The first one is contagion due to an information effect, i.e., negative shocks to one firm may reflect economic news that directly affect the collateral values or cash flows of other firms (Kiyotaki and Moore (2002), Kaminsky, Reinhardt, and Vegh (2003)). In this scenario, contagion would be interpreted as the transmission of information from one firm to other firms. We directly investigate this potential channel by examining whether local bankruptcies lead to a deterioration of other local firms' collateral values, default ratings, bankruptcy propensities, CDS spreads, and stock valuations. We find none of these to be the case. Thus, local bankruptcies do not seem to convey any new information about local economic conditions.

The second mechanism described by Longstaff (2010) refers to contagion effects through capital providers (in our case banks) who suffer losses due to the shock in one market. As a result, they may find their ability to provide capital impaired, potentially leading to a downward spiral of reduced capital supply via a "flight to quality" (Allen and Gale (2000), Brunnermeier and Pedersen (2009)). In this mechanism, contagion occurs through impaired balance sheets of lenders caused by the local bankruptcy. To examine whether the local contagion effect operates through banks' balance sheets, we consider subsamples of banks that do not lend to local bankrupt firms or belong to the top 30 largest banks. Our key result remains robust to this modification. Furthermore, we obtain financial information of lenders via hand-matching lender names in Dealscan with those in the WRDS Bank Regulatory database. We show that our effect is not driven by poorly performing banks or banks that are under-capitalized. Collectively, these pieces of evidence render little support for a bank balance sheet channel.

The third type of contagion described by Longstaff (2010) is a risk-based explanation. In this mechanism, contagion effects occur because a local shock increases uncertainty regarding the local geographical area. In line with this view, we find that our results are stronger when local bankruptcies are informationally opaque. We proxy for informational opaqueness by the extent to which local bankruptcies are covered by the news media, and by the ratio of intangible assets of the bankrupt firm. We also find that our main effect intensifies for borrowers that are young or locate in remote areas, i.e., borrowers that should be associated with higher informational asymmetries.

Finally, we examine whether we observe a "flight-to-home" effect following a local bankruptcy, whereby lenders retreat from the local credit market or increase prices for loans where they presumably have less information (Giannetti and Laeven (2012) and De Haas and Van Horen (2013)). We indeed find that our main result is stronger for lenders with limited local exposure and for transaction lenders. These results suggest that local lenders and relationship lenders are better able to overcome informational asymmetries (Bolton, Freixas, Gambacorta, and Mistrulli (2016) and Beck, Degryse, Haas, and van Horen (2018)). In line with this view, we find that the fraction of relationship loans relative to transaction loans increases after a local bankruptcy.

Taken together, these results suggest that the contagion effect we document does not operate through signaling a weakening local economy. It is also unlikely to be driven by lenders' impaired balance sheets. Rather, temporary heightened uncertainty and information asymmetry after a local bankruptcy event seems to be the main driver of our results.

This paper contributes to the literature on the determinants of financial contagion. Lang and Stulz (1992) and Ferris, Jayaraman, and Makhila (1997) investigate bankruptcy contagion effects on investors of industry peers. Further, Hertzel, Li, Officer, and Rodgers (2008) examine bankruptcy contagion effects along the supply chain of filing firms, while Boone and Ivanov (2012) define proximate non-filing firms as strategic alliance partners. Finally, Jorion and Zhang (2007) investigate bankruptcy contagion effects on industry capital providers.

We complement this literature by adding the new dimension of geography to bankruptcy-induced contagion. Specifically, we document and quantify geographic contagion effects in loan spreads and other loan characteristics following corporate bankruptcies.

The paper most closely related to ours is that of Hertzel and Officer (2012), who examine industry loan spread contagion effects surrounding a bankruptcy filing by an industry rival. Their main finding is that loans originated in an industry bankruptcy wave have higher spreads than loans originated in other industries. We show that there is a similar effect on the geographic dimension. Our result complements the evidence on industry contagion and adds to our understanding of how financial shocks are transmitted across firms.

Beyond the literature on financial contagion, our paper contributes to a growing finance literature that examines how geographic proximity affects corporate decisions. For example, Chhaochharia, Kumar, and Niessen-Ruenzi (2012) show that firms with a high fraction of local investors exhibit better corporate governance. Further, Parsons, Sulaeman, and Titman (2018) show that, due to cultural factors, financial misconduct increases with the frequency of misconduct among geographically proximate firms. Our paper contributes to this literature by showing that bankruptcies of geographically proximate firms affect credit conditions of local non-filing firms, as lenders appear to adjust credit conditions downward for all firms located in the same geographical area.

2 Data and summary statistics

2.1 Bank loan data

Our initial sample includes public companies in the United States with financial data available on Standard & Poors' Compustat database extracted over the period from 1990 to 2013.[1] We exclude firms with missing data on assets, cash, sales, earnings before interest, tax and depreciation (EBITDA) and headquarter location. We also remove utility (SIC from 4910 to 4939) and financial firms (SIC from 6000 to 6999) since the financial policies of these firms are subject to statutory capital requirements or regulatory supervision in a number of states.

[1] According to Graham, Li, and Qiu (2008), Dealscan converts loan spreads that are not based on LIBOR into LIBOR terms by adding or subtracting a differential which is adjusted periodically. Therefore, our sample also includes loans that are originally priced on a non-LIBOR basis, but then converted by Dealscan.

Our bankruptcy sample includes bankruptcy filings of public firms obtained from New Generation Research and the UCLA-LoPucki Bankruptcy Research Database. New Generation Research provides a comprehensive dataset of bankruptcy filings for major public companies. The UCLA Bankruptcy Research Database includes data on all large and public company bankruptcies. The database includes large firms with reported assets worth at least $100 million in 1980 dollars. To be included in our sample, these firms must have geographical information including county and state. Then, they are matched with the Standard and Poor's Compustat database. The final sample comprises 2,474 corporate bankruptcy filings from 1990 to 2013.

We obtain data on individual loan contracts from LPC-Reuters' Dealscan database. Dealscan provides information on loans made to medium and large-sized U.S. and foreign firms. We obtain information on all dollar-denominated loans made by U.S. lenders to U.S. borrowers from 1990 to 2013. The matching of Dealscan and Compustat data for the period from 1990 to 2007 is performed using the linkage database from Chava and Roberts (2008). For the data from 2008 to 2013, we match Dealscan and Compustat using ticker and company names. Following the prior literature (Hertzel and Officer (2012) and Ivashina (2009)), the largest tranche in each deal is one observation. To be included in our sample, we require borrowers to have non-missing location information (i.e., either ZIP code or county and state of corporate headquarters must be available). Table 1 reports the number of loans and the number of bankruptcy filings for each year in our sample.

Loans are distributed fairly evenly across the sample. While there are 305 loans in 1990, the maximum number of newly initiated loans amounts to 1,056 in 1997. The annual number of bankruptcy filings ranges from 48 in 1994 to 255 in 2001, reflecting the burst of the Tech-bubble and the subsequent economic downturn.

2.2 Location data

We obtain historical geographical information of firms' headquarters from SEC Analytics Suite and Compustat. We focus on the location of corporate headquarters rather than the state of incorporation, since corporate headquarters form the strategic center of a firm and are presumably more relevant for lenders' decisions on granting a loan. Specifically, a firm's location is defined based on county and state of its headquarters. We collect the latitude and longitude at the centroid of each U.S. county from the U.S. Census Bureau Gazetteer. To estimate geographic proximity, we use the Haversine Formula and compute the distance between two counties, $d_{1,2}$, as:

$$d_{1,2} = R \times 2 \times arcsin(min(1, \sqrt{a})); \quad R \approx 6,378 \text{ kilometers};$$
$$a = (sin(\tfrac{lat2-lat1}{2}))^2 + cos(lat1) \times cos(lat2) \times (sin(\tfrac{lon2-lon1}{2}))^2.$$

We define firms to be geographically close to a bankruptcy event if they are located in counties within a 50 kilometer radius surrounding the headquarter county of a firm filing for bankruptcy in a given year.

The distribution of bankruptcy filings across U.S. states is presented in Figure 1. As expected, bankruptcies are more frequent around economic centers of the U.S. Specifically, most bankruptcies are observed in California, New York, New Jersey, Florida and Texas. In Panel B of Table 1, we list the top 20 counties with the most bankruptcies in our sample. Again, we observe that most bankruptcies occur in counties belonging to large economic centers of the U.S., with the highest fraction of firms filing for bankruptcy in New York County (5.54%), Los Angeles County (4%), and Dallas County (3.8%).

2.3 Summary statistics

After merging observations from all databases, our final sample comprises 14,040 loans that are held by 4,711 firms. The sample period is from 1990 to 2013. All variables are defined in more detail in Appendix A. Summary statistics are reported in Table 2.

Panel A displays average and median loan and firm characteristics as well as their standard deviations. The mean loan spread in our sample, defined as all-in-spread-drawn, is 209.64 basis points. The mean coupon, defined as spread over LIBOR, is 205.84. Average deal size is $310 million USD, and loans have an average maturity of about 45 months. Most of our sample loans are secured (72%) and do not involve relationship lenders. Overall, summary statistics of our sample are very similar to those in Hertzel and Officer (2012), who investigate industry contagion in loan spreads.

Panel B compares average loan and firm characteristics between local firms, i.e., firms that are geographically close to a bankrupt firm, and non-local firms. Firms entering bankruptcy are excluded from the sample. We find that loan spreads of local firms are significantly larger than spreads of non-local firms. Loans of local firms do not differ in terms of loan amounts, but do have significantly shorter maturities on average. At the same time, local firms have lower return on assets and higher cash flow volatility. These differences mandate that we control for time-varying firm characteristics in all subsequent regressions.

3 Effect of bankruptcies on local credit conditions

3.1 Estimation framework

To quantify the impact of local bankruptcies on geographically proximate firms, we define a dummy variable that is equal to one for all firms headquartered in counties within a 50 kilometer radius surrounding a firm that filed for bankruptcy in the previous year, and zero otherwise. Following Hertzel and Officer (2012), we define the logarithm of loan all-in-drawn spread (which equals spread+annual fee) as the main dependent variable. Firms entering bankruptcy are dropped from the sample to avoid a mechanical relation between loan spreads and local bankruptcies.

Our econometric specification includes a set of control variables that are standard in the literature (e.g., Hertzel and Officer (2012), Chava, Livdan, and Purnanandam (2009)). Specifically, our regressions include the following firm characteristics as control variables: firm size measured as the logarithm of total assets, a firm's market-to-book ratio, return on assets, leverage ratio, and asset tangibility. Cash flow volatility and stock return volatility are computed using data over five years and 252 trading days prior to the loan origination date. We also include a control variable that captures the likelihood that geographically proximate firms enter financial distress after a local bankruptcy. This dummy variable is a forward looking measure of borrower quality. It is equal to one if a firm enters bankruptcy during the three years following loan origination, and zero otherwise.

We also control for loan-specific characteristics in our regressions. Specifically, we include the log of the loan's deal amount and a dummy indicating the presence of financial covenants. In addition, we control for whether the loan is secured and whether there is a sole or a relationship lender, because the latter might lead to stronger contagion effects (Cai, Eidam, Saunders, and Steffen (2018)). We also control for whether the loan contains a performance pricing feature, and whether the base rate is prime.

Finally, we include a large set of fixed effects. To capture the impact of local and national business cycles, we include state-year fixed effects in our regressions. These allow us to control for both observed and unobserved sources of common variation in loan spreads among firms headquartered in the same state. As demonstrated by Gormley and Matsa (2014), this approach is preferable to including state-level economic indicators as control variables, since their inclusion can generate inconsistent coefficient estimates and is unlikely to control for unobservable determinants of risk premia. In particular, backward-looking economic indicators are unlikely to capture the potentially important effect of lenders' expectations surrounding future state-level economic conditions. In addition to state-year fixed effects, we include industry fixed effects to control for cross sectional differences in loan characteristics across industries. Further, we include fixed effects for senior and non-senior debt ratings, type of loan, and purpose of loan. Squared (continuous) control variables are also added in one specification to allow for a non-linear impact of these variables.

To mitigate concerns that the borrower population may change after a local bankruptcy, we add borrower fixed effects in one specification, thereby conditioning on within-borrower variation (i.e., variation before and after a local bankruptcy) in loan spreads. Borrower fixed effects additionally take care of the fact that local and non-local firms differ on various dimensions (see Panel B of Table 2) that may not be entirely captured by our control variables.

3.2 Local bankruptcies and loan spreads

Estimation results are reported in Panel A of Table 3. They suggest that loan spreads of geographically proximate firms are adversely affected by a local bankruptcy. The point estimates of the coefficients suggest that loan spreads of firms that are located within a 50 kilometer county radius of a filing firm increase by 6−7 basis points the year following a local bankruptcy filing. In column (1), we only include industry fixed effects, while we add state-year fixed effects in column (2). In column (3), we also include fixed effects reflecting senior debt ratings, types and purposes of loans. Borrower fixed effects are added in column (4), and squared control variables are added in column (5). Across these regression specifications, our main result remains statistically significant at the 1% level.[2] The result is also economically significant. With an unconditional average loan spread of around 209.64 basis points over LIBOR, our point estimates suggest that, controlling for loan, market, and borrower characteristics, loan spreads of geographically proximate firms are about 3.4% higher if a local firm has filed for bankruptcy in the previous year.[3]

With respect to our control variables, the signs of the coefficients are generally consistent with earlier findings from the literature (e.g., Hertzel and Officer (2012), Chava, Livdan, and Purnanandam (2009)). We find that loan spreads are significantly higher for borrowers that are smaller, less profitable, and have higher cash flow and stock return volatility. At the same time, spreads are higher for borrowers with low relative valuations (market-to-book ratio) and higher pre-loan leverage. Smaller loans, re-financings, and loans that are tied to the U.S. prime rate also have systematically higher spreads (despite the fact that Dealscan converts non-LIBOR spreads into LIBOR-equivalent spreads). Spreads are also significantly higher for secured loans, and lower for loans with a relationship lender, loans with a performance pricing feature, and loans with covenants.

[2]In unreported results, we run our baseline regression separately for term loans and revolvers. As revolvers are usually priced as to the risk of draw-down, we want to rule out that our main result is solely driven by draw-down risk increasing after local bankruptcies. We find a significant increase of loan spreads for both, term loans (coefficient 13.3, t-stat: 1.83) and revolvers (coefficient 9.0, t-stat: 4.29). Thus, an increase in draw-down risk is unlikely to explain our main effect.

[3]Similar to results in Hertzel and Officer (2012) on industry bankruptcy waves, we find in untabulated results that the average loan spread is the highest for loans originated in the middle of a local bankruptcy wave.

As expected, our measure of borrower quality is positively related to loan spreads. Spreads are about 42 basis points higher if the borrower files for bankruptcy within three years following loan origination. This result suggests that lenders are at least partly able to predict greater credit risk and the probability of corporate bankruptcy. Since we still observe a significant impact of location on loan spreads, changes in borrower quality and local, as well as market-wide, economic conditions cannot fully explain the observed geographic contagion effect.

In the next step, we conduct a matched sample analysis and compare local firms that are in a different industry than the bankrupt firm to non-local firms in the same industry. Specifically, we examine whether loan spreads of these firms are similar before the local bankruptcy, and differ afterwards.

We define a treatment group which includes all loan packages originated from firms located in a 50-km radius of a bankrupt firm, but that are neither in the same industry as the bankrupt firm, nor belong to its supply chain. By doing this, we rule out that our results are artefacts of the previously documented industry contagion effects (Hertzel and Officer (2012)). To construct the control group, we employ a propensity score matching algorithm to identify control firms that are not located in the same neighborhood but are in the same industry of the treatment firms and, importantly, are comparable in other firm attributes fundamental for loan spread determination. The matching variables at the firm level include firm size, market to book ratio, return on assets, leverage ratio, asset tangibility, cash flow volatility, and return volatility. We perform a nearest-neighbor propensity score matching procedure (with no replacement) and require the differences between propensity scores of the matched pairs to be less than 0.01.

After obtaining a matched sample from propensity score matching, to ensure the parallel trend assumption is satisfied, we conduct a few diagnostic tests to ensure that the control group is comparable to the treatment group. In Panel B of Table 3, we present the pre-match propensity score and post-match diagnostic regressions. The dependent variable is equal to one if a firm belongs to the treatment group, and zero otherwise. It is regressed on our firm-level control variables. We show that after matching, all independent variables are statistically insignificant (column (2)), whereas in the pre-match sample (column (1)), all control variables are statistically significant.

In Panel C, we compare treatment and control firms based on various firm characteristics including the average amount and price of their loans. We find that while none of the other observables in the post-match sample are statistically significant, loan spreads of the treatment group are significantly higher than those of the control group. Furthermore, there is also evidence that loan amounts are smaller for treated firms than for control firms. These results are confirmed in a matching regression in Panel D, showing that loan spreads are about 10.2bps higher for local firms after matching. These results support the view that local bankruptcies adversely affect loan spreads of other local firms, even if these firms belong to a different industry.[4]

Comparing the economic magnitude of our main result to that of other control variables, an increase of 7-10 bps indicates that local bankruptcies have a similar impact on loan spreads to cash flow volatility (a one standard deviation increase in cash flow volatility is associated with an increase of 7.3 bps in loan spreads), but that they are economically more important than, for example, asset tangibility (a one standard deviation increase in asset tangibility is associated with a decrease of 3.33 bps in loan spreads). Furthermore, while our results are economically smaller than those in Hertzel and Officer (2012), who report a 15-22 bps increase in loan spreads for firms in the same industry, they are comparable to findings in Giannetti and Yafeh (2012), who find that a one-standard deviation increase in cultural distance is associated with a 6.5 bps higher loan spread.

In Table 4, we investigate anticipation effects of lenders as well as the duration of geographic loan contagion. Specifically, we relate loan spreads to various leads and lags of corporate bankruptcy events in addition to the standard control variables used in our baseline specification in column (3) of Table 3. In brief, results show that the geographic contagion effect is only temporary and our local bankruptcy indicator does not show any anticipation

[4]In unreported results, we examine whether our main result is different for Chapter 11 or Chapter 7 filings and find this not to be the case.

effects. Therefore, we conjecture that the observed contagion effect is more likely the result of lenders' heightened sensitivity to the perceived potential for correlated financial distress rather than being driven by a long-lasting deterioration in local economic conditions.

3.3 Local bankruptcies and other loan terms

In this section, we examine a broader set of loan characteristics that might be affected by a local bankruptcy. In addition to increasing prices by adjusting loan spreads to perceived increases in credit risk, lenders could also react to local bankruptcies by decreasing loan volumes or maturities.

To test these conjectures, we re-estimate our baseline model from column (3) in Table 3, and replace the dependent variable with coupon (defined as spread over LIBOR), loan amount, and loan maturity, respectively. We also estimate two linear probability models where the dependent variables are indicators for whether a loan has covenants and for whether a loan is secured, respectively.

Finally, we test whether an increase in loan spreads is offset by improved loan conditions in other pricing terms. Berg, Saunders, and Steffen (2016) suggest that the fee structure is an important part of the loan contract. For example, lenders use fees to price option-like features embedded in the contract and private information on the likelihood of borrowers exercising these options. Further, Berg, Saunders, Steffen, and Streitz (2017) provide evidence that regional pricing differences in one of the pricing measures (for example, all-in-spread-drawn) can be offset by other pricing terms (such as fees and all-in-spread-undrawn). Therefore, we rerun our baseline specification from column (3) in Table (3) but use all-in-spread-undrawn and upfront fees of a loan as dependent variables, respectively. The results of this analysis, which is performed at the loan-level, are presented in Panel A of Table 5.

We find that lenders also tighten other lending terms for local borrowers the year after a local firm files for bankruptcy. Results in column (1) suggest that coupons of geographically proximate firms significantly increase by about 7 basis points the year following a local bankruptcy. While we do not observe that loan amounts go down after a local bankruptcy (column (2)), the result in column (3) shows that local bankruptcies lead to a significant decrease in the maturity of loans extended to geographically proximate borrowers. Furthermore, the estimates in columns (4) and (5) show that loans of firms in the vicinity of a bankruptcy are more likely to have covenants and exhibit a higher likelihood of being secured in the subsequent year.

Finally, in columns (6) and (7), we examine the impact of local bankruptcies on other loan pricing terms, i.e., all-in-spread-undrawn and upfront fees. The number of observations drops due to lower data availability of the dependent variables (all-in-spread-undrawn and upfront fees). Consistent with our main result on loan spreads, we find that local firms face higher all-in-spread-undrawn and upfront fees following a local bankruptcy event. Thus, loan terms are not tightened on one pricing dimension while improving on others such that our main result would be offset.

In Panel B of Table 5, we further examine whether loan volumes for a given firm drop after a local bankruptcy. We estimate two regressions, where the dependent variables are the natural logarithm of total loan amount at the firm-year level, or the number of loans at the firm-year level, respectively. We include firm-level controls as well as industry and state-year effects in these regressions. Results show that coefficients on the local bankruptcy variable are negative, but not statistically significant. Thus, there is no evidence that borrowers receive smaller loan volumes after a local bankruptcy. Rather, the impact of local bankruptcies on access to debt capital seems to concentrate mostly on the pricing channel.

3.4 Robustness checks

In this section, we conduct robustness checks to confirm that (i) our results are not due to selection effects (ii) our results are not simply an artefact of the well documented industry contagion effects (Hertzel and Officer (2012), and (iii) our results remain robust to variations of our main variable capturing local bankruptcies.

One concern with our findings may be that they are driven by a selection bias as the sample of firms that borrow after a local bankruptcy could be "special": On the one hand, only firms with urgent financing needs might tap the market directly after a local bankruptcy. This would result in an upward bias of our main effect. On the other hand, banks might be more selective after a local bankruptcy, only granting loans to high-quality firms after local bankruptcies. This would lead to a downward bias. While some of these concerns should already be mitigated given that our results obtain with borrower fixed effects and control for local firm's future bankruptcy propensities, there might still exist some unobservable factors affecting firms' creditworthiness that our control variables do not capture.

To address concerns regarding selection bias, in Table 6, we follow the approach in Altonji, Elder, and Taber (2005) and examine selection bias on observables to infer the potential impact of selection bias on unobservables in our sample. Specifically, we re-run our baseline regression as in column (3) of Table 3, but remove two important control variables from the regression: In column (1) of Table 6, we remove a firm's return on assets, while we remove asset tangibility in column (2). Finally, both variables are removed from the regression reported in column (3). Since both variables, return on assets and asset tangibility, are negatively related to loan spreads, and local firms (treated firms) have lower ROA and asset tangibility than non-local firms (see Table 2), we expect the coefficient on local bankruptcies to increase after removing these control variables.

Consistent with our expectations, coefficients in columns (1), (2), and (3) increase to 8.7, 8.2 and 9.1, respectively. Thus, they are higher than the one in our baseline estimation of 7.2. The difference, which ranges from 1.5 to 1.9, represents the relative explanatory power of return on assets and asset tangibility for loan spreads. However, this difference is by far less than the baseline effect of 7.2. This result suggests that any omitted variables would need to be more important than return on assets or asset tangibility, or both, in order to deplete the baseline effect to zero. In other words, in order to attribute the entire effect (i.e., 7.2 bps) of local bankruptcy to selection bias, the effect of unobservables would need to be 3.78 times stronger than the effect of ROA or asset tangibility, which is highly unlikely.

A second concern regarding our findings may be that geographic contagion effects are observed because industries tend to cluster geographically (e.g., IT firms cluster in Silicon Valley). Therefore, in the next step, we ensure that our results do not merely reflect industry contagion effects. These tests are motivated by the findings in Chava and Jarrow (2004), who show that industry effects are important for bankruptcy prediction. Furthermore, Hertzel and Officer (2012) show that bankruptcies adversely affect other firms operating in the same industry.

To account for industry effects, we add industry-year fixed effects to control for both observable and unobservable sources of industry peers' loan spreads. Alternatively, we re-estimate our main regression after excluding all geographically proximate firms that operate in the same industry as the firm filing for bankruptcy. Finally, we consider the effect of further removing geographically proximate firms that operate in industries that are economically connected to the firm filing for bankruptcy. To calculate the exposure of each industry to all others, we use BEA Input-Output Accounts data to compute the Leontief inverse. This approach, widely used in input-output analysis (e.g., ten Raa (2006)), accounts for both primary and higher-order industry relationships in the supply chain. The results from these tests are presented in Panel A of Table 7. The local bankruptcy variable is always statistically significant at the 1% level and indicates that there is a 6 to 8.3 basis points increase in loan spreads during the year following a local bankruptcy.

In our final set of robustness tests, we modify the definition of geographic proximity and define local firms as all firms that are located in a 100 or 200 kilometers county radius surrounding a filing firm, respectively. Then, we estimate our baseline regression from column (3) in Table 3 and include these definitions of geographic proximity instead of, or in addition to, our main local bankruptcy dummy variable. Results are reported in Table 8.

We continue to observe a positive contagion effect of about 4.6 basis points (column (1)) for firms that are located in a 100km county radius surrounding a filing firm, significant at the 5% level. In contrast, the coefficient on the local bankruptcy indicator defined using 200km county radius is economically and statistically insignificant (column (3)). As expected, the effect becomes economically weaker as the indicator includes firms that are located progressively farther away from the filing firm.

In columns (2) and (4), we include our baseline bankruptcy indicator together with the dummy variable reflecting the 100km radius (column (2)) and the 200km radius (column (4)).

Our baseline bankruptcy indicator variable remains statistically and economically significant, while the other two variables are not associated with any effect.

In column (5), we include our baseline bankruptcy indicator and interact it with an indicator equal to one if the population density of the county is larger than the country median in a given year. This is to ensure that our main result is not driven by heterogeneity in population density. We find that, while the interaction term is insignificant, our baseline result remains robust at 8.6 bps and highly statistically significant.[5]

Finally, in column (6), we redefine our radius of consideration depending on the firm's local population rank. Specifically, for each firm's location, we classify its population rank, ranking from one (most populated) to five (least populated). We then expand our geographic circle for firms located in sparse areas. We leave the distance of consideration unchanged (i.e. 50 km) for firms with population rank of one and increase it by an incremental 25 km (i.e. 50% of the original distance) for each increase in density ranking from two to five. We still observe an effect of 5 bps for this alternative measure of geographic proximity, which is significant at the 10% level.

4 What drives geographic contagion of loan spreads?

There are mainly three alternative, but not mutually exclusive, explanations for geographic contagion. First, local bankruptcies may signal deterioration in local economic conditions. If local economic conditions cause firms in specific geographic areas to experience a simultaneous economic downturn, then the local bankruptcy would be a reflection of that economic downturn and thus it would have no causal effect on geographically proximate firms. Deterioration in credit conditions to local firms would be driven by informational contagion in this scenario and an expectation that local firms' creditworthiness will deteriorate in response to the local bankruptcy.

[5]To further examine how the density of the local geographic market affects our main result, we re-run our baseline regression from column (3), Panel A, Table 3, and interact the local bankruptcy dummy variable with a variable capturing the size of the bankrupt firm relative to all other local firms. The interaction term is insignificant, suggesting that our main result is not stronger if the filing firm is a larger part of the local economy.

Second, banks may suffer from a local bankruptcy shock and find their balance sheets to be negatively affected. As a result, their ability to provide capital may be impaired.

Third, the geographic contagion effect that we document could be the result of lenders adjusting credit conditions for all geographically proximate firms, regardless of their creditworthiness. Because of increased uncertainty regarding a particular geographic region, banks may increase rates as a precautionary measure.[6]. If geographic information on bankruptcies is expensive to gather, a temporary increase in loan spreads for all local firms may be more efficient from the viewpoint of the bank than collecting more information about the local bankruptcy. As a result, lenders may refrain from granting credit to otherwise healthy firms in the same geographical area.

We perform several tests to determine whether and to what extent each of these potential contagion effects contributes to our main result.

4.1 Information effects

In this section, we investigate the extent to which our results are driven by local economic conditions that might affect the creditworthiness of firms operating in a certain geographic area. For example, Benmelech, Bergman, Milanez, and Mukharlyamov (2018) show that the liquidation of a retail chain weakens the economy in a given local area, because firms with greater geographic exposure to bankrupt retailers are more likely to close stores in affected areas. Therefore, we first examine whether our results obtain if we control for local business cycles and whether local bankruptcies are associated with a deterioration of local economic conditions. If capital markets anticipate a deterioration of local economic conditions, we should observe prices for credit default swaps and for equity depreciate after a local bankruptcy as well. Thus, we also examine changes in stock returns and CDS spreads of local firms surrounding the event of a local bankruptcy.

In Panel A of Table 9, we investigate the extent to which our results are driven by local economic conditions that might affect the creditworthiness of firms operating in a certain

[6]Precautionary motives of banks have also been shown to drive excess cash holdings of banks (Beccalli, Chiaramonte, and Croci (2016))

geographic area. In column (1), we directly control for time-varying economic conditions at the county level. We obtain county-level business cycle measures from the U.S. Bureau of Economic Analysis. In particular, we re-run our baseline regression from column (3) in Table 3, and additionally control for the natural logarithm of the number of business establishments, population, and per capita income in each borrower's headquarters vicinity. The estimates in column (1) indicate that the local bankruptcy effect remains economically and statistically significant in the presence of these additional county-level controls.

In column (2), we control for the number of economic centers in which each firm operates, as well as its interaction with the local bankruptcy indicator. Following Garcia and Norli (2012), we estimate each firm's number of economic centers by tabulating the number of states mentioned in firms' 10-K filings using textual analysis. The estimates in column (2) indicate that local firms with a larger number of economic centers experience lower loan spreads following a local bankruptcy. Importantly, the local bankruptcy indicator continues to load significantly even after controlling for variation in firms' number of economic centers.

In column (3), we use an alternative measure of geographic diversification to control for cross-sectional variation in local economic exposure. Specifically, we include an interaction between the local bankruptcy indicator and an indicator for whether firms operate in industries that are classified as tradable by Mian and Sufi (2014). Less of the demand for products of firms in tradable industries is likely to be concentrated in the local economy, and hence these firms should exhibit a lower exposure to local economic conditions. Results in column (3) show that loans spreads among firms in the tradable category do not react significantly different to a local bankruptcy event.

In the next step, we examine whether local bankruptcies negatively affect local economic conditions in terms of employment and the number of establishments in a given local area. We obtain employment and county economic data from the Census on the number of establishments in a given county and county employment data from the Bureau of Labor Statistics (BLS). Then, we run county-level regressions of these local economic variables on our lagged local bankruptcy dummy. We also include other proxies for local economic conditions such as income per capita, size of the working population, and the ratio of small or large firms over total population. Importantly, we control for heterogeneity in economic policy and conditions across states by including state-year fixed effects and county fixed effects. Results are reported in Panel B of Table 9. They show that local bankruptcies do not significantly affect future employment or the number of local establishments.[7] This suggests that bankruptcy events in our sample, on average, do not lead to a wide-spread local economic shock, and are rather firm-specific distress events.

In Panel C of Table 9, we examine changes in local firms' CDS spreads. We obtain CDS data for the period of February 2001 to December 2013 from the Markit CDS database.[8] Following prior studies (e.g., Jorion and Zhang (2007)), to keep uniformity in contracts, we retain only senior unsecured CDS contracts denominated in USD with modified restructuring clauses. This type of contract is the most liquid and constitutes the majority of the CDS market. We start with the sample of local non-bankrupt firms from our baseline regression that can be matched with the CRSP-Compustat linking table to obtain CUSIPs for these firms. We then use the RED Entity data file to match CUSIPs with redcode, the main identifier of Markit. Our final CDS sample, for a 21-day period starting 10 days before and ending 10 days after the bankruptcy filing date, has 139,244 CDS observations, corresponding to 1,006 bankruptcy events.[9] Firms filing for bankruptcy are excluded from the sample.

To test for changes in credit risk of local firms around bankruptcy events, we apply the standard event study method to the CDS spread. That is, we calculate local cumulative abnormal CDS spread changes (CASCs) for a given time interval $[t_1, t_2]$ as the abnormal spread (AS) of the local portfolio for day t_2 minus day t_1.[10] Day t_1 and t_2 are the number of

[7] Results are also insignificant if we use the percentage change of establishments as dependent variable (not reported).

[8] Following Ashcraft and Santos (2009), we exclude trading in January 2001, when the Markit data began, because of data uncertainty regarding the starting dates of trading in these CDS contracts.

[9] This number of bankruptcy events is smaller than the 2,474 bankruptcies reported in Table 1 since we lose observations due to matching CUSIPs and the availability of CDS data.

[10] We report results for rating-adjusted CDS spread as CDS spread varies by bond's credit-rating. For each firm j with rating r at time t, we compute $AS_{jt}= S_{jt}I_{rt}$, where S_{jt} denotes the CDS spread of reference entity j at day t and I_{rt} is the equally weighted CDS index of rating r at day t. The index r refers to the five rating categories including AAA/AA, A, BBB, BB, and B or below. For each filing event, cumulative abnormal CDS spread changes (CASCs) are calculated as $CASC_{t_1-t_2}=AS_{jt_2}-AS_{jt_1}$.

days relative to the filing date. Results in Panel C show that CDS spreads do not significantly change for a two-day event window and for a five-day event window surrounding a local bankruptcy. Further, we even observe a marginally significant decrease in CDS spreads if the event window is increased to ten days.

In Panel D, we examine whether local firms' stock returns change in response to a local bankruptcy.[11] We again employ a standard event-study methodology, using the Fama-French three factor model to calculate abnormal returns. Our event date is the announcement date. The three factor parameters are estimated based on the period from trading days -252 to -21, where day 0 is the bankruptcy filing date. Firms filing for bankruptcy are excluded from the sample. After estimating cumulative abnormal returns (CARs) for the event window of individual local firms, we calculate value-weighted average CARs of all local stocks for each bankruptcy event. We finally compute the average abnormal return of all local portfolios. Results in Panel D show that stock returns of other local firms do not significantly react to a local bankruptcy. Across all event windows that we examine, we do not observe significant CARs. These results cast further doubt on an information contagion effect explaining our main result.[12]

In our next set of tests, we examine whether increased loan spreads are economically justified by higher actual default risks among local firms following a local default event. If this is the mechanism driving our results, we expect to observe a subsequent increase in the likelihood of financial distress among surviving local firms.

In Panel A of Table 10, we regress several proxies of default risk on the local bankruptcy indicator.[13] In column (1), the dependent variable is a default indicator that equals one if a

[11]To obtain the stock price data for non-bankrupt local firms, we link the CRSP and COMPUSTAT datasets using the CCM CRSP/Compustat Merged-Fundamentals Annual file with link types of "LC", "LU", and "LS". We restrict the sample to stocks that are traded on NYSE, AMEX and NASDAQ and common stocks with share code, as indicated in CRSP, of 10 or 11. We use return data that is corrected for splits and dividends and winsorize daily returns of all CRSP stocks at the first and 99th percentile.

[12]In unreported results, we examine whether stock returns of firms associated with higher information asymmetries, for example younger firms or firms in rural areas, exhibit a stronger reaction to local bankruptcies than stock returns of firms associated with lower information asymmetries, but do not find this to be the case.

[13]Note that, as Dealscan only includes data on new loans for a given year, the sample includes only those surviving local firms that took out loans in the year following the bankruptcy.

firm's debt is rated either "D" or "SD", and zero otherwise. In column (2), the dependent variable is a downgrade indicator that equals one if a firm experiences a downgrade in its debt rating in a given year, and zero otherwise. In column (3), the dependent variable is a forward-looking indicator of a firm's eventual bankruptcy that equals one if the borrower files for bankruptcy within three years of the loan origination date, and zero otherwise. In column (4), we modify the forward-looking indicator of a firm's eventual bankruptcy to match the average value weighted maturity of all loans of a given borrower.[14] To control for industry and state heterogeneity and macroeconomic conditions, we also include industry and combined state-year fixed effects in all regressions. Regressions are run at the borrower level. Across all specifications, we find that the local bankruptcy indicator is statistically insignificant.

In Panel B of Table 10, we examine whether a collateral channel as in Benmelech and Bergman (2011) can explain our main result. Specifically, loan spreads of local firms might increase because local collateral loses value. For example, even for a firm in the tradable sector, collateral is likely to be local (such as the firm's headquarters), making loan spreads justifiably larger after local bankruptcies. If this was the case, we expect our main result would be concentrated among loans that require collateral. In other words, the effect should be weaker or even non-existent for unsecured loans or revolver loans. In Panel B of Table 10, we run two additional regressions on subsamples of unsecured loans and revolver loans, respectively. Regressions are run at the loan level. We observe a significant impact of local bankruptcy events on both unsecured and revolver loans. The effect is also economically significant and ranges between 7.2 and 9 basis points. This renders a collateral channel unlikely as a major explanation for our main result.

Finally, in Panel C of Table 10, we investigate the impact of local bankruptcies on a firm's propensity of technical default. Following the previous literature (e.g., Franz, HassabElnaby, and Lobo (2014), Denis and Wang (2014), and Chava, Nanda, and Xiao (2017)),

[14]Given that the average maturity of a loan in our sample is roughly 5 years (see Table 2), looking at firms' bankruptcy propensity based on local bankruptcies in the previous year may lead to an underestimation of the effect. Therefore, we first compute the average value weighted maturity for each borrower and then assign the dependent variable a value equal to one if the firm files for bankruptcy within this time period.

we define technical default as the proximity between firms' actual ratios and their corresponding contractual covenants. In particular, we consider the most commonly adopted financial covenants, including minimum interest coverage, current ratio, and maximum debt to cash flow. For interest coverage and current ratios, the higher the distance, the stronger a firm's financial health. For the debt to cash flow ratio, we expect financially healthy firms to have lower positive distance. Regressions are run at the borrower-level and include the same set of firm-specific control variables as before, except that we exclude a firm's bankruptcy propensity, which is of course highly correlated with technical default. For all three proxies of technical default, we do not find any evidence that there is an increase due to a local bankruptcy.

Next, we consider the incidence of covenant violation of local firms following a bankruptcy event. We borrow the data on covenant violation from Nini, Smith, and Sufi (2012). They adopt a text-search algorithm on quarterly and annual SEC filings reported by Edgar to construct a data set on financial covenant violations of Compustat firms. Based on these data, we create an indicator that equals one if there is a reported violation in a given year, and zero otherwise to perform a linear probability regression on covenant violations. The result in column (4) shows that the coefficient on local bankruptcies is not statistically significant.

Taken together, we conclude that information effects are unlikely to be the main driver of our results. We neither observe a deterioration in local economic conditions, nor an increased default risk of local borrowers after a local bankruptcy.

4.2 The bank balance sheet channel

Prior literature shows that lenders experiencing defaults subsequently write more restrictive loan contracts (e.g., Gan (2007), Khwaja and Mian (2008), and Chava and Purnanandam (2011)). This finding suggests that our main result may be driven by lenders whose balance sheets have been adversely affected by local corporate bankruptcies. To examine whether the observed restrictive loan pricing is explained by lenders' impaired ability to provide loans, we consider subsamples of banks that do not lend to local bankrupt firms or belong to the top 30 largest banks, as reported by the Federal Reserve Board. These banks' balance sheets are less likely to be affected by a local bankruptcy. If the bank balance sheet channel is at work, the effect of local bankruptcy would become indistinguishable from zero for this subset of lenders. However, results in columns (1) and (2) of Table 11 still show a significant increase in loan spreads from lenders with no bankruptcy exposure and lenders belonging to the top 30 largest banks. The effect remains economically meaningful at 7.3bps and 5.8bps, respectively. This finding casts doubt on the view that local contagion is due to lenders' balance sheets being adversely affected by local bankruptcies.

In addition, we evaluate the role of lender financial health on the observed baseline effect. First, we assess the degree of local banking market competition. We argue that banks under competitive pressure are less likely to increase loan spreads after a local bankruptcy. We compute the local Herfindahl index (HHI), which is equal to the sum of squared market shares of all lenders (lead arrangers) that lend to local firms. The higher the HHI index, the more concentrated the local banking market. We define an indicator variable that is equal to one if the local HHI is higher than the median HHI of all lenders in a given year, and zero otherwise. We interact lender concentration with our local bankruptcy variable and present the result in column (3). The interaction effect is positive and significant, showing that the effect is, in fact, stronger for lenders operating in a concentrated market.

Next, we take into account lenders' financial capability by looking into lender profitability and equity capital ratio. In order to obtain financial information of lenders, we first identify lead arrangers of all facilities in our sample as the lenders of interest since these institutions are responsible to negotiate contract terms, as well as monitor and enforce covenant compliance. To identify lead arrangers, we rely on Dealscan's lender role variable and classify lead arrangers following the approach of Gatev and Strahan (2009). We hand-match the names of Dealscan lenders with the names of bank subsidiaries and bank holding companies from the National Information Center (NIC) website. We then convert bank subsidiaries to bank holding companies using the Relationship data from NIC. From this matching, we are able to obtain bank RSSDIDs which allow us to retrieve financial data of banks at the time of loan origination. In our final dataset, we are able to match 440 lenders from Dealscan for 11,760 loan facilities.

The results reported in columns (4) and (5) show that our main effect is not driven by poorly performing banks, measured by EBITDA over total assets, or under-capitalized banks, proxied by shareholder's equity over total assets. In fact, the interaction effect between local bankruptcy and lender profitability is positive and significant, suggesting that banks profitably charge borrowers higher rates after a local bankruptcy event.

Collectively, results in Table 11 lend little support that our main result is driven by local banks with impaired balance sheets lending less and increasing spreads. In fact, we find that banks that are profitable and enjoy monopoly benefits, are more likely to raise loan pricing for local firms.

4.3 Risk-based contagion due to information opacity

If a local firm files for bankruptcy, loan spread contagion may also occur because of increased uncertainty in the local lending market. Since the process of information collection and monitoring is costly, especially for uninformed lenders, they may either charge higher loan spreads if uncertainty increases to compensate for moral hazard and agency problems (Holmström and Tirole (1997) and Holmström (1979)), or retreat from the market completely. The literature has used the term "flight-to-home" effect to describe this phenomenon. For example, Giannetti and Laeven (2012) show that under the presence of an adverse economic shock, lenders allocate their capital in favor of domestic borrowers. De Haas and Van Horen (2013) document that during the financial crisis, banks did not contract credit uniformly, instead they continued lending in geographically close countries or in countries where they operated a network of domestic co-lenders.

To examine this potential channel, we begin by testing whether our main result is stronger for bankruptcies that should lead to higher uncertainty in the local lending market. Results are presented in columns (1) and (2) of Panel A in Table 12. In column (1), we interact the local bankruptcy indicator with news coverage of the local bankruptcy. We measure news coverage as the number of news articles mentioning the bankrupt firm in the year of announcement. Following prior literature on U.S. newspaper coverage (e.g., Fang and Peress (2009), Niessner and So (2017)), we focus on articles in the Wall Street Journal, New York Times, USA Today, and Washington Post. While the baseline effect of news coverage on loan spreads is significantly positive, indicating that large bankruptcies, which likely gain more media attention, have a stronger impact on average loan spreads in our sample, the interaction effect of news coverage and our local bankruptcy dummy is significantly negative. This indicates that the contagion effect on loan spreads of other local firms weakens for bankruptcies with more news coverage and thus greater transparency. In column (2), we interact our local bankruptcy variable with the bankrupt firm's intangible asset ratio. We conjecture that bankruptcies of firms with high intangibility ratios should be characterized by higher information asymmetries. We find that our main result is indeed stronger for bankruptcies of firms with many intangible assets. Based on these tests, we conclude that our main result is concentrated among bankruptcies that increase uncertainty in the local lending market.

If uncertainty in the local lending market is the driver of increased loan spreads, then borrowers that are associated with higher information asymmetries should be particularly affected. To test this conjecture, we interact our local bankruptcy indicator with borrowers' age and with an indicator reflecting whether a borrower is located in an urban or a rural area. We argue that lenders should find it easier to collect information about firms that are older and located in urban areas. Results are presented in columns (3) and (4) of Panel A in Table 12. We find that our main result is indeed stronger for borrowers that are associated with higher information asymmetries, i.e. younger firms and firms located in rural areas. This evidence lends further support to our hypothesis that lenders charge higher interest rates when local bankruptcies are characterized by more information asymmetry (Ivashina (2009), Roberts (2015), and Sufi (2007)).

Taken together, our results in Panel A support the view that lenders may increase rates to local firms because of increased uncertainty regarding the reasons behind a local bankruptcy as well as high informational asymmetries between local firms and themselves.

Importantly, we do not expect all lenders to react uniformly to increased uncertainty in the local credit market. In particular, we conjecture that local lenders and relationship lenders should find it much easier to overcome increased uncertainty and information asymmetries arising from a local bankruptcy. According to the flight-to-home effect, we would expect lenders with intensive local business networks to allocate their capital in favor of domestic borrowers after a local bankruptcy (Giannetti and Laeven (2012) and De Haas and Van Horen (2013)). Thus, our main effect should be weaker for lenders with a high local market share and a smaller branch network.

We proxy for lenders' local exposure by their local market share and the size of their local branch network. Local market share is calculated based on lenders' relative lending amount to local firms. Bank branch network is obtained from the Summary of Deposit (SOD) of the Federal Deposit Insurance Corporation website (FDIC). The FDIC provides detailed information from their annual surveys of branch offices for all FDIC-insured institutions. Data are available from 1994 on. These branch-level network data include information such as, but not limited to, the amount of deposits, physical address, the branch's latitude and longitude, type of branch service, and (RSSD) identifiers of bank holding companies. We restrict our sample to branches that are classified as Full Service, brick and mortar office.[15]

Results are presented in columns (1) and (2) of Panel B, where we interact the local bankruptcy indicator with lenders' local market share and the size of their branch network, respectively. The results show that our baseline effect is stronger for lenders with limited local market share and a large branch network. This is in line with the flight-to-home effect reported in Giannetti and Laeven (2012) and De Haas and Van Horen (2013). Local lenders may have informational advantages that are particularly valuable to overcome increased uncertainty after a local bankruptcy. As a result, they are less likely to increase loan spreads to other local firms.

In columns (3) and (4) of Panel B, we examine whether our main result is weaker for relationship lenders. These lenders should be better able to overcome informational asym-

[15]Other reported types of branches include those that offer limited services such as retail offices, home banking, and drive-through facilities.

metries, particularly after a local bankruptcy (Bolton, Freixas, Gambacorta, and Mistrulli (2016) and Beck, Degryse, Haas, and van Horen (2018)). We define a loan as being issued by a relationship lender when the borrower has another loan from the same lead arranger in the three years prior to the loan origination (and zero otherwise).[16] Consistent with our expectation, we only observe a positive and significant effect for deals with transaction lenders. The magnitude of the effect for deals with relationship lenders is substantially smaller and not statistically significant. Our results support the views of Bolton, Freixas, Gambacorta, and Mistrulli (2016) and Beck, Degryse, Haas, and van Horen (2018), who argue that relationship lending is particularly beneficial for borrowers in adverse economic conditions.

In contrast to relationship lenders' behavior, we seem to observe a flight-to-home effect by transaction lenders. In addition to increasing rates after a local bankruptcy (column (4), Panel B of Table 12), we also observe that the market composition of relationship lenders vs. transaction lenders changes after a local bankruptcy. Before a local bankruptcy, the fraction of relationship loans is 32.6%. After a local bankruptcy, this fraction increases to 35.5% (t-stat: 2.43), suggesting that a subset of transaction lenders retreat from the local credit market completely.

Taken together, our findings in this section support the view that increased informational asymmetry between borrowers and lenders after a local bankruptcy lead to risk-based contagion, whereby lenders increase loan spreads for surviving local firms. However, the effect is significantly mitigated for local lenders and relationship lenders, supporting the 'flight-to-home' and relationship lending hypotheses.

One final question arising from our previous findings is why otherwise healthy local firms accept higher loan spreads after a local bankruptcy. In the absence of informational or competitive frictions, they could simply switch banks if lenders raise rates. However, firms are not always able to do so because of, for example, high switching costs. According to Kim, Kliger, and Vale (2003), average switching costs amount to 4.1%, which is about one-third of the market average interest rate on loans. Thus, from a borrower's perspective, a temporary

[16] This relationship lender indicator is also included as a control variable in our main regressions.

increase in loan spreads may still be cheaper than switching to a new lender. In line with this view, we find that our main result is stronger if the local banking market is concentrated (see column (3) in Table 11) and if the borrower is younger and located in a rural area (columns (3) and (4) in Table 12). For these borrowers, it should be more costly to switch lenders because of higher information asymmetries.

5 Conclusion

This paper explores whether local bankruptcies adversely affect credit conditions for geographically proximate firms. Our results suggest that loan spreads of geographically proximate firms increase by about 7 basis points during the year following a local bankruptcy. This effect lasts for about one year and does not seem to be anticipated by lenders. We do not find evidence that the increase in loan spreads is driven by deteriorating local economic conditions or creditworthiness of local firms. Rather, it seems to be driven by informational asymmetries between borrowers and lenders, resulting in a transitory increase in loan spreads for all local firms, perhaps as a precautionary measure by banks who find it too costly to gather further local information. In line with this view, we find that our results are weaker for local lenders and relationship lenders.

Our results may be interesting to policy makers, as they suggest a new geographic channel through which bankruptcy shocks are transmitted by financial intermediaries. In particular, as the proportion of loan originations shifts toward large lenders with limited local information, our results suggest that idiosyncratic shocks that lead to otherwise benign bankruptcies have the potential to propagate across firms in the local market.

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Table 1: Loans and filings by year and county

Panel A of this table shows the number of corporate loans from DealScan in each year of our sample (column (1)) and the number of bankruptcy filings from Bankruptcy Research Database and New Generation Research in each year of our sample (column (2)). The sample period is from 1990 to 2013. To be included in the loan sample, a borrower needs to be included in the Compustat database and must not have missing county information. The largest tranche is chosen for each deal from Dealscan. In column (1), "Year" refers to the time when a loan is originated for the loan sample. In column (2), "Year" refers to the number of bankruptcy filings in a given year. Panel B of this table shows the fraction of bankruptcies for the top 20 counties where most of the bankruptcies occur. It is computed as the number of bankruptcies in a given county divided by the number of all bankruptcy filings.

Panel A: Bankruptcies by year		
Year	Number of loans	Number of filings
(1)	(2)	(3)
1990	305	85
1991	260	104
1992	420	77
1993	413	66
1994	531	48
1995	532	65
1996	867	58
1997	1,056	58
1998	809	92
1999	707	122
2000	676	163
2001	700	255
2002	667	217
2003	650	161
2004	764	96
2005	760	86
2006	654	60
2007	667	72
2008	419	126
2009	327	189
2010	417	87
2011	527	70
2012	439	62
2013	473	55
Total	14,040	2,474

Table 1: cont'd

Panel B: Bankruptcies by county			
Rank (1)	State (2)	County (3)	Percentage (4)
1	NY	New York County	5.54%
2	CA	Los Angeles County	4.00%
3	TX	Dallas County	3.80%
4	TX	Harris County	3.52%
5	IL	Cook County	3.23%
6	CA	Santa Clara County	2.34%
7	CA	Orange County	2.30%
8	CA	San Diego County	1.74%
9	FL	Miami-Dade County	1.62%
10	MA	Middlesex County	1.54%
11	FL	Palm Beach County	1.49%
12	FL	Broward County	1.41%
13	AZ	Maricopa County	1.29%
14	NV	Clark County	1.29%
15	CT	Fairfield County	1.25%
16	CA	Alameda County	1.17%
17	VA	Fairfax County	1.09%
18	WA	King County	1.01%
19	MN	Hennepin County	0.97%
20	CA	San Francisco County	0.93%

Table 2: Summary statistics and univariate differences

Panel A of this table presents summary statistics at the loan- and firm-level, respectively. Panel B of this table presents univariate differences between local firms (i.e., firms located in a 50 kilometers county-radius surrounding a corporate bankruptcy event) and non-local firms (i.e., all firms located outside this radius), respectively.

Panel A: Summary statistics	Observations	Mean	Median	Std. Dev.
Loan characteristics				
Spread	14,040	209.64	200.00	127.80
Coupon	14,040	205.84	200.00	126.58
Loan amount (in billion USD)	14,040	0.31	0.12	0.55
Maturity (in month)	13,810	45.21	48.00	22.70
Covenants	14,040	0.70	1.00	0.46
Secured loan	14,040	0.72	1.00	0.45
Sole lender	14,040	0.32	0.00	0.47
Base is prime	14,040	0.85	1.00	0.36
Relationship lender	14,040	0.39	0.00	0.49
Performance pricing	14,040	0.53	1.00	0.50
Refinancing	14,040	0.64	1.00	0.48
All-in-undrawn	9,418	31.14	25.00	17.47
Upfront fee	3,816	50.51	28.59	57.46
Revolver	10,522	0.78	1.00	0.41
Firm characteristics				
Firm size	14,040	6.22	6.19	1.88
Market to book ratio	14,040	1.68	1.38	1.01
Returns on assets	14,040	0.11	0.12	0.12
Leverage ratio	14,040	0.31	0.29	0.22
Asset tangibility	14,040	0.31	0.24	0.24
Cashflow volatility	14,040	0.09	0.05	0.13
Return volatility	14,040	0.03	0.03	0.02
Bankruptcy propensity	14,040	0.01	0.00	0.11
CDS spread	21,780	186	82	354

Table 2: cont'd

Panel B: Differences between local and non-local firms	Local firms	Non-local firms	Difference	t-stat.
Loan characteristics				
Spread	215.200	197.850	17.350***	7.69
Coupon	211.340	194.210	17.131***	7.66
Loan amount	0.321	0.315	0.007	0.69
Maturity	44.091	46.980	-2.888***	-7.24
Covenant	0.713	0.704	0.009	0.99
Secured loans	0.735	0.695	0.040***	4.94
Sole lender	0.326	0.292	0.034***	4.01
Relationship lender	0.372	0.416	-0.044***	-5.13
Performance pricing	0.523	0.553	-0.029***	-3.28
Refinancing	0.641	0.649	-0.008	-1.05
All-in-undrawn	32.141	29.498	2.643***	6.703
Upfront fee	52.584	46.870	5.714***	2.514
Revolver	0.780	0.789	-0.009	-1.114
Firm characteristics				
Firm size	6.248	6.233	0.015	0.58
Market to book ratio	1.689	1.663	0.026	1.43
Return on assets	0.105	0.124	-0.019***	-9.41
Leverage ratio	0.307	0.313	-0.006	-1.43
Asset tangibility	0.289	0.340	-0.051***	-12.32
Cashflow volatility	0.100	0.083	0.017***	7.18
Return volatility	0.033	0.030	0.003***	10.52

Table 3: Local bankruptcies and loan spreads of geographically proximate firms
Panel A of this table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable which is equal to one if a local firm filed for bankruptcy in the previous year, and zero otherwise. All explanatory variables are defined in detail in Appendix A. The sample period is from 1990 to 2013. Standard errors are clustered by borrower level. Panel B presents results from probit regressions where the dependent variable is equal to one if a firm belongs to the treatment group (i.e., all local firms that belong to a different industry and supply chain than the bankrupt firm), and zero if a firm belongs to the control group (i.e., all non-local firms that belong to the same industry than the local non-bankrupt firms). The pre-match sample includes all treated and control firms before nearest neighbor matching is applied. The post-match sample only includes treated firms and their nearest neighbor. Matching variables include firm size, market to book ratio, return on assets, leverage ratio, asset tangibility, cash flow volatility and return volatility. All regressions include industry fixed effects. In Panel C, differences in means between treated firms and their nearest neighbors (i.e., control firms) are reported. Panel D presents estimates from regressions of firms' all-in-drawn spreads (column (1)), coupon (column (2)), all-in-undrawn (column (3)), up-front fee (column (4)), loan amount (column (5)), maturity (column (6)), covenant (column (7)), security (column (8)) on a dummy variable indicating a local bankruptcy in the previous year. The sample includes treated and nearest neighbor matched firms. All regressions include senior debt rating, loan type and loan purpose fixed effects. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

Table 3: cont'd

Panel A: Fixed effects regressions	Industry FE (1)	Industry & state-year FE (2)	Industry, state-year & loan type FE (3)	Industry, state-year, loan type & borrower FE (4)	Industry, state-year, loan type FE & squared controls (5)
Local bankruptcy$_{t-1}$	7.203***	5.948***	7.216***	6.213***	7.145***
	(3.94)	(2.70)	(3.42)	(2.97)	(3.40)
Firm size	-1.853	-6.833***	-9.794***	-14.60***	-28.182***
	(-1.53)	(-5.53)	(-7.38)	(-9.11)	(-6.58)
Market to book ratio	-9.348***	-8.599***	-8.000***	-8.251***	-18.175***
	(-8.81)	(-8.11)	(-7.87)	(-6.51)	(-6.16)
Return on Assets	-101.947***	-108.238***	-116.224***	-125.1***	-107.696***
	(-9.98)	(-10.66)	(-11.81)	(-9.30)	(-11.03)
Leverage ratio	90.449***	106.026***	72.590***	85.55***	112.756***
	(16.05)	(18.53)	(12.74)	(11.45)	(9.65)
Asset tangibility	-12.284**	-16.129***	-8.990	-13.89	-7.667
	(-2.04)	(-2.78)	(-1.63)	(-1.45)	(-0.49)
Cashflow volatility	56.489***	44.964***	42.506***	60.66***	45.129***
	(6.29)	(5.18)	(5.10)	(3.71)	(5.46)
Return volatility	1,655.248***	1,470.313***	1,561.543***	1440.4***	2,864.419***
	(22.79)	(19.04)	(21.06)	(17.80)	(13.34)
Bankruptcy propensity	39.303***	39.294***	41.941***	47.72***	45.773***
	(4.04)	(4.22)	(4.77)	(3.99)	(5.25)
Deal Amount	-9.483***	-9.052***	-9.093***	-8.621***	11.764
	(-6.61)	(-6.34)	(-6.58)	(-6.72)	(0.87)
Financial covenant	1.198	-4.588	-4.701*	-6.178**	-4.644*
	(0.48)	(-1.60)	(-1.75)	(-2.47)	(-1.73)
Secured loan	74.678***	67.327***	56.713***	30.26***	53.482***
	(33.80)	(30.14)	(26.62)	(13.59)	(24.62)
Sole lender	1.176	2.622	2.263	1.040	0.292
	(0.39)	(0.86)	(0.78)	(0.38)	(0.10)
Base is prime	-2.890	7.335**	9.717***	13.88***	10.812***
	(-0.92)	(2.20)	(3.07)	(5.09)	(3.43)
Relationship lender	-6.995***	-4.242**	-4.092**	-4.356***	-3.691**
	(-4.11)	(-2.44)	(-2.50)	(-3.10)	(-2.27)
Performance pricing	-38.455***	-37.313***	-28.920***	-23.53***	-29.104***
	(-15.86)	(-14.82)	(-12.47)	(-10.41)	(-12.53)
Refinancing	6.460***	-2.328	8.208***	2.884	7.682***
	(3.14)	(-1.10)	(3.34)	(1.37)	(3.14)
Observations	14,040	14,040	14,040	12,804	14,040
Adjusted R^2	0.468	0.540	0.577	0.661	0.582
Industry FE	Yes	Yes	Yes	Yes	Yes
State-yr FE	No	Yes	Yes	Yes	Yes
Borrower FE	No	No	No	Yes	No
Senior debt rating FE	No	No	Yes	Yes	Yes
Type of loan FE	No	No	Yes	Yes	Yes
Purpose of loan FE	No	No	Yes	Yes	Yes
Squared control variables	No	No	No	No	Yes

Table 3: cont'd

Panel B: Propensity Score Matching

	Pre-match	Post-match
	(1)	(2)
Firm size	0.02***	-0.0008
	(8.29)	(-0.15)
Market to book ratio	0.02***	0.004
	(3.27)	(0.37)
Return on Assets	-0.1**	-0.05
	(-2.27)	(-0.56)
Leverage ratio	0.08***	-0.006
	(3.41)	(-0.14)
Asset tangibility	-0.2***	-0.008
	(-9.00)	(-0.19)
Cashflow volatility	0.2***	0.1
	(3.74)	(1.59)
Return volatility	0.6*	-0.08
	(1.67)	(-0.13)
Industry FE	Yes	Yes
Observations	11,424	4,773
Adjusted R^2	0.042	0.001

Panel C: Differences between treatment and matched control group

	Treated	Control	Difference	t-stat	p-value
	(1)	(2)	(3)	(4)	(5)
Loan spread	182.990	173.780	9.210	2.670***	0.008
Log of deal Amount	18.489	18.575	-0.086	-1.920*	0.055
Firm size	6.495	6.555	-0.060	-1.180	0.237
Market to book ratio	1.609	1.611	-0.002	-0.100	0.920
Return on Assets	0.124	0.126	-0.002	-0.600	0.552
Leverage ratio	0.311	0.314	-0.003	-0.520	0.600
Asset tangibility	0.331	0.327	0.004	0.600	0.548
Cashflow volatility	0.069	0.066	0.003	1.210	0.228
Return volatility	0.029	0.028	0.001	1.240	0.216

Table 3: cont'd

Panel D: Matching regressions	(1) Spread	(2) Coupon	(3) All in undrawn	(4) Up-front fee	(5) Loan amount	(6) Maturity	(7) Covenant	(8) Secured
Local bankruptcy$_{t-1}$	10.5***	10.9***	1.5**	8.6***	-0.01	-1.0*	-0.009	0.005
	(2.83)	(2.96)	(2.02)	(3.13)	(-0.19)	(-1.96)	(-0.55)	(0.23)
Senior debt rating FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,226	5,226	3,635	1,437	5,226	5,139	5,226	5,226
Adjusted R^2	0.15	0.16	0.06	0.06	0.39	0.37	0.06	0.10

Table 4: Local bankruptcies and loan spreads: Lead and lag effects

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable which is equal to one if a local firm filed for bankruptcy in the previous year, and zero otherwise. In column (1), we include dummy variables for local bankruptcies in the current, and in the previous year. In column (2), we additionally include a dummy variable for local bankruptcies in the subsequent year. In column (3), we also include a dummy variable for local bankruptcies two years ago. The regression specification is the same as in Table 3, column (3). All explanatory variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

	(1)	(2)	(3)
Local bankruptcy$_{t-2}$			2.655
			(1.03)
Local bankruptcy$_{t-1}$	5.242**	5.141**	4.737**
	(2.21)	(2.16)	(1.96)
Local bankruptcy$_{t}$	3.919	3.679	3.007
	(1.46)	(1.34)	(1.08)
Local bankruptcy$_{t+1}$		0.746	0.185
		(0.31)	(0.07)
Observations	14,040	14,040	14,040
Adjusted R^2	0.579	0.579	0.579
Industry FE	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes
Control variables	Yes	Yes	Yes

Table 5: Local bankruptcies and other loan terms

Panel A, columns (1) to (3) present estimates from regressions of firms' coupon, defined as spread over LIBOR, (column (1)), loan amount (column (2)), or loan maturity (column (3)) on a dummy variable indicating a local bankruptcy in the previous year. In column (4), the dependent variable is equal to one if loan covenants are present, and zero otherwise. In column (5), the dependent variable is equal to one for secured loans, and zero otherwise. In column (6) (column (7)), the dependent variable is all-in-spread-undrawn (upfront fees). The regression specification is the same as in Table 3, column (3), and regressions are run at the loan-level. In Panel B, the dependent variables of columns (1) and (2) are the natural logarithm of total loan amount and the number of loans at the firm-year level, respectively. All regressions include industry and state-year fixed effects. All explanatory variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. *t*-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

Table 5: cont'd

Panel A: Loan-level	Coupon	Loan amount	Maturity	Covenant	Secured loan	All-in-spread undrawn	Upfront fee
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Local bankruptcy$_{t-1}$	7.080***	-0.008	-0.669*	0.015*	0.022**	1.5***	4.3*
	(3.41)	(-0.45)	(-1.66)	(1.84)	(2.43)	(3.55)	(1.68)
Firm size	-9.952***	0.631***	-2.099***	-0.020***	-0.104***	0.2	2.3
	(-7.65)	(83.90)	(-8.42)	(-3.94)	(-18.61)	(0.73)	(1.61)
Market to book ratio	-7.894***	0.026***	-0.062	-0.003	-0.046***	-0.7***	-0.8
	(-8.09)	(3.42)	(-0.37)	(-0.89)	(-11.21)	(-3.15)	(-0.81)
Return on Assets	-110.777***	0.293***	5.692***	0.238***	-0.234***	-16.1***	-22.4***
	(-11.61)	(4.33)	(3.74)	(7.14)	(-7.33)	(-6.63)	(-2.85)
Leverage ratio	73.360***	0.415***	4.905***	-0.024	0.318***	10.8***	29.9***
	(13.10)	(9.04)	(4.68)	(-1.29)	(15.75)	(9.56)	(4.97)
Asset tangibility	-8.879*	-0.093**	2.528**	-0.036*	-0.047*	2.5**	1.8
	(-1.66)	(-2.05)	(2.44)	(-1.88)	(-1.83)	(2.11)	(0.28)
Cashflow volatility	40.496***	-0.020	-3.177**	0.034	0.118***	4.7**	20.1**
	(5.01)	(-0.31)	(-2.37)	(1.10)	(4.12)	(2.43)	(2.52)
Return volatility	1,521.332***	-2.101***	-100.934***	-0.528**	2.630***	161.4***	518.6***
	(21.21)	(-4.06)	(-8.01)	(-2.15)	(10.72)	(10.06)	(6.70)
Bankruptcy propensity	38.784***	0.065	-3.942***	-0.013	-0.005	2.7	-4.4
	(4.57)	(1.11)	(-2.86)	(-0.46)	(-0.20)	(1.35)	(-0.57)
Deal Amount	-9.134***		4.338***	0.017***	-0.007	-2.5***	-2.5
	(-6.77)		(16.15)	(3.25)	(-1.27)	(-8.43)	(-1.58)
Financial covenant	-4.098	0.067***	0.224		-0.021**	-0.3	-11.5***
	(-1.57)	(3.25)	(0.46)		(-2.11)	(-0.64)	(-3.89)
Secured loan	58.768***	-0.023	1.727***	-0.018**		10.9***	16.4***
	(27.79)	(-1.27)	(3.89)	(-2.11)		(24.87)	(6.37)
Sole lender	2.828	-0.745***	-2.962***	-0.027***	-0.040***	-4.7***	0.3
	(1.00)	(-33.79)	(-5.59)	(-2.66)	(-3.77)	(-8.51)	(0.10)
Base is prime	9.598***	-0.092***	-2.160***	0.254***	-0.008	0.04	-2.8
	(3.11)	(-3.98)	(-3.90)	(18.68)	(-0.66)	(0.06)	(-0.88)
Relationship lender	-3.989**	0.052***	-1.613***	0.003	0.012*	-0.5	-10.6***
	(-2.48)	(3.99)	(-4.96)	(0.48)	(1.67)	(-1.42)	(-4.95)
Performance pricing	-28.606***	0.144***	3.967***	0.164***	-0.071***	0.2	-8.4***
	(-12.59)	(8.31)	(9.46)	(17.99)	(-8.22)	(0.47)	(-3.29)
Refinancing	8.719***	0.221***	0.787*	0.132***	0.035***	1.6***	-1.2
	(3.65)	(11.71)	(1.75)	(13.97)	(3.54)	(3.14)	(-0.39)
Observations	14,040	14,040	13,810	14,040	14,040	9418	3816
Adjusted R^2	0.590	0.869	0.540	0.505	0.390	0.40	0.22
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: cont'd

Panel B: Borrower-level	Loan amount	Number of loans
	(1)	(2)
Local bankruptcy	-0.03	-0.009
	(-1.32)	(-1.32)
Leverage ratio	0.8***	0.2***
	(13.52)	(13.68)
Firm size	0.8***	0.03***
	(77.08)	(9.28)
Return on Assets	0.6***	-0.07***
	(5.77)	(-2.96)
Market to book ratio	-0.007	-0.003
	(-0.65)	(-1.28)
Asset tangibility	-0.2	-0.02
	(-1.32)	(-1.47)
Cashflow volatility	-0.2***	0.01
	(-3.17)	(0.82)
Return volatility	-5.0***	0.3
	(-6.69)	(1.30)
Bankruptcy propensity	0.2**	0.03
	(2.43)	(0.82)
Observations	11,473	11,473
Adjusted R^2	0.82	0.12
Industry FE	Yes	Yes
State-yr FE	Yes	Yes

Table 6: Addressing selection bias

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In column (1), we exclude return on assets from the set of control variables. In column (2), we exclude asset tangibility from the set of control variables. In column (3), we exclude both, ROA and asset tangibility from the set of control variables. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. *t*-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

	Remove ROA	Remove asset tangibility	Remove ROA & asset tangibility
	(1)	(2)	(3)
Local bankruptcy	8.7***	8.2***	9.1***
	(4.01)	(3.79)	(4.18)
Observations	14,040	14,040	14,040
Adjusted R^2	0.54	0.55	0.54
Industry FE	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes
Control variables	Yes	Yes	Yes

Table 7: Controlling for industry effects

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In column (1), we replace industry fixed effects with industry×year fixed effects. In column (2), we exclude all local firms from the same industry as the filing firm. In column (3), we further exclude all local firms in industries with significant economic exposure to the industry of the filing firm. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

	Industry-year FE (1)	Remove firms in same industry (2)	Remove firms in supply chain (3)
Local bankruptcy$_{t-1}$	6.035***	7.572***	8.286***
	(2.76)	(3.21)	(3.62)
Observations	14,040	10,158	12,203
Adjusted R^2	0.620	0.601	0.582
Control variables	Yes	Yes	Yes
Industry-yr FE	Yes	No	No
Industry FE	No	Yes	Yes
State-yr FE	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes

Table 8: The impact of distance on geographic contagion

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In columns (1) and (3), we replace our baseline local bankruptcy variable (50 kilometers county-radius) with dummy variables reflecting a 100 and 200 kilometers county-radius surrounding a filing firm, respectively. In columns (2) and (4), in addition to our baseline local bankruptcy variable (50 kilometers county-radius), we also include dummy variables reflecting a 100 and 200 kilometers county-radius surrounding a filing firm, respectively. In column (5), we additionally include an interaction between the local bankruptcy indicator and a local density indicator. We also include the local density indicator itself, which equals one if a firm's local population is larger than the country median of the same year, and zero otherwise. In column (6), we replace our baseline local bankruptcy variable with a population-adjusted bankruptcy variable. Specifically, for each firm's location, we classify its population rank, ranking from one (most populated) to five (least populated). We then expand our geographic circle for firms located in sparse areas. We leave the distance of consideration unchanged (i.e. 50 km) for firms with population rank of one and increase it by an incremental 25 km (i.e. 50% of the original distance) for each increase in density ranking from two to five. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

	100 km	50 & 100 km	200 km	50 & 200 km	Local Density	Population adj. bankruptcy
	(1)	(2)	(3)	(4)	(5)	(6)
Local bankruptcy$_{t-1}$		6.918**		7.235***	8.6***	
		(2.06)		(3.13)	(3.16)	
Local bankruptcy$_{t-1}$ - 100km	4.645**	-0.966				
	(1.99)	(-0.27)				
Local bankruptcy$_{t-1}$ - 200km			-1.443	-3.814		
			(-0.59)	(-1.49)		
Local bankruptcy × Local density					-1.7	
					(-0.42)	
Local density					0.5	
					(0.13)	
Population-adj. bankruptcy						5.0*
						(1.68)
Observations	11,992	11,992	11,937	11,937	13,470	13,470
Adjusted R^2	0.589	0.589	0.587	0.587	0.55	0.55
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Do local bankruptcies affect local economic conditions?

Panel A presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In column (1), we additionally control for time-varying local economic conditions by including the natural logarithm of the number of business establishments, population, and per capita income. In column (2), we additionally control for firm's business network by including the natural logarithm of the number of firm's economic centers as well as its interaction with the local bankruptcy indicator. In column (3), we control for firm's local economic exposure by including an indicator for whether firms operate in industries that are classified as tradable by (Mian and Sufi (2014)) and its interaction with the local bankruptcy indicator. Panel B presents county-level regressions of firms' local economic conditions on a dummy variable indicating a local bankruptcy in the previous year. The dependent variables in columns (1) and (2) are the natural logarithm of the number of employment and establishments in a firm's local area. All regressions include year, state-year and county fixed effects. Panel C (Panel D) presents changes in local firms' CDS spreads (cumulative abnormal stock returns) for windows of one, five and ten days before and after a local bankruptcy. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Controlling for local business cycles	County controls	Diversified firms	Tradability of goods
	(1)	(2)	(3)
Local bankruptcy$_{t-1}$	5.417**	12.038***	8.805***
	(2.35)	(3.30)	(2.84)
Local establishments	-33.265***		
	(-8.26)		
Local population	32.846***		
	(7.66)		
Local per capita income	38.349***		
	(8.25)		
Local bankruptcy$_{t-1}\times$		-0.245**	
Economic Centers		(-2.25)	
Economic Centers		0.251**	
		(2.57)	
Local bankruptcy$_{t-1}\times$			-2.593
Tradability dummy			(-0.69)
Tradability dummy			-1.337
			(-0.32)
Observations	13,219	11,863	12,606
Adjusted R^2	0.579	0.590	0.582
Industry FE	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes
Control variables	Yes	Yes	Yes

Table 9: cont'd

Panel B: Local economic conditions		
	Employment	Number of establishments
	(1)	(2)
Local bankruptcy	-0.0005	0.0009
	(-0.21)	(1.33)
Size of working population	1.1***	1.0***
	(32.01)	(59.41)
Income per capita	0.09***	0.004
	(3.22)	(0.36)
Ratio of small firms	13.0***	31.2***
	(7.02)	(26.30)
Ratio of large firms	447.8***	13.2
	(14.40)	(1.55)
Observations	3,873	3,873
Adjusted R^2	0.998	0.998
Year FE	Yes	Yes
State-yr FE	Yes	Yes
County FE	Yes	Yes

Panel C: CDS		
Event window	CASC	t-stat
$[-1, 1]$	-1.716	-0.24
$[-3, 3]$	-1.104	-0.72
$[-5, 5]$	-5.947*	-1.31

Panel D: Stock returns		
Event window	CAR	t-stat
$[-1, 1]$	0.018%	0.26
$[-3, 3]$	-0.049%	-0.48
$[-5, 5]$	-0.129%	-1.02

Table 10: Impact of local bankruptcies on local default risks

Panel A presents estimates from firm-level regressions of distress probability on a dummy variable indicating a local bankruptcy in the previous year. In column (1), the dependent variable is a default indicator that equals one if a firm's debt rating is either "D" or "SD", and zero otherwise. In column (2), the dependent variable is a downgrade indicator that equals one if a firm's debt rating is downgraded in a given year, and zero otherwise. In column (3), the dependent variable is an indicator of borrower's bankruptcy propensity that equals one if a borrower files for bankruptcy within three years after the loan origination date, and zero otherwise. In column (4), the dependent variable is a forward-looking indicator of a firm's eventual bankruptcy, adjusted to match the average value-weighted maturity of all loans of the firm. All regressions include industry and state-year fixed effects. Columns (1) and (2) of Panel B present estimates from loan-level regressions on subsamples of unsecured loans and revolver loans, respectively. The regression specification is the same as in Table 3, column (3). Panel C presents estimates from firm-level regression of firm's propensity of technical default. In columns (1) to (3), technical default propensity is defined as the proximity between firm's actual ratios and their corresponding contractual covenants including minimum interest coverage, maximum debt to cashflow and current ratio, respectively. In column (4), the dependent variable is an indicator that equals one if there is a reported covenant violation in a given year, and zero otherwise. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

Panel A: Borrower-level	Default	Downgrade	Bankruptcy propensity	Matched bankruptcy prop.
	(1)	(2)	(3)	(4)
Local bankruptcy$_{t-1}$	0.001	-0.001	0.000	-0.000
	(1.15)	(-0.23)	(0.12)	(-0.14)
Leverage ratio	0.009***	0.058***	0.041***	0.0415***
	(3.61)	(9.28)	(9.07)	(9.04)
Firm size	0.000**	0.017***	-0.000	-0.000
	(2.00)	(19.49)	(-0.12)	(-0.23)
Return on Assets	-0.010***	0.043***	-0.076***	-0.077***
	(-2.81)	(5.10)	(-9.12)	(-9.07)
Observations	25,734	25,734	25,734	25,734
Adjusted R^2	0.058	0.074	0.062	0.027
Industry FE	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes

Panel B: Loan-level	Unsecured loans	Revolver loans
	(1)	(2)
Local bankruptcy	7.2***	9.0***
	(3.17)	(4.29)
Observations	3,932	10,522
Adjusted R^2	0.51	0.59
Control variables	Yes	Yes
Industry FE	Yes	Yes
State-yr FE	Yes	Yes
Senior debt rating FE	Yes	Yes
Type of loan FE	Yes	Yes
Purpose of loan FE	Yes	Yes

Table 10: cont'd

Panel C: Technical defaults (Borrower-level)	Distance to default			Covenant violation
	Interest coverage	Profitability	Current ratio	
	(1)	(2)	(3)	(4)
Local bankruptcy	3.4	0.07	-0.02	-0.000
	(1.01)	(0.92)	(-1.52)	(-0.01)
Leverage ratio	38.9***	-1.1**	0.04	0.08***
	(6.33)	(-2.07)	(1.35)	(5.93)
Firm size	2.2*	-0.01	0.02***	-0.01***
	(1.79)	(-0.41)	(3.05)	(-7.08)
Return on Assets	-43.9***	-0.6	0.03	-0.2***
	(-3.42)	(-0.48)	(0.48)	(-6.52)
Market to book ratio	-7.7*	0.2**	-0.009	-0.009***
	(-1.89)	(2.45)	(-1.18)	(-4.16)
Asset tangibility	-7.7	0.6	0.5***	0.006
	(-0.91)	(1.10)	(10.82)	(0.42)
Cashflow volatility	16.8*	0.3	0.03	-0.08***
	(1.69)	(0.49)	(0.45)	(-4.25)
Return volatility	54.1	30.3	-0.7	1.9***
	(0.47)	(1.24)	(-1.56)	(7.95)
Observations	3259	5282	1090	11658
Adjusted R^2	0.21	0.17	0.56	0.11
Industry FE	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes

Table 11: Bank balance sheet channel

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In columns (1) and (2), we consider subsamples of firms that have no bankruptcy exposure, or belong to the top 30 largest banks, respectively. In columns (3) to (5), we interact the local bankruptcy variable with a Herfindahl index (HHI) of local lenders, lender profitability, and equity ratio, respectively. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

	No bankruptcy exposure (1)	Top 30 banks (2)	Local banking concentration (3)	Lender's profitability (4)	Lender's equity ratio (5)
Local bankruptcy$_{t-1}$	7.370***	5.848**	5.334**	-5.153	15.37**
	(3.41)	(2.31)	(2.37)	(-0.80)	(1.98)
Local bankruptcy$_{t-1}$×HHI of local lenders			10.554**		
			(2.01)		
HHI of local lenders			-5.149		
			(-1.52)		
Local bankruptcy$_{t-1}$ × Lender profitability				374.0*	
				(1.69)	
Lender profitability				667.1***	
				(3.64)	
Local bankruptcy$_{t-1}$ × Lender equity ratio					-129.6
					(-1.29)
Lender equity ratio					-7.130
					(-0.08)
Observations	13,327	6,925	14,032	11,135	11,760
Adjusted R^2	0.575	0.660	0.579	0.565	0.565
Control variables	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes	Yes

Table 12: Informational opaqueness

This table presents estimates from regressions of firms' loan all-in-drawn spreads (which equals spread + annual fee) on a dummy variable indicating a local bankruptcy in the previous year. The regression specification is the same as in Table 3, column (3). In columns (1) and (2) of Panel A, we interact the local bankruptcy variable with the news coverage of a local bankruptcy event, and the intangibility ratio of the bankrupt firm, respectively. In columns (3) and (4) of Panel A, we interact the local bankrutpcy indicator with firm age and a rural area indicator, respectively. In columns (1) and (2) of Panel B, we interact the local bankruptcy indicator with lenders' local market share and the size of their branch network, respectively. In columns (3) and (4) of Panel B, we run the regression on subsamples of relationship and transaction deals, respectively. All variables are defined in detail in Appendix A. Standard errors are clustered by borrower level. t-statistics are provided in parentheses. ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

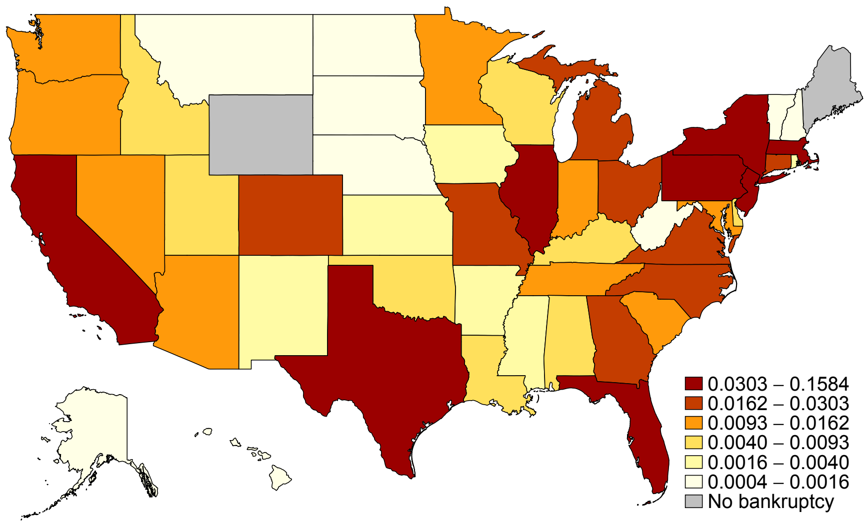
Panel A: Bankrupt and borrowing firms	Bankrupt firms		Borrowers	
	News coverage	Intangibility ratio	Firm age	Rural area
	(1)	(2)	(3)	(4)
Local bankruptcy$_{t-1}$	8.250***	5.472**	13.93***	7.983***
	(3.82)	(2.22)	(4.48)	(3.64)
Local bankruptcy$_{t-1}$ × News coverage - Bankrupt firms	-1.410***			
	(-2.83)			
News coverage - Bankrupt firms	0.108***			
	(6.00)			
Local bankruptcy$_{t-1}$ × Intangibility - Bankrupt firms		4.151**		
		(1.98)		
Intangibility - Bankrupt firms		-0.739		
		(-0.42)		
Local bankruptcy × Firm age			-0.331***	
			(-2.92)	
Firm age			0.306***	
			(2.98)	
Local bankruptcy × Rural area				38.12*
				(1.78)
Rural area				-22.90*
				(-1.68)
Observations	13,526	11,628	14,040	14,040
Adjusted R^2	0.545	0.553	0.545	0.545
Control variables	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes

Table 12: cont'd

Panel B: Lenders	Local exposure		Arm-length lending	
	Local market	Bank branch	Relationship	Transaction
	(1)	(2)	(3)	(4)
Local bankruptcy	11.214***	0.841	3.660	10.58***
	(3.77)	(0.25)	(1.15)	(3.76)
Local bankruptcy$_{t-1}$ × Local market share	-6.684*			
	(-1.91)			
Local market share	-4.209			
	(-1.37)			
Local bankruptcy$_{t-1}$ × Lender branch network		0.00316*		
		(1.81)		
Lender branch network		-0.00327**		
		(-1.99)		
Observations	13,928	10,763	5,227	8,813
Adjusted R^2	0.579	0.561	0.599	0.512
Control variables	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
State-yr FE	Yes	Yes	Yes	Yes
Senior debt rating FE	Yes	Yes	Yes	Yes
Type of loan FE	Yes	Yes	Yes	Yes
Purpose of loan FE	Yes	Yes	Yes	Yes

Figure 1: Bankruptcies from 1990 to 2013

This figure shows the percentage of bankruptcies in each U.S. state as a fraction of all bankruptcies from 1990 to 2013.



Appendix A - Variable definitions

Variable	Description	Data sources
Loan characteristics		
All-in-drawn spread	Sum of the spread over LIBOR plus the facility fee.	Dealscan
All-in-undrawn	Sum of the facility fee and the commitment fee.	Dealscan
Base is prime	An indicator variable equal to one if the base rate for a loan is the prime rate rather than LIBOR (and zero otherwise).	Dealscan
Commitment fee	Dealscan fee paid on the unused amount of loan commitments.	Dealscan
Coupon	All-in-drawn spread, defined as spread over LIBOR.	Dealscan
Deal amount	Natural logarithm of loan amount.	Dealscan
Default	An indicator variable equal to one if a firm's debt is rated either "D" or "SD" in a given year (and zero otherwise).	Dealscan
Facility fee	Fee paid on the entire committed amount, regardless of usage. Also called annual fee, is the annual charge against the entire loan commitment amount, whether used or unused.	Dealscan
Financial covenant	An indicator variable equal to one if a loan has financial covenants (and zero otherwise).	Dealscan
Maturity	The number of calendar months between the loan origination date and the loan maturity date.	Dealscan
Performance pricing	An indicator variable equal to one if a loan contains a performance pricing feature, either interest-increasing or interest-decreasing (and zero otherwise).	Dealscan
Refinancing	An indicator variable equal to one if a loan refinances a previous loan (and zero otherwise).	Dealscan
Relationship lender	An indicator variable equal to one if a borrower has another loan from the same lead arranger in the three years prior to loan origination (and zero otherwise).	Dealscan
Revolver loan	An indicator equal to one if a facility is classified as 'Revolver' loan in Dealscan (and zero otherwise).	Dealscan
Secured loan	An indicator equal to one if a facility is secured as indicated by Dealscan.	Dealscan
Sole lender	An indicator variable equal to one if a loan has a sole lender (and zero otherwise).	Dealscan
Spread	All-in-drawn loan spread measured at origination, defined as the sum of the spread over LIBOR plus the annual (facility) fee.	Dealscan
Unsecured loan	An indicator equal to one if a facility is not secured (and zero otherwise).	Dealscan
Upfront fee	Fee paid upon completion of a syndicated loan.	Dealscan

Appendix A - Variable definitions

Variable	Description	Data sources
Firm characteristics		
Asset tangibility	Property, plant and equipment over total assets.	Compustat
Bankruptcy propensity	An indicator variable equal to one if a borrower files for bankruptcy within three years of the loan origination date (and zero otherwise).	Compustat
CAR	Cumulative abnormal returns using the Fama and French three factor model.	CRSP
Cash flow volatility	The standard deviation of operating income before depreciation divided by total assets over the five years before the loan origination date.	Compustat
CDS	Rating-adjusted CDS spread. $AS_{jt} = S_{jt} I_{rt}$, where S_{jt} denotes the CDS spread of reference entity j at day t and I_{rt} is the equally weighted CDS index of rating r at day t. The index r refers to the five rating categories including AAA/AA, A, BBB, BB, and B or below.	Markit CDS
Covenant violation	An indicator that equals one if there is a reported covenant violation in a given year, and zero otherwise.	Nini, Smith, and Sufi (2012)
Current ratio	Total current assets divided by total assets.	Compustat
Debt to cash flow ratio	Debt divided by EBITDA (Earnings before interest, taxes and depreciation).	Compustat
Default	An indicator that equals one if a firm's debt rating is rated either "D" or "SD", and zero otherwise	Compustat
Distance to default	The proximity between a firm's actual ratio and the corresponding contractual covenant.	Dealscan and Compustat
Downgrade	An indicator variable equal to one if a firm experiences a downgrade in its debt rating in a given year (and zero otherwise).	Compustat
Economic Center	An indicator variable equal to one if the number of economic states of a firm is higher than its median value of the sample (and zero otherwise).	10K Reports
Firm age	The difference between the current financial year and IPO year or the earliest year that a firm reports financial data on Compustat.	Compustat
Firm size	Natural logarithm of the book value of total assets.	Compustat
Interest coverage	EBITDA divided by interest expenses.	Compustat
Leverage ratio	Long-term debt plus short-term debt divided by book value of total assets.	Compustat
Loan amount	Natural logarithm of total loan amount at the firm-year level	Dealscan
Local density	Indicator that equals one if a firm's local population is larger than the median value in a given sample year.	Census
Market to book ratio	Book value of assets, less book value of equity, plus market value of equity, divided by total assets.	Compustat
Matched bankruptcy prop.	An indicator of a firm's subsequent bankruptcy, adjusted to match the average value-weighted maturity of all loans of the firm.	UCLA Lopucki, New Generation Research, Dealscan

Appendix A - Variable definitions

Variable	Description	Data sources
Return on assets	Earnings before interest, taxes, and depreciation (EBITDA) over total assets.	Compustat
Return volatility	Standard deviation of the returns of a firm in a 252 trading day period prior to the loan origination date.	Compustat
rigination date.	Compustat	
Rural area	An indicator equal to one if a firm locates in a county whose population is in the bottom 30 percentile of a given sample year, and zero otherwise.	Census
Tradability dummy	An indicator variable equal to one if industries are classified as tradable by Mian and Sufi (2014) (and zero otherwise).	Compustat
Lender characteristics		
HHI of local lenders	An indicator variable equal to one if the local HHI index is higher than the median number of all lenders' HHI indices in a given year (and zero otherwise). The local HHI index is the sum of squared market shares, based on local lending amount of lenders.	Dealscan
Lender branch network	The number of brick and mortar branches of a lender's bank holding company in a firm's local area.	FDIC
Lender profitability	The ratio of EBITDA over total assets of a lender's bank holding company.	FDIC and Bank regulatory
Local lending amount	An indicator variable equal to one if a lender's local total lending in firm's local area is larger than the median county-level lending amount of all lenders in our sample (and zero otherwise).	Dealscan
Top 30 banks	A subsample only including loans whose lenders belong to the 30 largest banks (based on bank assets).	Dealscan and FDIC
Bankruptcy characteristics		
Local bankruptcy	An indicator that equals one if there is at least one bankruptcy filing in the year before the loan origination date and in the same county or close-by counties within 50km distance.	UCLA Lopucki and New Generation Research
Local bankruptcy - 100km	An indicator that equals one if there is at least one bankruptcy filing in the year before the loan origination date and in the same county or close-by counties within 100km distance.	UCLA Lopucki and New Generation Research
Local bankruptcy - 200km	An indicator that equals one if there is at least one bankruptcy filing in the year before the loan origination date and in the same county or close-by counties within 200km distance.	UCLA Lopucki and New Generation Research
News coverage - Bankrupt firms	The number of news articles in the Wall Street Journal, New York Times, USA Today, and Washington Post mentioning the bankrupt firm in the year of announcement.	LexisNexis

Appendix A - Variable definitions

Variable	Description	Data sources
Intangibility - Bankrupt firms	The ratio of intangibility over total assets of a firm filing for bankruptcy.	Compustat
Population-adj. bankruptcy	An indicator that equals one if there is at least one bankruptcy filing in the year before the loan origination date and in the same county or close-by counties within population-adjusted distance.	Census, UCLA Lopucki and New Generation Research
County characteristics		
Income per capita	The natural logarithm of income per capita in a firm's local area	Census
Local employment	The natural logarithm of number of employees in a firm's local area	Census
Local establishments	The natural logarithm of number of establishments in a firm's local area	Census
Local per capita income	The natural logarithm of income per capita in a firm's local area	Census
Local population	The natural logarithm of number of population in a firm's local area	Census
Ratio of large firms	The ratio of number of large firms (number of employees above 249 people) over total population in a firm's local area	Census
Ratio of small firms	The ratio of number of small firms (number of employees below 249 people) over total population in a firm's local area	Census
Size of working population	The natural logarithm of number of people aged 15 to 65 living in a firm's local area	Census