Local Investors' Preferences and Capital Structure*

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March 2017

Abstract:

We find that public firms use more debt financing when they are headquartered in areas where fundamental demographics suggest local investors prefer safer assets (i.e., where the local population is older and has a higher ratio of females to males). These results are apparent in the broad cross-section, but they are more pronounced among firms that may face difficulty accessing the capital markets, either because they have a below-investment-grade rating or they do not have credit rating (altogether about two-thirds of public companies). Further tests suggest two channels drive this relation: (1) shifts in local debt supply curves, and (2) differences in the resiliency of the local debt supply. The "supply curve" channel is supported by the evidence that bank deposits are higher in areas where local investors prefer safer assets, and that public firms in those areas are more likely to secure syndicated loans with local lender involvement. The "supply resilience" channel is supported by evidence that bank deposits are more stable in those areas. Moreover, firms in those areas fared better during the financial crisis (2008-2009) even though they entered that period with higher debt levels in general. Overall, our results suggest that local capital supply conditions are an important determinant of public companies' capital structures.

* We thank seminar participants at Miami University and National University of Singapore. All errors are our own.

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Keywords: Local Demographics, Capital Structure, Segmented Markets, Fixed Income Demand

I Introduction

Much of our understanding of public firms' financing activities comes from research on firms' demand for capital. Extant studies provide support for the trade-off theory of capital structure as well as the pecking order theory. However, demand-side theories have significant shortcomings. For example, as emphasized by Graham and Leary (2011), traditional theories do not seem to explain cross-sectional variation in capital structures at the firm level. Demand side explanations also do a poor job explaining why firm-specific financial structures are so highly persistent over time (Lemmon, Roberts, and Zender, 2008). Issues such as these have led researchers to explore other explanations for capital structure, one of which is the relevance of capital supply conditions. Recent advances in this area are substantial enough for Graham and Leary (2011) to note that "Several recent studies suggest that capital market segmentation and supply conditions significantly influence observed financial structures."

In this paper, we explore whether the risk preferences of local investors are related to public firms' capital structures. Most generally, we hypothesize that firms face segmented capital markets and therefore cater to the preferences of local investors when raising capital.[1] We use measures of local demographics to proxy for investors' preferences, and test whether fundamental characteristics of the local population predict firms' financing and capital structure choices. We begin our analysis by testing this relation in the broad cross-section, and find consistent evidence.

After performing the analysis for the overall sample, we then evaluate subsamples of firms partitioned by whether they are likely to be affected by market segmentation. Large reputable firms should have low-cost access to national (or even international) markets for various forms of

[1] Becker, Ivkovic, and Weisbenner (2011) provide evidence that local clienteles shape payout policy. In particular, they find that firms pay more dividends when they are headquartered in areas with more senior citizens. They provide some evidence that managers cater to the preferences of local seniors because they hold their stock positions longer.

capital. However, recent literature suggests that many public companies do not fit this description. Although prior work on public firms' debt structure showed that *in aggregate* firms borrow through a diverse set of channels (Rauh and Sufi, 2010), more recent work that focuses on disaggregated data shows that the majority of firms with publicly-traded stocks rely on private debt. In particular, Colla, Ippolito, and Li (2013) report that firms without credit ratings rely almost exclusively on private bank debt, and that private debt is also an important source of capital for firms that move from investment grade to speculative ratings. It is important to note that these two categories of firms that are likely to rely on private debt make up a substantial fraction of the U.S. stock market; indeed, together they amount to over two-thirds of U.S. public firms. There is substantial evidence that the private debt markets are segmented, and that local investors' preferences are related to the availability of private debt capital for small private firms.[2] We therefore expect local investors' preferences to have more of an impact on the capital structure choices of these public firms.

To the extent that our hypothesis is affirmed, our results may shed light on both puzzles noted above: unexpected variation of the capital structures in the cross-section, and within-firm capital structure persistence. The first puzzle may be related to differences in investor preferences across firm locations; and the second may reflect the stability of local demographics over time.

To test our hypotheses, we must identify differences in risk preferences across communities. We focus on two fundamental demographic characteristics: the average age of the local population, and the ratio of women to men in the local population (or "age and sex composition"). These characteristics are not only salient features of a population (U.S. Census Bureau, 2010), they are also likely to correlate with risk preferences of the population. People shift

[2] In particular, Becker (2007) shows that local bank deposits and lending levels are higher in areas with an older population, allowing small firms to thrive in those areas.

out of stocks and into fixed income securities and cash as they age (Bakshi and Chen, 1994; Brown, 1990; Dahlbäck, 1991; Fagereng, Gottlieb, and Guiso, 2017). Becker (2007) shows that this dynamic leads to higher levels of bank deposits in areas where the population is older. Women have also been shown to be more risk-averse than men and gender-related differences in attitudes toward risk also affect the composition of investment portfolios (Hudgens and Fatkin, 1985; Johnson and Powell, 1994; Sundén and Surette, 1998; Bernasek and Shwiff, 2001; Barber and Odean, 2001). Combining these fundamental determinants of risk preferences, we predict that firms headquartered in areas with an older population and a higher fraction of women use more debt in their capital structure.

We use census data to identify differences in the average age and sex composition across counties in the United States. We analyze data from 1980 to 2010, because census data collected every ten years during this period is readily available. We sort counties into quintiles based on the average age and sex compositions. We report some preliminary tests that consider the local age and sex composition separately, but our main tests focus on the relation between firms' financing choices and an index that capture both factors. This index, which we call the Local Age and Sex Composition Index (or *Local ASC Index*), combines areas' quintile ranks along both dimensions into a composite measure, and therefore its values range from 2 to 10. We consider local investors to have a high demand for fixed income (*High ASC*) if the index has a value of either 8, 9, or 10, and low demand for fixed income (*Low ASC*) if the index value is 2, 3, or 4. The average age and ratio of women to men associated with Low ASC counties are 33.6 years and 1.01, respectively; whereas the corresponding figures are 37.8 years and 1.09 for High ASC counties, demonstrating the significant demographic heterogeneity across the U.S.

We find a strong relation between local risk preferences and firms' capital structure and financing choices. Both age and sex composition imbalances are independently related to the level

of debt in local firms' capital structure in the predicted directions. The combined effect is even stronger and holds in both simple univariate tests and panel regressions. In particular, panel regressions that include industry and year fixed effects as well as relevant control variables for capital structure, indicate that leverage ratios are approximately 2.5 percentage points higher in High ASC Index than in areas with a Low ASC Index. This represents a 10% difference compared to the average leverage ratios of around 25 percentage points in our sample.[3] As hypothesized, we find that this relation is driven by firms that either do not have a credit rating from S&P, or that are rated as non-investment grades. These results suggest that among public firms, the preferences of local investors have more of an impact on those that face hurdles for accessing the broader capital markets.

The fact that the link between local preference and capital structure depends on whether firms face barriers to raising capital lends support to our economic interpretation. Moreover, this helps rule out alternative explanations. For example, if firms sorted across locations according to other fundamental characteristics, then a relation between local demographics and financing choices may reflect some other demand side explanation. However, the supply-side explanation is supported because the results are only apparent among firms with limited capital market access. Notwithstanding this distinction, the fact that the results are also apparent in the overall sample (quite strongly, in fact), suggests that local capital supply conditions are an important determinant of capital structure in general, but that has not been appreciated as such.

We subject our main results to several robustness tests that shed additional light on this relationship. The results are largely robust to the inclusion of firm fixed effects in our panel

[3] The relation between local risk preferences and firms' financing choices is confirmed in tests evaluating new capital raising activities. Firms in High ASC areas are 14% more likely to issue debt and 11% less likely to issue equity in each year. These results suggest that the overall leverage results indeed reflect variation in capital raising activities rather than just differences in the growth of assets and market equity.

regressions. This suggests that the relationship is driven by time series changes in local investors' preferences, which suggests that investor preferences are a causal determinant of firms' financing decisions. It also holds when we remove the smallest firms from the sample (e.g., we remove all firms with less than 500 employees). This suggests that local preferences are not only relevant to the financing choices of small firms, but that they also affect larger firms. Finally, we find that the results are concentrated in firms located in counties with high personal incomes. This further supports our economic interpretation because local investor preferences are likely to matter most in areas where individuals have greater wealth.

Having documented the evidence of a link between local risk preferences and capital structure, we explore the economics of this association in more detail. We propose two channels through which the preferences of a local population may impact firms' financial policies. Under a model of capital structure where firms trade off the economic benefit of debt financing against the risks associated with an increasing debt burden, both of these channels lead to a prediction that firms will rationally employ higher debt levels when local investors are more risk-averse.

The first is a direct channel, motivated by the literature documenting that investors have a local bias. For example, investors over-weight their portfolios towards the securities of locally-headquartered companies (Coval and Moskowitz, 1999; Ivković and Weisbenner, 2005). Individuals also tend to deposit cash in local banks, which, in turn, are more likely to make loans to local firms.[4] To the extent that these capital market imperfections are costly to overcome, even public firms headquartered in different areas may encounter distinct supply curves for different forms of capital. In areas where investors have relatively stronger aggregate preference for safer portfolios, resident firms may face investors with a greater appetite for their debt. An excess local

[4] Banks rely on deposits, and most deposits are local such that deposit levels affect the amount available for bank loans (Kashyap and Stein, 2000). In addition, bank lending tends to be local (Petersen and Rajan, 2002; Becker, 2007).

supply of such debt capital could allow firms to pay lower interest rates for a given level of default risk, causing them to optimally shift their capital structure towards debt.

We provide two main pieces of evidence regarding the first channel. Becker (2007) shows that bank deposits are higher in areas with more senior citizens. We confirm that this result is also apparent when measuring local fixed income demand with the combination of the average age of the population and the ratio of women to men. To determine whether the higher apparent local fixed income balances are related to firms' financing choices, we evaluate firms' capital raising efforts in the syndicated loan market. We find that higher local fixed income demand is associated with higher levels of borrowing by firms through syndicated loans. Those loans are more likely to be managed by a local syndicate lead, and a larger fraction of the funds comes from local banks. These results suggest that local capital supply conditions impact firms' financing choices. However, to conclude that these results reflect shifts in capital supply curves and not differences in firms' demand for credit, we also need evidence that firms in high fixed income demand areas are not paying higher interest on their elevated levels of debt financing. Indeed, a regression analysis of the spreads paid on syndicated loans indicate that this does not appear to be the case.

The second channel is based on an expectation that the *stability* of the capital supply may also vary across locations. Massa, Yasuda, and Zhang (2013) provide evidence that firms base their capital structure decisions in part on the stability of assets under management at the institutional investors that hold their securities. We extend their reasoning to hypothesize a relation between firms' financing decisions and the stability of the *local* capital supply, which is a function of the aggregated local risk preferences. The investible wealth in areas where individuals are more risk-averse will be weighted more towards cash and fixed income securities, and therefore will not be as volatile as it is in areas investors hold more stocks and make other riskier investment choices. Local banks in the former areas are therefore likely to have a more stable source of deposits.

Similarly, firms headquartered where investors prefer safe investments may face less risk that their securities will be mispriced in the future due to shocks to local investors' wealth that could precipitate a shock to local intermediated capital (Baker, 2009). Firms headquartered in an area with a more risk averse population may therefore be more confident they will be able to roll their debt over at reasonable prices as it comes due.[5]

In support of this channel, we demonstrate that bank deposits are less volatile in areas with higher fixed income demand. Prior research has shown that there is considerable time-series variation in the supply of both public and private debt capital, but that private bank loans are more volatile overall and bank lending activities vary systematically with the economy to a much greater degree than public debt financing. Becker and Ivashina (2014) provide evidence that the cyclical nature of bank lending is driven at least in part by shocks to credit supply. These patterns may explain why firms in high fixed income demand areas raise a greater fraction of private debt: the less risky portfolios of investors in these areas may stabilize the supply of bank capital and thus reduce the volatility of this particularly unstable form of debt capital.

The debt capital resilience channel is affirmed by an analysis of firms' outcomes during the 2007 - 2009 financial crisis. This was a particularly difficult time to raise new capital – especially from banks – and many firms failed or experienced financial distress (Gorton, 2010; Almeida, Campello, Laranjeira, and Weisbenner, 2012). We find that firms' outcomes during the crisis varied with the stability of their local debt capital base. Firms in high fixed income demand areas were more likely to raise new capital during this time, particularly if they were headquartered in wealthier counties. Interestingly, they were more likely to issue *both debt and equity*, suggesting

[5] For example, Choi and Choi (2016) argue that loanable bank deposits will be less sensitive to monetary policy and therefore more stable when the local population is more motivated to maintain bank deposits to store wealth as opposed to using them as an investment option.

that the greater ability to roll over debt also enhances a firms' ability to access the equity market because there is a lower chance of default.

Almeida, et al. (2012) show that firms with more short-term debt outstanding when the financial crisis began suffered greater disruptions to their business operations. We find that the correlation between debt issuance and local fixed income demand during the crisis was strongest among firms that entered the crisis with higher levels of short-term debt. This suggests that our results indeed reflect lower rollover risk in high fixed income demand areas, and that greater access to local debt capital helped firms that entered the crisis with large amounts of short-term debt survive.

Demographic-driven differences in access to capital during the crisis also appears to have affected firms' economic outcomes. In lower wealth areas, low local fixed income demand was associated with a higher likelihood of a stock price crash. Overall, firms in high fixed income demand areas were more likely to survive the crisis as stand-alone companies whereas those in low fixed income demand areas were more likely to either be acquired or go bankrupt. Importantly, these results suggest that firms located in high fixed income demand areas fared better during the crisis even though they entered this period with *higher leverage* on average.

Our results highlight the importance of local investor preferences for public firms' financial policies. In this context, local investor preferences may also help explain the two empirical regularities highlighted at the beginning of this introduction. First, local demographics change slowly and firms rarely move their headquarters, which could contribute to the persistent firm-level capital structures observed across the economy. Second, the variation in local demographics across regions may help explain firm-level cross sectional capital structure heterogeneity. Furthermore, this work shows that the investing preferences of firms' local capital base may affect the firms' ability to weather harsh economic conditions as were seen during the financial crisis.

These results extend the insights of Becker (2007) about the importance of local bank capital for small private firms. Our work indicates that local capital markets are important even for the fundraising activities of public firms. It also builds upon the insights of Massa, et al. (2013) regarding the importance of capital stability by demonstrating that one important determinant of the (un)certainty of a firm's capital supply is the fundamental investing and risk attitudes of its local investor base.

II Data

We hypothesize that firms' financing decisions will be affected by the risk and investing preferences of their local population. As discussed in the introduction, these attitudes vary with fundamental human characteristics, including one's gender and age. On average, women have a lower tolerance for risk than men, and older people have a greater need for safer investments than younger people. Women and older people therefore have higher demands for cash or fixed income relative to men or younger people. We expect the aggregate preferences of a local population to vary according to the concentration of women in the area, as well as by the average age of the local population.

To operationalize these measures, we obtain demographic data and various county-level variables from the 1980, 1990, 2000 and 2010 U.S. Censuses. Additionally, we obtain decennial data on religion from the American Religious Data Archive (ARDA), and annual data on county income from U.S. Bureau of Economic Analysis (BEA) website. For county level data that are available only decennially, we follow the previous literature (Alesina and La Ferrara (2000); Hilary and Hui (2009); Kumar, Page and Spalt (2011)), and linearly interpolate the data to obtain estimates for the intermediate years. We follow previous literature (Coval and Moskowitz (1999,

2001); Ivković and Weisbenner (2005)) and match the county level demographic information to the counties of the firms' headquarters.

We construct our main explanatory variable of interest, the Local Age and Sex Composition Index, as follows. For each year in our sample, we independently rank into quintiles the average age and sex composition of the counties where firms are headquartered. A higher quintile ranking for average age and sex composition, respectively, represents a local population which is older and has more women compared to men. We add these two quintile rankings at the county level to construct our Local ASC Index, which varies from 2 to 10. We consider an area's population to have a low demand for fixed income (Low ASC) if this measure takes a value of 4 or less. This requires a ranking in the bottom quintile in at least one of the demographic measures, and no more than a second quintile ranking in the other. Similarly, we consider an area to have a high demand for fixed income (High ASC) if the index has a value of 8 or more. Each of the two groups – Low and High ASC – contains about one third of our sample of firm-years.

The county-level distributions of these fundamental demographic variables are summarized in Table 1 Panel A. There is considerable heterogeneity. For example, on average there is 1.05 women for every man. But the bottom and top quintiles have averages of 0.99 and 1.11 women per man, respectively. There is also significant variation in the average age of the local population. The mean average age of a county's population is 35.7 years, but the averages for the bottom and top quintiles of counties are 32.9 and 38.8 years, respectively. The meaningful variation can be seen by contrasting Low ASC counties with the levels in High ASC counties. The averages ratio of women to men and average age in Low ASC counties are 1.01 and 33.7 years, respectively; in contrast, these measures average 1.09 and 37.8 years in High ASC counties. These summary statistics suggest that there may be substantial differences in the aggregate risk

preferences of investors across counties, motivating our inquiry into whether firms make different financing choices across these areas.

[Table 1 here]

We gather additional data for our analysis from numerous sources. Data on firm characteristics, firms' location, and stock prices come from the CSRP/Compustat merged dataset. We exclude financials (2-digit SIC codes 60 to 69) and public utilities (2-digit SIC code 49) because they are highly regulated. Our sample period for the main analysis starts in 1980 and ends in 2010, which is the last census year available.

Part of our analysis involves data on syndicated commercial loans, which we obtain from DealScan for the years 1987 through 2010. For an analysis of the level and stability of bank deposits, we obtain data on bank holding companies from their FR Y-9 statements. For our main analysis, we utilize an unbalanced panel of data for about 81,000 firm-years over the period from 1980 to 2010 pertaining to about 8,700 unique firms headquartered in about 700 different US counties. The numbers of observations vary across the tables based on specific data availability.

Table 1 Panel B reports descriptive statistics for our sample of firms. At the firm-year level, we report the distributions of our main variables of interest, leverage and security issuance, as well as the firm characteristics used as control variables in the regressions. Table 1 Panel C describes county-level variables used in our analysis. Other important demographic characteristics that are used as control variables include the total population of a county, whether it is a rural or urban area, the per capita income, and the fraction of the population that can be classified as religious. The construction of these control variables is described in the Appendix.

III Local Fixed Income Demand and Leverage

We begin our analysis by examining the link between the expected local demand for fixed income and the capital structure of resident firms. We next examine firms' security issuance decisions. We then provide some robustness checks of our findings. Lastly, we conclude this section by examining the link between local demographics and the cost of debt capital.

A. Main Analysis of Capital Structure

Our first set of tests examine the link between local demographics and firms' market or book leverage. The focus is on whether leverage varies with the composite measure of local demographics (Local ASC Index), although we provide a complimentary analysis focused on the impact of local age or gender ratios separately in the Appendix. We conduct panel regressions where the measures of firm leverage are regressed onto year and industry fixed effects, additional control variables, and Local ASC Index (or, alternatively, dummies for Low ASC and High ASC). The results from baseline regressions that only include year and industry effects and firm size decile indicators are represented in Figure 1. The figure displays a monotonic increase in both market and book leverage across low, middle, and High ASC areas.

[Figure 1 here]

Table 2 reports the full results of fixed effects regressions that also include other important variables related to leverage. Model (1) reports the market leverage model with the ASC Index. Consistent with our prediction, the ASC Index has a positive estimate in the market leverage regression, indicating that firms headquartered in areas whose population is likely to have higher fixed income demand tend to have higher debt levels. In model (2), we use the High and Low ASC dummies to facilitate the discussion of the economic magnitude of this relation. The baseline comparison group in this regression is firms located in areas with a medium ASC Index value (ASC Index = 5, 6, or 7). Firms in *High ASC* areas have a 1.5 percentage point (t=3.16) higher

level of market leverage than the baseline firms, while those in *Low ASC* areas have a 1.1 percentage point (*t*=2.38) lower level of leverage than the baseline. The difference in market leverage between high and Low ASC areas is 2.6 percentage points, which is about 10 percent of the 25 percent unconditional average of market leverage. This is an economically significant result given that these regressions control for industry and time trends as well as a broad variety of covariates or determinants of leverage. We repeat this analysis in model (3) while omitting the middle ASC Index group. The point estimate on *High ASC* indicates that the difference in market leverage between high and Low ASC areas is a statistically and economically significant 2.8 percentage points (*t*=5.01), again around 10 percent of the unconditional average.

[Table 2 here]

Models (4) to (6) of Table 2 present a similar analysis of firms' book leverage. The parameter estimates on the variables of interest – the ASC Index or the ASC dummies – are similar to those found in the analysis of market leverage. The last model (6) indicates that the difference in book leverage between high and Low ASC areas is around 2.3 percentage points (*t*=4.48), which, again, is about 10 percent of the unconditional average leverage of 24 percentage points.

Next we evaluate whether the main results are stronger among firms that may not have access to the broad public capital markets. As discussed in the introduction, we hypothesize that firms without credit ratings and those will ratings that are below investment grade will have difficulty accessing the pubic markets and will therefore rely more on local sources of capital (Colla, Ippolito, and Li, 2013). In Table 3 we analyze separately the capital structures of three subsamples of firms: those with investment grade credit ratings (8,790 firm-year observations), those with below investment grade ratings (8,280 obs.), and those that are unrated by S&P (52,537 obs.). Panel A provides an analysis of capital structure based on market values, and Panel B analyzes capital structures based on book values. We do not find a relation between local

demographics and capital structure for the investment grade firms, but we find a relation for both the low rated and unrated firms. These results support the hypothesis that public firms that face high barriers to accessing the public capital markets cater to the investing preferences of their local population. Because the large majority of firms are either unrated or have low credit ratings, these relations are also apparent in the overall cross-section of firms.

[Table 3 here]

This analysis also helps to rule out alternative capital demand based explanations for the results. One may be concerned that capital structures vary with local demographics because firms sort by type into areas with different demographics. For example, if low risk firms are more likely to be headquartered where the population invests more conservatively, then they may also maintain higher debt levels (although our other control variables should assuage this concern). The fact that the results hold only for firms hypothesized to face barriers to accessing the capital markets supports the capital supply explanation instead.

B. Robustness

B.1. Security Issuance

Following Hovakimian, Opler, and Titman (2001) and Leary and Roberts (2014), we examine the link between Local ASC Index and security issuance by constructing the following dummy variables: (1) Net Debt Issuer and (2) Net Equity Issuer. We classify a firm as a debt issuer if the net change in the firm's total debt outstanding between years *t* and *t*-1 is greater than 1% of the firm's total assets and zero otherwise. We assign a value of one for *Net Debt Issue* in year *t* to such firms, and zero for the remaining firms. Similarly, we classify a firm as an equity

issuer if the difference between common stock issuance and common stock repurchases in year *t* is greater than 1% of the total assets and zero otherwise. We assign a value of one for *Net Equity Issue* to these firm-year observations.

[Table 4 here]

Table 4 reports the parameter estimate from logit regressions modeling the probability of security issuance during a year. The regressions include year and industry fixed effects, as well as typical control variables related to security issuance. Consistent with our prediction, ASC Index has a positive estimate in predicting net debt issuance in model (1). The dummies in models (2) and (3) allow us to analyze the economic magnitude of this relation. We report the estimates for net equity issuance in models (4) to (6). The parameter estimates on the ASC dummies indicate that firms in High ASC areas have about 11 percent higher probability of issuing debt and about 14 percent lower probability of issuing equity, relative to firms in Low ASC areas. These differences translate to about 3-4 percentage point differences in equity and debt issuance, respectively. As these differences are quite similar in magnitude, the point estimates suggest that firms in high and Low ASC areas raise outside capital with similar frequency. However, consistent with the leverage results above, the forms of capital they raise appear to vary with the preferences of their local investor bases.

B.2. Debt Structure

Our analysis so far has focused on debt levels and capital raising activities. We now turn to the analysis of debt structure, i.e., whether firms carry more short- or long-term debt. In Panel A of Table 5 we conduct an analysis similar to models (2) and (5) of Table 2, but replace the dependent variable with the levels of short- and long-term debt, as a fraction of market value and

book value of the firm, respectively. The estimates indicate that firms in High ASC areas have higher levels of both short-term debt and long-term debt. This suggests that supply conditions in High ASC areas allow for greater debt utilization by firms without increasing concerns about roll-over risk.

[Table 5 here]

B.3. Local Income

In areas with lower income, the local population is unlikely to have savings substantial enough to be related to corporate policies. Aggregate local demand for fixed income securities is likely to be weak in these areas even if the local demographic characteristics indicate that the residents are likely to demand such securities. As such, it is difficult to imagine that the demographic characteristics, e.g., the ASC Index, would be related to resident firms' propensity to issue fixed income securities. Therefore, we hypothesize that the link between demographic characteristics related to fixed income demand and capital structure is weaker in lower income areas. In Panel B of Table 5 we report our capital structure tests on subsamples partitioned by whether the firms are located in counties with above or below median total income levels. We find that the link between local demographics and capital structure is evident only in high income areas.

B.4. Omitting High Tech Firms

A potential concern is that the results are related to the clustering of high tech firms along two dimensions: (1) geographically, particularly in areas with younger population (e.g., Silicon Valley) and (2) in terms of leverage (i.e., that they tend to have lower leverage). Indeed, high tech firms have more than 12 percentage point lower market leverage relative to other firms (15.3% vs. 27.7%). To address this concern, Panel B of Table 5 also reports regressions using a sample that excludes high tech firms. Imposing this restriction reduces the significance of the Low ASC dummies, consistent with high tech firms being concentrated in terms of demographic (Low ASC)

as well as capital structure (low debt ratio). However, it does not affect the overall results and inference that firms in High ASC areas have higher debt ratios.

B.5.. Fixed Effects Analysis

Panel C of Table 5 is devoted to concerns about omitted variables. First, we address the potential non-linearity in the relation between firm size and leverage, as larger firms may have easier access to the public debt market. A related concern stems from the non-linearity in the effect of relative market valuations (equity vs. debt) on the propensity to issue certain types of securities (see, e.g., the non-linear effect of returns and institutional demand documented in Altı and Sulaeman, 2012). To address these concerns, we conduct regressions that control for firm size and book-to-market with decile dummies in lieu of their continuous counterparts. The results are unaffected, indicating that our earlier results are not driven by the failure to account for these non-linearities.

One may also be concerned about potential omitted variables at the geographic area or firm level. In particular, demographics in certain areas may lead to resident firms having a specific operational strategy that eventually leads to a specific optimal capital structures. As such, our results may be drive by variations in asset leverage rather than capital structure choices, per se. To account for this possibility, we employ two levels of fixed effects. First, we include state fixed effects, to control for time-invariant differences in leverage across states. The coefficients on *High ASC* continue to be positive and statistically significant, with similar economic magnitudes to our baseline analysis.

We then employ firm fixed effects. This test represents a high hurdle for establishing an empirical relation because its power is derived either from firms moving their headquarters across high and Low ASC areas, or from areas that change in the ASC index rankings. As corporate relocations are relatively rare events and demographics change slowly, this test has relatively low

power. These regressions show weak or no patterns for *Low ASC*, suggesting the fixed effects absorb the differences across low and middle ASC areas. However, *High ASC* continues to be significant, and the point estimates are similar to those obtained in the main analysis of Table 2.

IV Potential Channels and Mechanisms

So far we have documented the link between area demographics and the capital structure of resident firms. We next examine two possible channels that may drive this relation: variation in local capital levels and the stability of local capital.

A. Local Capital Levels

Our results so far indicate that firms in High ASC areas have higher leverage. We next turn to the analysis of potential channels that can lead to these results. The next two subsections provide a more direct analysis of local bank deposits and local lending. We first examine the level of local bank deposits, and the effect of ASC on the likelihood of obtaining loans from local financial institutions. Then we examine the stability of local bank deposits, and the effect of ASC on the availability of credits during the liquidity crunch in 2008-2009.

Our underlying assumption so far is that areas with higher ASC have relatively larger supply of local fixed income capital. We test the validity of this assumption by regressing the amount of deposit per capita at each county on various county characteristics, including age and gender characteristics as well as our ASC Index. Our hypothesis is that the following characteristics are positively correlated with deposit per capita: (1) the average age of the county's population, (2) the female-to-male ratio of the county's population, and (3) the ASC Index combining these two county characteristics. Table 6 reports the result of this analysis. The estimates are consistent with our hypothesis, and provide support for our underlying assumption.

In particular, the point estimate indicates that the deposit per capita is 24 percent higher in High ASC areas relative to other areas.

[Table 6 here]

The results in Table 6 validates our assumption and motivates exploration of a relation between ASC and borrowing activity from *local* financial institutions. To perform this analysis, we employ data on syndicated loans from DealScan. This dataset contains various characteristics of syndicated loans including the amount of the loan, and the role of each lender in the syndicate (manager, co-manager, or only member), and the location of each syndicate member. We use this information to identify whether or not a lender is local (i.e., located in the same state). We include various firm controls, county controls, and industry and year fixed effects in our analysis to control for potentially confounding factors.

Table 7 reports the parameter estimates from several regression models. First, we analyze the broad effect of ASC Index on the size of the loan in Model (1). We find a positive coefficient on ASC, indicating that firms in High ASC areas take out larger loans. This is consistent with our earlier broader results indicating that these firms have higher leverage and issue more debt.

[Table 7 here]

The advantage of the syndicate loan setting is that it allows us to drill deeper and identify whether the higher amount of debt is obtained from local sources. To operationalize this, we analyze the likelihood that the loan syndicate include members – syndicate lead or otherwise – are local financial institutions, i.e., located in the same state as the firm. Models (2) to (4) report regressions in which the dependent variables are dummy variables indicating that at least one of the syndicate members is local [Model (2)], at least one of the lead syndicate members is local [Model (3)], and at least one of the non-lead syndicate members is local [Model (4)]. The results indicate that syndicates providing loans to firms in High ASC areas are more likely to include local

financial institutions as both lead and non-lead members. We perform similar analysis using the fraction of syndicate members that are local in Models (5) to (7), and obtain similar inferences.

We next consider whether the higher loan amount and the higher participation of local lenders in High ASC areas is due to demand or supply forces. One potential explanation is that firms in High ASC areas demand more leverage. This higher leverage demands closer scrutiny and monitoring due to informational asymmetry concerns. Because local lenders can mitigate these concerns due to their geographical proximity, they are more likely to participate in these potentially riskier loans. Alternatively, the higher loan amount and local participation is because there is a higher level of capital supply in High ASC areas, as we conjectured in the earlier sections.

It is important to note that our earlier results in Table 7 have some implications for the information-related demand channel. Lead syndicate members typically perform the fiduciary duties of mitigating the adverse selection or monitoring concerns associated with syndicated loans. In contrast, non-lead local members are unlikely to play such important roles. We observe a higher participation rate of local syndicate leads [Models (3) and (6)], consistent with the information role of local syndicate leads. However, we also observe a similar pattern for non-leads [Models (4) and (7)], suggesting that the amount and participation results are unlikely to be driven merely by information-based demand.

To further explore the local demand vs. supply channels, we regress the loan interest rate spread (relative to the prevailing benchmark rates) on ASC Index and various firm and county controls in Model (8). If the demand channel is the dominant factor, the higher quantity of loans should result in higher loan prices, i.e., higher loan interest rates or spreads. Alternatively, if the supply channel is dominant, the loan spreads should not be affected in equilibrium, assuming that firms in High ASC areas take appropriate advantage of the higher capital supply. The coefficient

estimate on ASC in Model (8) is not statistically different from zero, suggesting that variation in fixed income demand is unlikely to be the dominant channel driving our results.

B. Local Capital Stability

Our results so far indicate that being located in High ASC areas is associated with higher leverage, and the last subsection suggests that this is related to local bank deposit levels. Another potential channel underlying this relation is that the demographic characteristics embedded in the ASC Index (older population with a higher female ratio) is related to the *stability* of local deposits.

B.1. Local Bank Deposit Stability

Capital stability is particularly important in the context of short-term debt, as a more stable source of local capital can mitigate the roll-over risk associated with relying more on short-term debt. To examine this potential channel, we begin by analyzing the volatility of local deposits as a function of ASC. We then explore how firms in High ASC areas are affected by a relatively exogenous shock to the availability of capital to roll-over short term debt. In particular, we examine how they survive the liquidity crunch during the financial crisis of 2008-2009 – even as they enter the crisis with relatively high (short-term) leverage ratios.

[Table 8 here]

In Table 8 we evaluate local deposit volatility. The dependent variable is the volatility of quarterly changes in deposits at the bank level, calculated over three-year windows. Accordingly, we use non-overlapping three-year windows in the regression.[6] We include bank-level controls as well as county-level controls in the regression. The results indicate that banks in High ASC areas have lower deposit volatility. In terms of economic magnitude, the coefficient on ASC indicates that a move from the bottom ASC group to the top group is associated with a reduction in deposit

[6] Our results are similar regardless of the choice of measurement windows.

volatility of about 20 percent of its standard deviation. This suggests that firms located in High ASC areas can tap a relatively more stable source of local capital if they need to roll-over their short-term debt during episodes of system-wide funding contractions. We examine this issue more directly in the following analysis.

B.2. Outcomes During the Financial Crisis

We expect that firms located in High ASC areas can finance their operations more easily during periods of liquidity contractions. The most obvious channel is through better ability to issue more debt. However, the stability of local capital supply may also manifest in a better ability to issue more equity as stock investors are less concerned regarding the firm's viability when faced with such contractions. As a result, firms in High ASC areas are more likely to survive such crises.

We sharpen this analysis by incorporating the insight regarding local income that we obtain in section V.A (Panel A of Table 5). In particular, we hypothesize that the effect of ASC on the ability to secure financing and survive the crises is less relevant in areas with relatively low income. To test this hypothesis, we include the interaction of the Low Income dummy (1 when the county's total income is below the median) and ASC variables in regressions reported in Table 9. The dependent variables in this table include: (1) security issuance during the 2008-2009 crisis period, (2) debt issuance during that period, (3) equity issuance during that period, and (4) whether the firm disappear from our sample due to merger or bankruptcy during that period.

[Table 9 here]

As we include interactions of Low Income dummy and ASC variables in the regressions, the parameter estimates on the ASC variables capture the effect of ASC for firms located in high income areas. These estimates are reported in the first two rows of Table 9. They indicate that firms in High ASC areas are more likely to issue securities – particularly debt – and to survive the crises as a standalone entity. These effects are almost completely eliminated for firms located in

low income areas, again consistent with the idea that local investors' preferences matter for corporate financing decisions when the local population has high enough income. Taken together, the results in this section suggest that in addition to s shift in the capital supply curve, a higher concentration of individuals – particularly wealthy people -- with a stronger preference for fixed income securities can reduce refinancing risk for locally-headquartered companies due to the relative stability of the capital supply.

V Conclusion

This paper provides evidence that local capital supply conditions are important determinants of firms' financing policies. Because a majority of public firms rely on private debt capital, they are likely to be affected by local debt market conditions, which are a function of the investing preferences of local investors. In particular, we show that firms utilize more debt financing when their local populations are older and when there are more females relative to men, both of which indicate that in aggregate local investors will hold safer portfolios.

Local capital conditions appear most important for public firms that may face barriers to accessing the public capital markets, including firms with credit ratings indicating they are not investment grade and firms that are not rated by a major ratings agency (the large majority of firms). These results shed light on puzzling patterns in this literature including the observed variation in capital structure across firms and the strong persistence of capital structure within firms over time.

Local investor preferences appear to affect capital supply conditions through two important channels: (1) differences in investing preferences cause firms to face distinct local supply curves for different forms of capital, and (2) they also cause differences in local capital supply stability. The first channel is reflected in the higher level of bank deposits and locally-arranged syndicated loans in areas with and older population and more females, whereas the second channel is supported by the evidence that deposits are more stable in these areas. The value of robust local capital markets is evident in the better outcomes experienced by firms in these areas during the financial crisis.

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Table 1: Summary Statistics

This table provides descriptive statistics for the sample of firms in this paper. All variables used in the regressions are defined in the Appendix. The sample consists of non-financial, non-utility firms in Compustat from fiscal year 1980 to 2010. Panel A reports the distribution of county age and female to male ratio across their respective quintiles and Local ASC indices. Panel B presents summary statistics of firm-level variables; panel C presents the summary statistics of county-level variables.

Panel A: Average County Age and Female to Male Ratio

Average Age Quintile	Average County Age	Female Ratio Quintile	Female to Male Ratio	ASC Index	Average County Age	Female to Male Ratio
Q1	32.86	Q1	0.99	Low (2, 3, 4)	33.65	1.01
Q2 - Q4	35.64	Q2 - Q4	1.06	(5, 6, 7)	35.73	1.05
Q5	38.79	Q5	1.11	High (8, 9, 10)	37.82	1.09

Panel B: Firm-level descriptive statistics

	N	Mean	Std. Dev.	P1	P25	Median	P75	P99
Main Dependent Vars								
Market Leverage	81267	0.25	0.24	0	0.03	0.18	0.40	0.89
Book Leverage	81290	0.24	0.21	0	0.05	0.20	0.36	0.92
Debt Issuance	81290	0.36						
Equity Issuance	81290	0.25						
Firm Controls								
Total Assets (millions $)	81290	1800.75	9786.37	2.36	37.72	156.48	732.85	28764
Market-to-Book	81236	1.78	1.41	0.59	1.02	1.33	1.96	8.08
Profitability	81289	-0.02	0.23	-1.11	-0.03	0.04	0.08	0.24
Tangibility	81290	0.3	0.22	0.01	0.12	0.24	0.42	0.88
Stock Return	81290	0.16	0.7	-0.83	-0.23	0.06	0.38	2.76
Stock Volatility	81281	0.15	0.09	0.04	0.08	0.12	0.18	0.50
Firm Age	81290	18.56	12.2	4	9	15	25	55
Dividend Payer	81290	0.37						
R&D/Sales	81290	0.16	1.14	0	0	0	0.05	3.61

Panel C: County variables

	N	Mean	Std. Dev.	P1	P25	Median	P75	P99
Avg. County Age	81290	35.7	2.34	30.65	34.08	35.66	37.24	42.59
Female to Male Ratio	81290	1.05	0.04	0.96	1.02	1.05	1.08	1.15
Local ASC Index	81290	6	2.57	2	3	6	8	10
High ASC	81290	0.33						
Low ASC	81290	0.34						
Per Capita County Income	81290	40,333	14,111	20,390	30,855	37,441	46,472	96,825
Population (000)	81290	1417.31	1761.28	32.22	470.28	867.39	1542.87	9519.32
Rural Urban Continuum	81290	1.06	1.11	0	0.3	1	1	6
Religious (per 1000 people)	81290	535.38	119.08	289.93	438.05	541.44	615.35	797.68

Table 2: Local fixed income demand and firm leverage

This table presents baseline regressions of firm leverage on Local ASC Index. All variables are defined in the Appendix. The sample consists of non-financial, non-utility firms in Compustat from fiscal year 1980 to 2010. The sample excludes financial (SIC codes between 6000 and 6999) and utility (SIC codes between 4900 and 4999) firms. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	(1) Mkt Lev	(2) Mkt Lev	(3) Mkt Lev	(4) Book Lev	(5) Book Lev	(6) Book Lev
Local ASC Index	0.005***			0.004***		
	(5.34)			(4.48)		
High ASC		0.015***	0.028***		0.015***	0.023***
		(3.16)	(5.01)		(3.53)	(4.48)
Low ASC		-0.011**			-0.005	
		(-2.38)			(-1.16)	
Log Income	-0.024***	-0.021**	-0.014	-0.016*	-0.014	-0.008
	(-2.59)	(-2.29)	(-1.34)	(-1.79)	(-1.58)	(-0.83)
Log Population	-0.005**	-0.006**	-0.006**	-0.006***	-0.006***	-0.006**
	(-2.21)	(-2.31)	(-2.15)	(-2.71)	(-2.94)	(-2.48)
Log Religious	0.004	0.005	-0.008	-0.001	-0.001	-0.012
	(0.41)	(0.51)	(-0.75)	(-0.11)	(-0.09)	(-1.14)
Rural Urban Continuum	-0.003	-0.003	0.001	-0.004**	-0.004**	-0.001
	(-1.39)	(-1.39)	(0.27)	(-1.98)	(-2.03)	(-0.49)
Size	0.027***	0.027***	0.028***	0.026***	0.026***	0.027***
	(21.87)	(21.83)	(19.42)	(23.32)	(23.28)	(19.83)
Market-to-Book	-0.044***	-0.044***	-0.043***	-0.014***	-0.014***	-0.015***
	(-39.28)	(-39.31)	(-33.02)	(-12.83)	(-12.85)	(-11.74)
Profitability	-0.134***	-0.134***	-0.131***	-0.160***	-0.160***	-0.162***
	(-21.26)	(-21.24)	(-17.74)	(-19.93)	(-19.93)	(-16.82)
Tangibility	0.195***	0.195***	0.191***	0.206***	0.207***	0.213***
	(16.40)	(16.40)	(14.00)	(18.51)	(18.54)	(16.13)
Stock Return	-0.033***	-0.033***	-0.033***	-0.015***	-0.015***	-0.015***
	(-27.18)	(-27.16)	(-23.22)	(-13.72)	(-13.69)	(-11.27)
Stock Volatility	0.319***	0.319***	0.322***	0.233***	0.232***	0.239***
	(19.83)	(19.81)	(16.99)	(15.41)	(15.38)	(13.18)
Firm Age	0.000	0.000	-0.000	-0.001***	-0.000***	-0.001***
	(0.09)	(0.17)	(-0.67)	(-2.86)	(-2.77)	(-3.19)
Dividend Payer	-0.088***	-0.088***	-0.087***	-0.069***	-0.069***	-0.067***
	(-19.36)	(-19.32)	(-16.65)	(-17.19)	(-17.16)	(-14.04)
R&D/Sales	-0.004***	-0.004***	-0.005***	-0.005***	-0.005***	-0.006***
	(-4.26)	(-4.23)	(-4.43)	(-3.09)	(-3.07)	(-3.14)
Constant	0.508***	0.502***	0.464***	0.362***	0.366***	0.236**
	(4.66)	(4.57)	(3.82)	(3.54)	(3.57)	(1.97)
Year and Ind Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	81267	81267	54573	81290	81290	54587
Adj. R^2	0.317	0.317	0.321	0.213	0.213	0.218

Table 3: Local fixed income demand and firm leverage

This table presents baseline regressions of firm leverage on Local Age and Sex Composition (ASC) Index using the subsamples of firms with investment grade long-term credit rating (i.,e, firms with a rating of BBB- or higher from S&P in a given year), non-investment grade credit rating, and no credit rating. The dependent variable in Panel A (B) is Market Leverage (Book Leverage). All variables are defined in the Appendix. The sample consists of non-financial, non-utility firms in Compustat from fiscal year 1980 to 2010. The sample excludes financial (SIC codes between 6000 and 6999) and utility (SIC codes between 4900 and 4999) firms. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

Panel A: Dependent Variable: Market Leverage

	(1) Investment Grade	(2) Non-investment Grade	(3) Unrated	(4) Investment Grade	(5) Non-investment Grade	(6) Unrated
Local ASC Index	0.002	0.006***	0.005***			
	(1.20)	(2.75)	(4.94)			
High ASC				0.015	0.030**	0.027***
				(1.30)	(2.27)	(4.31)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	8790	8280	52537	5886	5923	35210
Adj. R^2	0.445	0.369	0.283	0.432	0.374	0.284

Panel B: Dependent Variable: Book Leverage

	(1) Investment Grade	(2) Non-investment Grade	(3) Unrated	(4) Investment Grade	(5) Non-investment Grade	(6) Unrated
Local ASC Index	0.002	0.005**	0.003***			
	(1.07)	(2.35)	(3.71)			
High ASC				0.014	0.021	0.019***
				(1.25)	(1.65)	(3.37)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	8791	8283	52551	5887	5925	35217
Adj. R2	0.201	0.265	0.190	0.195	0.285	0.192

Table 4: Local fixed income demand and equity/debt issuance decisions

This table presents logit regressions of a firm's decision to issue equity and debt on Local ASC Index. All variables are defined in the Appendix. The sample consists of non-financial, non-utility firms in Compustat from fiscal year 1980 to 2010. The sample excludes financial (SIC codes between 6000 and 6999) and utility (SIC codes between 4900 and 4999) firms. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	(1) Debt Issuance	(2) Debt Issuance	(3) Debt Issuance	(4) Equity Issuance	(5) Equity Issuance	(6) Equity Issuance
Local ASC Index	0.019***			-0.030***		
	(4.07)			(-4.46)		
High ASC		0.080***	0.118***		-0.055	-0.142***
		(3.11)	(3.83)		(-1.47)	(-3.24)
Low ASC		-0.028			0.095***	
		(-1.08)			(2.65)	
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	81290	81290	54587	81290	81290	54587
Pseudo R^2	0.033	0.033	0.033	0.183	0.183	0.184

Table 5: Robustness

The following table presents several robustness checks for our main results. We report estimates for High ASC and Low ASC dummies in models identical to those presented as columns 2 and 5 in Table 2 with the following differences. In Panel A, we replace the leverage ratio as the dependent variable with short-term debt ratio and long-term debt ratio, respectively. Panel B estimates the regressions only within high- and low-income counties; excludes firms with fewer than 500 employees (Becker, 2007) and high-tech firms, respectively. Panel C includes various fixed effects in the regressions. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

Panel A. Debt Structure

	Coef. on	**Mkt Lev**	**N**	**Book Lev**	**N**
Short-term debt	High ASC	0.005**	81267	0.005***	81290
		(2.37)		(2.65)	
	Low ASC	-0.002		-0.000	
		(-1.26)		(-0.31)	
Long-term debt	High ASC	0.010**	81267	0.010***	81290
		(2.46)		(2.77)	
	Low ASC	-0.008**		-0.004	
		(-2.16)		(-1.14)	

Panel B. Subsample Analysis

	Coef. on	**Mkt Lev**	**N**	**Book Lev**	**N**
High-Income Counties	High ASC	0.013	40171	0.019***	40181
		(1.64)		(2.65)	
	Low ASC	-0.022***		-0.008	
		(-2.95)		(-1.16)	
Low-Income Counties	High ASC	0.015**	41096	0.013**	41109
		(2.51)		(2.35)	
	Low ASC	-0.003		-0.002	
		(-0.60)		(-0.44)	
Excluding firms with <500 employees (Becker, 2007)	High ASC	0.017***	51648	0.017***	51661
		(2.98)		(3.26)	
	Low ASC	-0.012**		-0.008	
		(-2.08)		(-1.54)	
Excluding high-tech firms	High ASC	0.016***	63777	0.013***	63796
		(2.89)		(2.77)	
	Low ASC	-0.005		-0.001	
		(-0.95)		(-0.20)	

Panel C. Fixed Effects

	Coef. on	**Mkt Lev**	**N**	**Book Lev**	**N**
Size and market-to-book ratio decile fixed effects	High ASC	0.013***	81218	0.015***	81236
		(3.01)		(3.56)	
	Low ASC	-0.007		-0.005	
		(-1.63)		(-1.18)	
State fixed effects	High ASC	0.015**	81165	0.013**	81188
		(2.55)		(2.54)	
	Low ASC	-0.006		0.000	
		(-1.10)		(0.09)	
Firm fixed effects	High ASC	0.017**	81267	0.014**	81290
		(2.48)		(2.36)	
	Low ASC	-0.004		0.005	
		(-0.68)		(0.75)	

Table 6: Local Demographics and Deposit Levels

This table shows the influence of local demography on the level of local bank deposits. The dependent variable is log of deposits per capita in a county in a given year and quarter. The main explanatory variables are county-level demographic variables and our index of fixed income demand. *Seniors* is the proportion of population with age 65 and more. Standard errors are robust to heteroskedasticity and are clustered at the county level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	Log(Deposits Per Capita)			
	(1)	(2)	(3)	(4)
Seniors	3.508***	2.598**		
	(3.27)	(2.27)		
Female to Male Ratio		1.416**		
		(2.36)		
Local ASC Index			0.065***	
			(4.12)	
High ASC				0.240**
				(2.45)
Rural Urban Continuum	0.077***	0.077***	0.077***	0.080***
	(4.38)	(4.38)	(4.44)	(4.61)
Log(Income)	-0.279	-0.163	-0.080	-0.088
	(-0.29)	(-0.17)	(-0.08)	(-0.09)
College Grads	0.019***	0.019***	0.018***	0.018***
	(3.36)	(3.21)	(3.29)	(3.26)
Log(Population)	-0.233***	-0.254***	-0.253***	-0.250***
	(-4.33)	(-4.77)	(-4.78)	(-4.68)
Housing Index	-0.000	-0.000	-0.000	-0.000
	(-1.20)	(-1.27)	(-1.36)	(-1.30)
Constant	6.442	4.118	4.606	5.030
	(0.62)	(0.39)	(0.44)	(0.48)
N	58230	58230	58230	58230
Adj. R^2	0.260	0.263	0.265	0.263

Table 7: Local demography and syndicated loan members

This table shows the influence of local demography on syndicated loans. The data come from Thomson Reuters *DealScan* dataset and covers the years 1987 to 2010. Column 1 shows the results of an OLS regression of facility amount scaled by the borrowers' book asset, where the facility amount is actual amount of the facility committed by the facility's lender pool. Columns (2) to (4) are logit regressions where the dependent variables are, respectively, indicator variables for whether the syndicate has: any member (Model 2), the lead member (Model 3), and the non-lead member (Model 4) from the same *state* as the borrower's headquarters. Columns (5), (6) and (7) are analogous OLS regressions for the fractions of same-state syndicate members (lead or non-lead), lead members, and non-lead members in the syndicate, respectively. Column (8) shows an OLS regression of facility-level interest-rate spread over a benchmark. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Presence of:			Fraction of:			
	Facility Amount/ Asset	Local Syndicate Member	Local Lead Syndicate Member	Local Non-Lead Syndicate Member	Local Syndicate Members	Local Lead Syndicate Members	Local Non-Lead Syndicate Members	Loan Rate Spread
Local ASC Index	0.003**	0.085***	0.066***	0.097***	0.006***	0.009***	0.007***	0.174
	(2.12)	(5.47)	(3.13)	(5.49)	(3.08)	(3.10)	(3.87)	(0.31)
Facility Amount/Asset		0.416***	-0.663***	0.352**	-0.161***	-0.127***	-0.128***	-11.160*
		(3.42)	(-3.87)	(2.40)	(-10.16)	(-5.11)	(-7.46)	(-1.68)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	11630	10888	9704	7940	10889	9705	7943	11559
Adj. R^2	0.188				0.193	0.156	0.128	0.459

Table 8: Volatility of local bank deposits

This table reports the effect of local demography on the volatility of deposits at local banks at the bank-level. The sample starts in year 1997 and ends in year 2010. *Deposit Volatility* is the natural logarithm of standard deviation of percentage change in the level of deposits for twelve quarters in the future using non-overlapping time-series. *Bank Level Controls* (untabulated) include bank size using (total assets) and size-squared, return on assets, tier 1 capital ratio, and the following variables scaled by total assets: amount of good loan, bad loan, deposits, non-interest income, derivatives transaction for hedging or trading purposes. Standard errors are robust to heteroskedasticity and are clustered at the bank level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	Deposit Volatility	
	(1)	(2)
Local ASC Index	-0.018***	
	(-4.15)	
High ASC		-0.130***
		(-4.90)
Bank Level Controls	Yes	Yes
County Level Controls	Yes	Yes
N	6359	3366
Adj. R^2	0.089	0.087

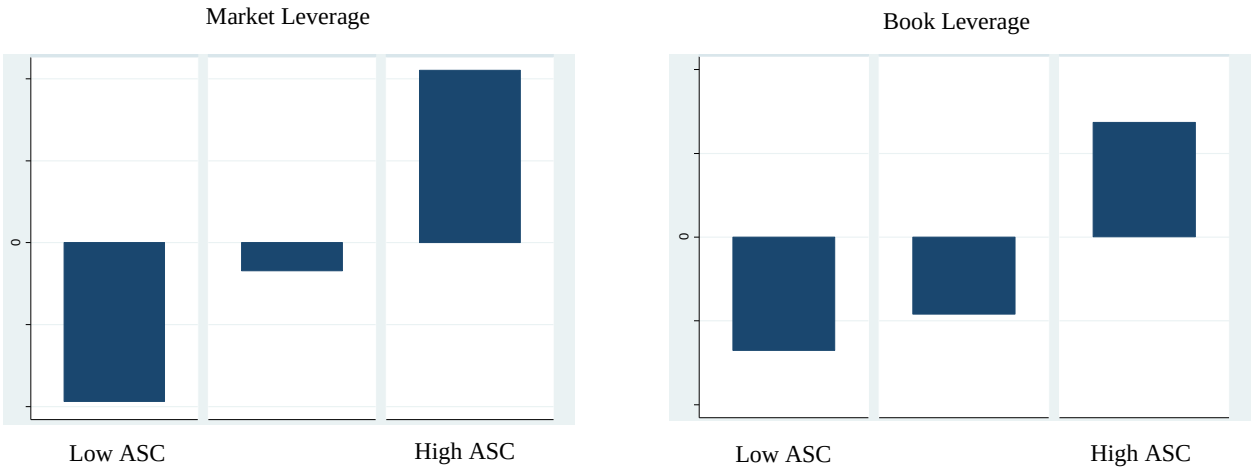
Table 9: Ability to raise capital and survival during the crisis

This table presents logit regressions on the propensity of the firms to raise capital (debt and equity) and not survive the crisis. Columns 1 through 7 are cross-sectional logit regressions where the dependent variables indicate whether a firm issued debt and/or equity, defined similar to Table 3, either during the fiscal year 2008 or 2009. The sample for columns 1 through 7 consist of all firms that survived the crisis and have some debt in their capital structure in 2007 (defined as book leverage >0.01). All explanatory variables are fixed at the end of FY 2007. Columns 7 and 8 are logit regressions where the dependent variable is whether a firm disappeared from our sample due to merger or bankruptcy during the fiscal years 2008 or 2009. Standard errors are robust to heteroskedasticity. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Debt or Equity Issue	Debt or Equity Issue	Debt Issue	Debt Issue	Equity Issue	Equity Issue	Bankrupt or Merged	Bankrupt or Merged
Local ASC Index	0.121***		0.143***		0.059		-0.167***	
	(3.13)		(3.76)		(1.41)		(-2.71)	
High ASC		0.804***		0.777***		0.690**		-1.097***
		(3.09)		(3.16)		(2.52)		(-2.74)
Low Income*Local ASC Index	-0.130***		-0.140***		-0.079		0.141*	
	(-2.62)		(-2.81)		(-1.38)		(1.85)	
Low Income*High ASC		-0.910***		-0.875***		-0.745**		1.053**
		(-2.83)		(-2.78)		(-2.08)		(2.26)
Low Income	0.250	0.074	0.432	0.200	0.302	0.263	-0.545	-0.330
	(0.69)	(0.25)	(1.18)	(0.68)	(0.72)	(0.78)	(-1.01)	(-0.79)
Market Leverage	-0.236	-0.107	-1.030***	-0.898**	0.712*	0.645	-0.203	-0.138
	(-0.65)	(-0.25)	(-2.85)	(-2.11)	(1.68)	(1.23)	(-0.41)	(-0.23)
Log Income	-0.738***	-0.636**	-0.742***	-0.563*	0.032	-0.065	0.765*	0.540
	(-2.74)	(-2.10)	(-2.79)	(-1.93)	(0.11)	(-0.19)	(1.77)	(1.09)
Log Population	-0.090	0.014	-0.042	0.011	0.065	0.218	0.029	-0.131
	(-0.87)	(0.10)	(-0.40)	(0.08)	(0.52)	(1.31)	(0.16)	(-0.61)
Log Religious	0.057	-0.109	0.273	0.081	-0.127	-0.222	-0.759*	-0.355
	(0.19)	(-0.29)	(0.99)	(0.23)	(-0.39)	(-0.51)	(-1.78)	(-0.66)
Rural Urban Continuum	-0.015	0.099	0.010	0.103	-0.055	-0.049	0.125	-0.088
	(-0.15)	(0.78)	(0.10)	(0.79)	(-0.48)	(-0.30)	(0.74)	(-0.37)
Size	0.020	0.014	0.053	0.043	0.010	0.019	-0.116**	-0.153***
	(0.52)	(0.30)	(1.42)	(0.96)	(0.23)	(0.38)	(-2.31)	(-2.64)
Market-to-Book	0.252***	0.236**	0.104*	0.073	0.306***	0.337***	-0.241***	-0.175*
	(3.00)	(2.36)	(1.68)	(1.01)	(4.25)	(3.88)	(-2.85)	(-1.93)
Profitability	-0.714	-0.696	0.084	0.099	-2.416***	-2.014***	0.450	0.446
	(-1.64)	(-1.43)	(0.20)	(0.21)	(-4.07)	(-3.13)	(1.05)	(0.81)
Tangibility	1.495***	1.462***	1.862***	1.544***	0.177	0.316	-1.241**	-1.138
	(4.05)	(3.27)	(5.23)	(3.63)	(0.43)	(0.64)	(-1.97)	(-1.51)
Stock Return	0.303**	0.308*	0.104	0.071	0.380**	0.216		
	(2.04)	(1.68)	(0.73)	(0.41)	(2.39)	(1.12)		
Stock Volatility	-0.060	0.868	-1.222	-1.230	1.632	2.594*	0.215	0.178
	(-0.05)	(0.65)	(-1.08)	(-0.96)	(1.34)	(1.83)	(0.15)	(0.11)
Firm Age	-0.002	0.001	-0.000	0.001	-0.013**	-0.011*		
	(-0.41)	(0.20)	(-0.09)	(0.27)	(-2.48)	(-1.74)		
Dividend Payer	-0.158	-0.137	0.064	0.033	-0.439***	-0.436**		
	(-1.15)	(-0.85)	(0.48)	(0.21)	(-2.60)	(-2.16)		
R&D/Sales	0.152	0.095	-0.044	-0.042	0.218	0.179		
	(1.44)	(1.26)	(-0.84)	(-0.69)	(1.47)	(1.44)		
Current Ratio							-0.060	-0.068
							(-1.31)	(-1.28)
Lag(Profitability)							-0.649	-0.456
							(-1.35)	(-0.73)
N	1583	1121	1583	1121	1551	1081	2201	1467
Pseudo R^2	0.088	0.100	0.087	0.084	0.151	0.174	0.073	0.072

Figure 1: Adjusted Market and book leverage across ASC Indices

The following charts show the average market and book leverage, respectively, across Low, Middle and High ASC indices, relative to size decile, industry and year benchmarks.



Appendix

Table A.1: Variable definitions

Variable	*Definitions*
Market Leverage	Total Debt / Market Value of Assets, where Total Debt = Short-Term Debt + Long-Term Debt = dltt + dlc, and Market Value of Assets = prcc f * cshpri + dlc + dltt + pstkl - txditc, from Compustat
Book Leverage	Book Leverage = Total Debt / Total Book Assets, where Total Book Assets = at, From Compustat
Debt Issuance	1 if Net Debt Issuances > 1%; 0 otherwise, where Net Debt Issuances = [(dltt(t) + dlc(t)) - (dltt(t-1) + dlc(t-1))] / at(t-1)
Equity Issuance	1 if Net Equity Issuances > 1%; 0 otherwise, where Net Equity Issuances = (sstk - prstkc(t) / at(t-1), from Compustat
Size	Natural logarithm of Total Assets (at), from Compustat
Market-to-Book	Book value of assets minus book value of equity plus market value of equity minus investment tax credit scaled by book value of assets (at - ceq + csho*prcc_f - txditc)/at, from Compustat
Profitability	Net income (NI) divided by total assets, from Compustat
Tangibility	Ratio of net property, plant and equipment (PPENT) to total assets, from Compustat
Stock Return	Stock return of the firm in a given year, from CRSP
Stock Volatility	Standard deviation of monthly stock return in a given year, from CRSP
Firm Age	Firm age approximated by the difference between current fiscal year and the year the firm first appeared in Compustat database
Dividend Payer	1 if a firm paid cash dividends this year; 0 otherwise, from CRSP
R&D/Sales	The ratio of R&D expenditure (XRD) to Sales, from Compustat
Current Ratio	The ratio of Current Assets (ACT) and Current Liabilities (LCT), from Compustat
InvestGrade	1 if a firm has long term credit rating by S&P of BBB- or better
Average Age	Average age of a county's residents (mid-point of the age group in years). Linearly interpolated between census years. Source: U.S. Census Bureau.
Female to Male	Ratio of female to male residents of the county in a given year. Linearly interpolated between census years. Source: U.S. Census Bureau.
Female Q5	1 if a firm belongs to a county in for top quintile of *Female to Male* in a given year; 0 otherwise
Female Q1	1 if a firm belongs to a county in for bottom quintile of Female to Male in a given year; 0 otherwise
Age Q5	1 if a firm belongs to a county in for top quintile of *Average Age* in a given year; 0 otherwise
Age Q1	1 if a firm belongs to a county in for bottom quintile of Average Age in a given year; 0 otherwise
Local ASC Index	Local Age and Sex Composition Index: Sum of quintile order of Average Age and Female to Male
High ASC	1 if the firm headquartered in a county with ASC Index of 8 to 10; 0 otherwise
Low ASC	1 if the firm is headquartered in a county with ASC Index of 2 to 4; 0 otherwise
Log Income	Natural log of median per capita county income adjusted for inflation. Source: The U.S. Bureau of Economic Analysis (BEA)
Low Income	1 if a firm belongs to a county with below median total income in a given year
High Income	1 if a firm belongs to a county with above median total income in a given year
Log Population	Natural log of population of a county in a given year. Source: U.S. Census Bureau.
Log Religious	Natural log of number of religious adherents per 1000 population in a county. Source: American Religious Data Archive (ARDA)
Rural Urban Continuum	A classification scheme that distinguishes metropolitan (i.e., metro) counties by the population size of their metro area, and nonmetropolitan counties by the degree of urbanization and adjacency to a metro area(s). Scaled from 1 to 9, where a higher number means more rural (1 to 3: metro areas; 4 to 9: non-metro areas).

Appendix (Continued)

Table A.2: Local demography and capital structure: Regressions using underlying variables

This table presents baseline regressions of firm leverage on the underlying variables used to construct Local Age and Sex Composition (ASC) Index. Female (Age) Q1 [Q5] is a dummy variable indicating whether the firm is headquartered in a county with lowest [highest] quintile of Female to Male ratio (Avg. County Age). All other variables are as defined in the Appendix Table A.1. The sample consists of non-financial, non-utility firms in Compustat from fiscal year 1980 to 2010. Standard errors are robust to heteroskedasticity and are clustered at the firm level. T-statistics are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	MktLev	MktLev	MktLev	MktLev	BookLev	BookLev	BookLev	BookLev
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Avg. County Age	0.004***		0.001		0.003***		0.001	
	(3.80)		(1.08)		(3.28)		(0.69)	
Female to Male		0.259***	0.219***			0.219***	0.196***	
		(5.04)	(3.39)			(4.59)	(3.26)	
Female Q5				0.006				0.005
				(1.14)				(1.06)
Female Q1				-0.012***				-0.011**
				(-2.58)				(-2.43)
Age Q5				0.022***				0.015***
				(3.87)				(2.96)
Age Q1				0.003				0.005
				(0.73)				(1.13)
Log Income	-0.025***	-0.016*	-0.020**	-0.026***	-0.016*	-0.010	-0.012	-0.015*
	(-2.59)	(-1.74)	(-2.05)	(-2.70)	(-1.81)	(-1.12)	(-1.31)	(-1.66)
Log Population	-0.006***	-0.006***	-0.006**	-0.006**	-0.007***	-0.006***	-0.006***	-0.006***
	(-2.76)	(-2.63)	(-2.54)	(-2.46)	(-3.17)	(-3.02)	(-2.96)	(-2.94)
Log Religious	0.017**	0.002	0.003	0.006	0.009	-0.004	-0.003	0.001
	(2.00)	(0.19)	(0.35)	(0.72)	(1.18)	(-0.48)	(-0.37)	(0.06)
Rural Urban Continuum	-0.005*	-0.002	-0.003	-0.004	-0.005**	-0.003	-0.004*	-0.004*
	(-1.89)	(-0.92)	(-1.14)	(-1.46)	(-2.43)	(-1.51)	(-1.65)	(-1.89)
Size	0.027***	0.027***	0.027***	0.027***	0.026***	0.026***	0.026***	0.026***
	(21.89)	(21.75)	(21.86)	(21.95)	(23.31)	(23.24)	(23.26)	(23.30)
Market-to-Book	-0.044***	-0.044***	-0.044***	-0.043***	-0.014***	-0.014***	-0.014***	-0.014***
	(-39.29)	(-39.21)	(-39.22)	(-39.06)	(-12.88)	(-12.84)	(-12.83)	(-12.77)
Profitability	-0.134***	-0.134***	-0.134***	-0.134***	-0.160***	-0.160***	-0.160***	-0.160***
	(-21.21)	(-21.28)	(-21.26)	(-21.31)	(-19.91)	(-19.96)	(-19.94)	(-19.98)
Tangibility	0.195***	0.195***	0.195***	0.195***	0.206***	0.206***	0.206***	0.206***
	(16.35)	(16.41)	(16.40)	(16.42)	(18.47)	(18.53)	(18.53)	(18.53)
Stock Return	-0.033***	-0.033***	-0.033***	-0.032***	-0.015***	-0.015***	-0.015***	-0.015***
	(-27.16)	(-27.16)	(-27.17)	(-27.11)	(-13.70)	(-13.71)	(-13.72)	(-13.65)
Stock Volatility	0.318***	0.319***	0.319***	0.319***	0.232***	0.233***	0.233***	0.232***
	(19.80)	(19.84)	(19.85)	(19.84)	(15.39)	(15.43)	(15.43)	(15.41)
Firm Age	0.000	0.000	0.000	0.000	-0.000***	-0.000***	-0.001***	-0.000***
	(0.30)	(0.17)	(0.13)	(0.14)	(-2.69)	(-2.82)	(-2.85)	(-2.79)
Dividend Payer	-0.087***	-0.088***	-0.088***	-0.088***	-0.069***	-0.069***	-0.069***	-0.069***
	(-19.26)	(-19.45)	(-19.44)	(-19.32)	(-17.12)	(-17.27)	(-17.27)	(-17.15)
R&D/Sales	-0.004***	-0.004***	-0.004***	-0.004***	-0.005***	-0.005***	-0.005***	-0.005***
	(-4.15)	(-4.26)	(-4.25)	(-4.09)	(-3.04)	(-3.09)	(-3.09)	(-3.00)
Constant	0.349***	0.197*	0.223**	0.542***	0.240**	0.112	0.127	0.371***
	(3.37)	(1.85)	(2.04)	(4.88)	(2.43)	(1.09)	(1.21)	(3.55)
N	81267	81267	81267	81267	81290	81290	81290	81290
Adj. R-sq	0.317	0.317	0.317	0.318	0.212	0.213	0.213	0.213