The Impact of Firm Location on Equity Issuance

Tim Loughran*

In this paper, I use location as a proxy for the ability of a firm to issue equity. Numerous studies indicate that investors are better able to obtain information on nearby companies. I posit that costs in generating information will be higher for rural firms with few investors in their proximity, than for urban firms with many nearby investors. As predicted, I find that rural firms are less likely to conduct seasoned equity offerings than firms located in urban areas. Furthermore, I find that when a rural firm issues equity, it uses a lower-quality underwriter than otherwise similar urban firms.

Why and when firms issue equity is a central corporate finance question that is not well understood. Myers and Majluf (1984) observe that information asymmetries between managers and outside investors can make it expensive to raise funds through equity offerings and may lead some financially constrained firms to forgo valuable projects rather than sell stock. Myers (1984) takes this observation further and develops a pecking order theory of capital structure. In this theory, firms issue equity only as a last resort, and capital structure is determined in large part by the firms' ability to finance internally.

While pecking order theory as a main theory of security issuance is appealing, many stylized facts are not consistent with the theory. In fact, Fama and French (2005) conclude that "the pecking order, as the stand-alone model of capital structure proposed by Myers (1984), is dead" (p. 551). The current literature has not reached a consensus as to whether information asymmetry is a main driver of equity issues. It could be that factors other than information asymmetry may be more important determinants of equity issue decisions.

While there have been many studies of the pecking order theory, less research has examined the fundamental insight underlying the pecking order theory: that information asymmetries may affect equity issuance. The measure of information asymmetry that I use in this paper is the firm's location. This is an entirely different approach from other studies. I believe that location is a variable that is particularly well suited for seeing whether or not information asymmetry affects equity issuance.

Several studies demonstrate that investors earn higher returns on investments in local companies than on investments in more distant companies. Put another way, being located far from a company may put an investor at an information disadvantage that is clearly measurable in returns. Other studies show that security analysts who are located closer to a company produce more accurate earnings forecasts than analysts who are located at a greater distance (Malloy, 2005; Bae, Stulz, and Tan, 2008). Again, greater distance implies a meaningful disadvantage in obtaining information.

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**Tim Loughran is C.R. Smith Professor of Finance at the University of Notre Dame in Notre Dame, IN.*

I do not specify why information asymmetries arise. There may be some information that cannot be conveyed credibly at all. Some of the soft information obtained by direct observation of the company, its employees, and its customers may fall into this category. A rural location can be a good proxy for this type of information asymmetry.

On the other hand, some information asymmetries may exist because the cost of conveying the information may exceed its expected benefits. For example, it may not be worthwhile for an analyst to travel a long distance to visit a single, small company. I believe that a rural location also proxies for the information asymmetries that arise from the costs of conveying information.

I compare equity issuance by firms in urban areas, defined as the 10 largest metropolitan areas of the United States, rural areas, defined as at least 100 miles from the center of any metropolitan area of 1,000,000 people or more and small cities, which include all other locations. The idea is that firms located in rural areas will have few adjacent investors, while firms in small cities or urban areas will have far more investors nearby. The marginal buyer of shares in an equity offering by a rural firm is therefore likely to be located some distance away. The information asymmetries between this marginal investor and corporate insiders could be large. On the other hand, urban firms are located near many potential investors. The marginal buyer of stock in an equity offering by an urban firm is more likely to be located close by and, hence, information asymmetries are likely to be smaller.

I particularly like rural location as a measure of information asymmetry because it implies not only that there are few investors located in the vicinity but also that the distance is economically as well as physically meaningful. Is a firm located in urban Los Angeles or one located in rural Bismarck, North Dakota, farther from institutional investors in New York City? Measured in miles, the company in Los Angeles is much farther away. Yet, it is also much easier for the institutional investor to reach. There are numerous direct flights from New York to Los Angeles every day. Getting to Bismarck is difficult, and once there, the analyst is almost certainly stuck for the night.

As an alternative measure of the difficulty of obtaining information, I estimate the driving time from each company's headquarters to the nearest major airport. This is perhaps a more direct measure of the costs incurred by analysts and institutional investors who visit a company to obtain firsthand information on its operations. Not surprisingly, I find that driving time is highly correlated with my classification of firm locations as urban, rural, or small city.

My main results are consistent with the joint hypotheses that information asymmetries between rural firms and investors seem to be large, and that firms appear to avoid issuing equity in the presence of these asymmetries. Seasoned equity offerings (SEOs) are significantly less common for rural firms, even after adjusting for differences in size, prior stock returns, book-to-market ratios, and other factors. Similarly, I find that firms with lengthy driving times to the nearest major airport are less likely to issue equity all else being equal.

Endogeneity may play a large role in my empirical results. I report mixed results for a small sample of firms that relocated their headquarters. Firms moving from urban/small city to rural areas report a drop in equity issuance after the move. Firms moving from rural to urban areas report no change in equity issuance.

I also find that underwriters used by rural firms and firms located far from major airports tend to be less prestigious as measured by lower Carter-Manaster rankings. My evidence is consistent with the assertion that the location of a firm's headquarters affects its ability to issue equity and plays a role in the ability of the firm to select quality underwriters for any offerings.

The remainder of the paper is organized as follows. Section I provides a literature survey. The data used here are described in Section II. In Section III, I provide evidence that rural firms issue less equity. Section IV provides evidence regarding differences in underwriter quality for urban, small city, and rural equity offerings. Section V reports the matching firm results. Section VI

examines the time series of headquarter relocations. I summarize my results and conclude in the last section.

I. Literature Survey

A. Information Asymmetries and Equity Offerings

In their now classic article, Myers and Majluf (1984) considered what happens when investment opportunities arise and management has information about assets-in-place that is not available to outsiders. They demonstrate that if a firm is constrained to issuing equity, and if the value of assets in place is higher than the market realizes, the firm may avoid issuing equity to prevent harming current shareholders. This will, in turn, make external equity an expensive form of financing. An announcement of an equity offering will lead to lower stock prices as the market rationally assumes that the value of the firm's assets-in-place is lower than previously thought. This may lead firms with correctly valued assets-in-place to avoid a project if it must be financed with external equity.

Korajczyk, Lucas, and McDonald (1991) observe that the degree of information asymmetry between corporate insiders and outside investors changes over time for individual firms. This suggests first that firms will time equity offerings for periods when the asymmetries are small, and second, that the reaction to an equity offering will vary depending on the degree of information asymmetry. They test these propositions on a sample of 1,247 SEOs that took place during 1978-1983. They posit that information asymmetries will be high before earnings are announced and will decline with the announcements.

As predicted, Korajczyk, Lucas, and McDonald (1991) find that equity issuance is far more common in the first half of a quarter after an earnings announcement than in the second half. Equity offerings are especially scarce as a new earnings announcement approaches. Furthermore, when compared to earnings announcements following equity offerings, the earnings announcements before offerings are both more informative, and more likely to convey good news. Finally, Korajczyk, Lucas, and McDonald (1991) find that the stock price decline at the announcement of an equity offering is increasing in the time since the last earnings announcement. As a whole, this study demonstrates that managers are aware of information asymmetries and consider them sufficiently important to affect the timing of stock sales.

B. Location and Investors

There is strong, consistent evidence that investors tend to overweight their portfolios in neighboring companies. This implies that companies located in urban areas have more potential shareholders than firms located in rural areas. It may, therefore, be easier for urban firms to raise money by selling equity, and they may be more likely to return to the equity market for additional capital.

Several studies document investors' bias toward nearby companies. Huberman (2001) indicates that customers of the regional Bell operating companies are much more likely to buy shares of the telephone company providing their service than another telephone company. Coval and Moskowitz (1999) examine the distance from mutual funds' headquarters to the headquarters of the companies the funds held in their portfolios in 1995. On average, companies held in a fund's portfolio were 10% closer to the fund's headquarters than the average distance of potential holdings. Individual investors are even more biased than fund managers toward local companies.

Ivkovic and Weisbenner (2005) examine the stock investments of over 30,000 households in the continental United States from 1991 to 1996. They find that the average household invests

31% of its portfolio in stocks located within a 250-mile radius. If investors had held the market portfolio instead, only 13% of the average household's investments would be this close.

A possible explanation for investor preference for local stocks is simply familiarity. Barber and Odean (2005) observe that with more than 7,000 US stocks, investors cannot consider all securities in their investment decisions. They instead choose among stocks that have captured their attention. Companies that are in the local news, that employ an investor's neighbor, or that an investor sees each day on the way to work are more likely to capture his or her attention. This explanation receives some support by the finding of Zhu (2002) that advertising by companies significantly reduces local bias.

The other explanation for investing in local stocks is better access to information. Much of the information that is useful for valuing stocks is informal, soft information. It comes from observing that a company is employing extra shifts, or from casual conversations with the company's employees or customers. Much of this information is only available to investors who are physically close to the company. Evidence that investors have better information on local stocks comes from their investment returns.

C. Evidence that Proximity to Companies Provides Informational Advantages

Several papers suggest that investors earn higher returns on stocks of nearby companies. Ivkovic and Weisbenner (2005) examine the returns of individual investors at a large discount brokerage firm. These retail investors earn 3.2% more per year on local stocks than on their other investments. Physical proximity to S&P 500 firms probably conveys smaller informational advantages than proximity to small companies. Hence, it is not surprising that when S&P 500 firms are discarded, the difference between returns on local stocks and others increases to about 6% annually. Ivkovic and Weisbenner (2005) find that the difference in returns between local stocks and others appears for investors all over the United States and is robust to various risk adjustments.

Mutual funds also appear to earn significantly higher returns on investments in nearby firms. Coval and Moskowitz (2001) separate mutual fund holdings into local and distant stocks, where local stocks are those with headquarters within 100 kilometers of the mutual fund. Local stocks that are held by funds earn annual returns that are about 3% higher on average than local stocks that are not held by funds.

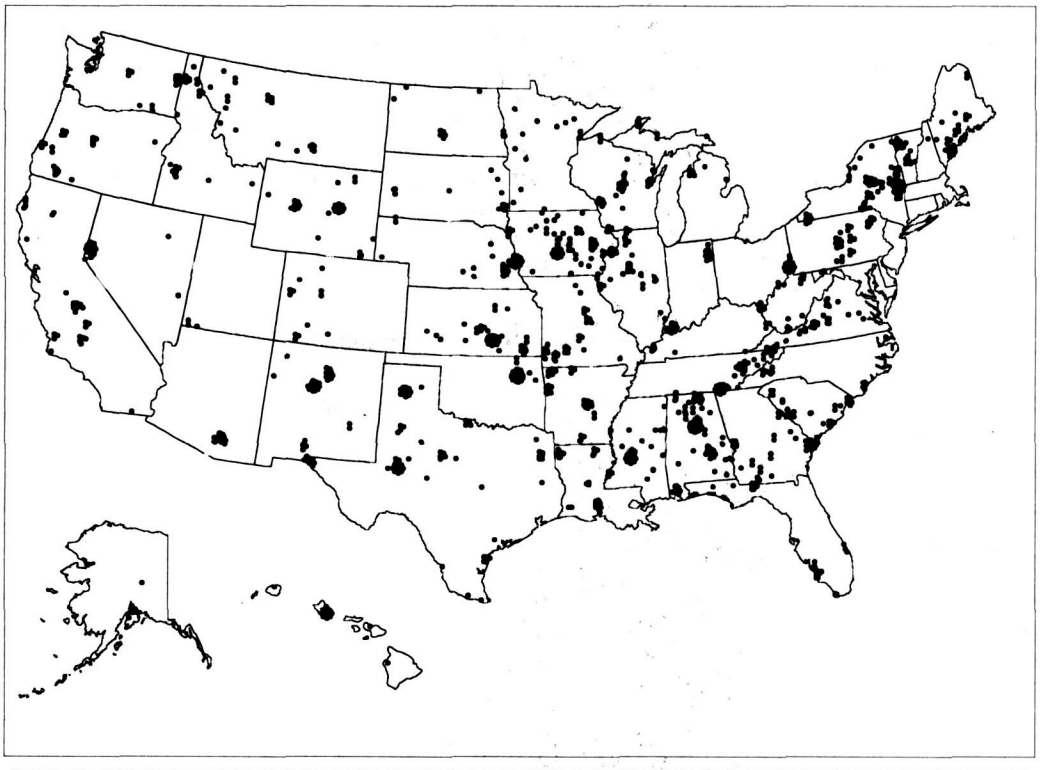
Other evidence that geographic closeness to a company provides information advantages comes from work on equity analysts by Malloy (2005) and Bae, Stulz, and Tan (2008). Malloy (2005) finds that analysts located nearer a company's headquarters provide more accurate earnings forecasts. This greater accuracy is not explained by underwriting relationships. Enhanced accuracy of local forecasts is particularly strong for firms located in remote areas, for small firms, and for high book-to-market firms. Stock price responses to analyst rating changes are especially strong for analysts located near a particular firm.

Bae, Stulz, and Tan (2008) find that local analysts have a strong information advantage over foreign analysts across 32 different countries. They report that the local advantage is tied to the quality of disclosure by companies. It appears that location-induced information asymmetries lead local analysts to possess more information than both nonlocal analysts and investors.

II. Data

I define a firm's location as the site of its headquarters, which I obtained from Compustat, Moody's, and Nasdaq. This definition has obvious limitations. For example, I define Wal-Mart

Figure 1. Locations of Rural Firms



as a rural firm (headquarters in Bentonville, Arkansas), but their stores are in many locations. I still expect the site of the headquarters to be a good measure of firm location, however. Many of the smaller firms in my sample have facilities in only one place. In addition, even if a firm has numerous plants in various states, the company is likely to be particularly familiar to investors living near the firm headquarters. Finally, the location of a firm's headquarters has proven to be a useful approximation for the firm's location in a number of papers, including Coval and Moskowitz (1999, 2001), Ivkovic and Weisbenner (2005), and Loughran and Schultz (2004, 2005).

I classify a firm's location as urban if its headquarters is in one of the 10 largest metropolitan areas of the United States according to the 2000 Census. These metropolitan areas include New York City, Los Angeles, Chicago, Washington-Baltimore, San Francisco, Philadelphia, Boston, Detroit, Dallas, and Houston. Companies are classified as rural if their headquarters is at least 100 miles from any of the 49 metropolitan areas of 1,000,000 people or more. All other companies are classified as being in small cities.

The locations of rural firms that are included in my sample at any time between 1980 and 2002 are shown in Figure 1. Rural firms are concentrated in Appalachia, the Deep South, upstate New York, Iowa and the plains states, west Texas, the Rocky Mountain States, Alaska, and Hawaii. Rural companies are not located in the wilderness or in the middle of corn fields. A close look at the map reveals that most are in towns like Fort Wayne, Indiana; Birmingham, Alabama; Des Moines, Iowa; Lincoln, Nebraska; or El Paso, Texas.

Table I. Mean Summary Statistics for Rural, Small City, and Urban Firms, 1980-2002

Each June of year *t*, urban and rural portfolios are formed. Only stocks with a stock price of more than $10 as of June of year *t* are included. A stock is located in an urban area if the company headquarters is in the metropolitan area of New York City, Los Angeles, Chicago, Washington, San Francisco, Philadelphia, Boston, Detroit, Dallas, or Houston. A stock is located in a rural area if it is not within 100 miles of the center of a metropolitan area of 1,000,000 or more people as defined by the 2000 Census. Firms that are not located in urban or rural areas are defined as small city firms. Market values are in millions of dollars as of June of year *t*. PPE/TA is property, plant, and equipment divided by total assets. Debt holdings, as of the prior fiscal year, are from Compustat (Items 9 [long-term debt] plus 34 [debt in current liabilities]). Total capital structure is book value of debt plus market value of equity. Industry classifications are defined in Fama-French (1997). Analyst coverage information is from I/B/E/S.

	Rural Firms (1)	Small City Firms (2)	Urban Firms (3)
Percent with subsequent year SEO	5.9%	7.3%	7.5%
Debt proportion	28.5%	24.4%	23.5%
Equity proportion	71.5%	75.6%	76.5%
Market value (in millions $)	$1,211.8	$1,603.9	$2,454.7
Book-to-market ratio	0.76	0.68	0.64
PPE/total assets	0.34	0.29	0.28
Percent on Nasdaq	56.0%	50.5%	41.5%
Percent in energy	4.6%	1.7%	5.0%
Percent in utility	12.6%	6.3%	4.4%
Percent in business services	3.0%	6.7%	11.5%
Percent in retail	5.5%	5.3%	4.9%
Percent in banking	12.5%	7.3%	5.9%
Number of analysts	5.3	6.4	7.7
Prior year return, %	28.5%	33.2%	36.0%
Postyear return, %	16.2%	14.7%	14.9%
Minutes to major airport	298.4	65.0	23.5
Number of firm year observations	5,985	32,496	22,988

Companies located within 100 miles of any of the metropolitan areas of 1,000,000 or more, but not in one of the top 10 cities, are classified as being located in small cities. This category includes firms like Dell Computer (located in Austin, Texas) or Microsoft (based in the metropolitan area of Seattle, Washington).

As an alternative, I also classify firms by driving time from the firm's headquarters to the nearest major airport. This could be a more direct measure of the cost of visiting the company for analysts and institutional investors than just a rural location. The 40 major airports are defined by the Federal Aviation Administration and include airports servicing our urban areas as well as those that service smaller cities like Memphis, Orlando, Salt Lake City, and Portland, Oregon. Some cities have several major airports. Major airports in the New York area, for example, include LaGuardia, Newark, and JFK. Driving times come from MapQuest.com and are based on the quickest driving route. They are highly correlated with the distance from the firm to the airport. As you might expect, driving time to a major airport is also strongly correlated with a firm's classification of urban, rural, or small city.

Table I provides separate summary statistics for rural, small city, and urban stocks. Following the Fama and French (1992) methodology, I create yearly portfolios for 1980-2002 at the end of June of year *t* to ensure that the prior year's accounting information from Compustat is publicly

available. In all of my analysis, only firms with a stock price of more than $10 as of June of year t are included. Counting each firm-year separately, there are 22,988 urban observations, 32,496 small city observations, and 5,985 rural firm-year observations.

For each firm, yearly total debt is obtained from Compustat and is the sum of long-term debt (Data Item 9) and short-term debt (Data Item 34). The equity value is the market value (shares outstanding multiplied by stock price) as of the last trading day in June of year t and is obtained from the Center for Research in Security Prices (CRSP). For the book-to-market ratio, I use the prior fiscal year's book value (defined as Compustat book value of equity plus balance sheet deferred taxes and investment credit minus the book value of preferred stock) scaled by the end of December year $t-1$ CRSP market value of equity.

The first row of Table I reports the proportion of firms that issued seasoned equity in the subsequent year (July year t to June $t+1$). As is the case with most characteristics, small city stocks are between urban and rural stocks. On average, 7.5% of the urban firms issue equity in the subsequent 12 months, 7.3% of the small city stocks issued equity, as did only 5.9% of the rural firms. The table also reports that 23.5% of urban firms' total capitalization (book value of debt plus market value of equity) is in debt as compared with 24.4% for small city firms and 28.5% for rural firms. There are, however, a number of other differences between urban, rural, and small city firms that need to be controlled before concluding that location affects equity issuance.

One difference is firm size. The mean capitalization of the urban firms in my sample is $2.5 billion, while the mean market values of small city firms and rural firms are $1.6 billion and $1.2 billion, respectively. Book-to-market ratios are also lower for urban and small city firms than rural firms. That is, rural firms are less likely to be growth firms. Rural firms have higher property, plant, and equipment divided by total assets ratios (PPE/TA), on average, than either small city or urban firms. Urban firms are less likely to be listed on Nasdaq than rural firms, while small city firms are likely to rank in the middle.

Industry compositions also differ. I obtained Standard Industrial Classification (SIC) codes from CRSP and used them to classify firms into the 48 industry groups defined in Fama and French (1997). Table I lists the proportion of urban, small city, and rural stocks in the most common industries in my sample. Only 4.4% of urban firms are utilitie, as compared to 6.3% of small city stocks and 12.6% of rural stocks. Utilities, especially in the 1980s, had a much higher equity issuance rate than nonutilities. Hence, given that rural firms are much more likely to be regulated utilities, it is striking that rural firms are still less likely, on average, to issue seasoned equity. Business services is the industry of 11.5% of urban firms, 6.7% of small city firms, but only 3.0% of rural firms. Finally, 12.5% of rural stocks are banks, but only 7.3% of small city stocks and 5.9% of urban stocks.

Like other papers (Malloy, 2005), I find that rural firms are relatively neglected by analysts. Analyst coverage data are obtained from the Institutional Brokers Estimate System (I/B/E/S). Analyst coverage is defined as the number of analysts reporting current fiscal year annual earning estimates prior to June of year t. Firms without any I/B/E/S coverage are assigned a value of zero analysts. The number of analysts covering the average urban firm exceeds the number covering the average rural firm by more than two. As with most other characteristics, the number of analysts covering small city stocks falls in between the number of analysts covering urban and rural stocks.

A key variable in determining the likelihood of an equity offering is the stock's return over the previous few months. In the prior year (July of year $t-1$ to June of year t), stocks from all locations have high buy-and-hold returns. Much of the high prior stock performance is due to the $10 price screen at the June formation date. Firms with substantial declines in price are screened out while stocks with a price greater than $10, who are more likely to have performed

well, are included in the sample. Notice that my analysis does not have a look ahead bias. I have no requirement of subsequent stock price or stock returns to remain in the sample. In the subsequent year, rural firms slightly outperform urban firms (16.2% vs. 14.9%) with small city stocks returning slightly less than either (14.6%).

Finally, as an alternative measure of location, I use driving time to the nearest major airport. As expected, this measure is correlated with whether firms are located in urban, small city, or rural areas. Driving time to a major airport averages 298 minutes for rural firms, 65 minutes for small city firms, and 24 minutes for urban firms.

III. The Difficulties of Raising Equity Capital for Rural Firms

Casual observation suggests that rural firms are less likely than urban firms to go public. To illustrate this, I counted the number of firms with headquarters in each state that traded on the New York Stock Exchange (NYSE), the American Stock Exchange Amex, or the Nasdaq market at the end of 2000. I then standardized each count by dividing by the number of firms with 500 or more employees in that state as reported in the 2000 Census.

For Massachusetts, a state that is primarily urban, the ratio of public firms to firms with 500 or more employees is 12.4%. Other states with primarily urban populations have similar ratios: 13.5% for New York, 21.2% for California, and 8.9% for New Jersey. For states that are primarily rural, the ratios are much lower. The ratio of public firms to firms with 500 or more employees is 1.7% for Maine, 1.4% for Nebraska, 1.1% for South Dakota, and 1.0% for West Virginia. Results are similar for other urban and rural states. They are also similar when the number of firms with 200 or more employees is used in the denominator.

The dearth of publicly traded firms from rural areas suggests that rural firms are less likely to sell stock publicly than urban firms. Nevertheless, these results are far from conclusive. The census data do not control for differences in characteristics of firms across states. Also, the firms are required to employ 500 or more in the state, but are not required to have their headquarters there. For a more rigorous examination of the effect of location on equity issuance, I examine the characteristics of urban and rural equity offerings.

A. SEOs

To see how location affects the likelihood of an SEO (also called a follow-on offering), I perform logistic regressions with a dummy for equity issuance during the year as the dependent variable. All firms that issued seasoned equity in the 12 months after June of year t are assigned a value of one, else zero. The explanatory variables are market value, book-to-market, PPE/TA, analyst coverage, prior stock performance, dummies for rural or small city location, Nasdaq listing, industry, and calendar year. These regressions are reported in Table II. The z-statistics are calculated conservatively using standard errors clustered at the individual firms.

Not surprisingly, book-to-market, analyst coverage, and prior stock returns are all strong predictors of whether or not the firm issues equity in the subsequent year. When the stock price is high relative to the book value (e.g., growth companies), firms are more likely to issue equity. If the stock price is low relative to the book value (e.g., value firms), they are less likely to issue stock. It is not clear if the likelihood of an SEO increases if the firm receives more attention from analysts, or if analysts are more likely to cover firms that may issue equity in the future. Nevertheless, a larger number of analysts are associated with a greater likelihood of an SEO.

Table II. Logit Regression of the Probability of Issuing Seasoned Equity in the Subsequent Year

Each June of year t, urban and rural portfolios are formed. The dependent variable, Subsequent Year Equity Issuance Dummy, has a value of one if the firm issued equity in the subsequent year; it is zero otherwise. Only stocks with a stock price of more than \$10 as of June of year t are included. The rural dummy is set to one if the firm is more than 100 miles from the center of any metropolitan area of 1,000,000 or more people as defined by the 2000 Census. Nasdaq is a dummy variable equal to one if the firm is listed on Nasdaq,, zero if the issuing firm is listed on NYSE or Amex. Industry dummies for energy, business services, retail, banking, and utilities are equal to one if the firm operates in the respective industry. Yearly Dummies, except for 1980, are included in the regressions. White's (1980) heteroskedasticity-adjusted z-statistics are in parentheses. Standard errors are clustered for individual firms. Subsequent Year Equity Issuance Dummy

$$_{ij} = a_{0j} + a_1\text{Rural Dummy}_{ij} + a_{2j}\text{Small City Dummy}_{ij} + a_{3j}\text{Log(Minutes)} + a_{4j}\text{Nasdaq Dummy}_{ij} + a_{5j}\text{ Log(Market Value)}_{ij} + a_{6j}\text{Book-to-Market}_{ij} + a_{7j}\text{PPE/TA}_{ij} + a_{8j}\text{Log(1+Analysts)}_{ij} + a_9\text{Prior Return}_{ij} + a_{j10}\text{Energy Dummy}_{ij} + a_{11j}\text{Business Services Dummy}_{ij} + a_{12}\text{Retail Dummy}_{ij} + a_{13j}\text{ Bank Dummy}_{ij} + a_{14j}\text{Utilities Dummy}_{ij} + \text{Yearly Dummies }_{ij} + e_{ij}.$$

	All Firms (1)	Marginal Effects from Logit (2)	All Firms (3)	Marginal Effects from Logit (4)	Only Utilities (5)	Marginal Effects from Logit (6)
Intercept	−2.62***		−2.24***		−1.55***	
	(−19.83)		(−15.02)		(−2.90)	
Rural dummy	−0.28***	−0.015***			−0.62***	−0.058***
	(−3.77)	(−4.17)			(−2.85)	(−3.20)
Small city dummy	−0.02	−0.001			0.05	0.005
	(−0.53)	(−0.53)			(0.28)	(0.29)
Log (minutes)			−0.11***	−0.006***		
			(−5.28)	(−5.29)		
Nasdaq dummy	0.15***	0.009***	0.15***	0.009***	−0.25	−0.025
	(3.33)	(3.33)	(3.27)	(3.27)	(−1.00)	(−1.07)
Log (market value)	0.01	0.001	0.01	0.001	0.08	0.009
	(0.67)	(0.67)	(0.49)	(0.49)	(1.14)	(1.14)
Book-to-market	−0.28***	−0.016***	−0.28***	−0.016***	−0.28*	−0.030*
	(−5.78)	(−5.83)	(−5.80)	(−5.85)	(−1.86)	(−1.86)
PPE/TA	0.50***	0.029***	0.52***	0.030***	1.30***	0.140***
	(5.21)	(5.19)	(5.42)	(5.41)	(2.85)	(2.88)
Log (1+analysts)	0.10***	0.006***	0.09***	0.005***	0.05	0.005
	(3.16)	(3.17)	(3.03)	(3.04)	(0.49)	(0.49)
Prior year return	0.30***	0.018***	0.30***	0.017***	0.15	0.017
	(13.93)	(13.73)	(13.92)	(13.72)	(0.90)	(0.89)
Energy dummy	0.12	0.008	0.13	0.008		
	(1.19)	(1.13)	(1.22)	(1.16)		
Business services dummy	0.03	0.002	0.02	0.001		
	(0.48)	(0.47)	(0.24)	(0.24)		
Retail dummy	0.13*	0.008*	0.13*	0.008		
	(1.75)	(1.66)	(1.71)	(1.63)		
Banking dummy	−0.57***	−0.027***	−0.56***	−0.027***		
	(−4.80)	(−6.11)	(−4.70)	(−5.92)		
Utility dummy	0.85***	0.070***	0.85***	0.069***		
	(10.66)	(8.03)	(10.73)	(8.10)		
Yearly dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	61,469	61,469	61,469	61,469	3,792	3,792
Rural firm observations	5,985	5,985	5,985	5,985	756	756

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

I also find that the likelihood of an equity offering differs by industry. Utilities and energy firms are more likely to issue equity than other firms. Banks are much less likely to conduct SEOs.

Finally, as Korajczyk, Lucas, and McDonald (1990) demonstrate, returns over the prior year is a highly significant determinant of the likelihood of equity issuance. This is also consistent with the CFO survey results of Graham and Harvey (2001), which list recent stock price performance as the third most important factor in determining firms' equity issuance decisions. Firms are much more likely to sell stock to the public following a run up in price than after a stock price decline.[1]

Even after adjustment for these factors, rural firms are less likely to issue equity. The coefficient on the rural dummy in the logistic regression is −0.28 with a heteroskedasticity-adjusted z-statistic of −3.77.[2] Column (2) of Table II reports the marginal effects for each of the variables in the logit regression. The coefficient of −0.015 on the rural dummy implies that rural firms are 1.5% less likely to issue seasoned equity after controlling for other factors. Across my entire sample, firms have a 7.2% chance of issuing equity in a given year. Hence, a difference of 1.5% between urban and rural firms is a relatively large difference. The 0.070 coefficient on the utility dummy means they are over 7% more likely to have a subsequent year SEO. It is interesting that the coefficient on the dummy for a small city location is close to zero. Small city companies seem as likely to issue equity as companies from larger cities.

The logit regression is also run using the log of minutes of driving time from a company's headquarters to a major airport rather than rural or small city dummies. The coefficient on the log of the driving time is negative and highly significant. The further a company is from a major airport, the less likely they are to issue equity.

The fifth column reports logit regressions of the probability of issuing equity using utilities only. The total number of observations falls from 61,469 to 3,792 when firms other than utilities are omitted. Despite this, the coefficient on the rural dummy remains negative with a z-statistic of −2.85. Marginal effects are large. All else being equal, rural utilities are 5.8% less likely to issue equity than urban utilities.

I regard these results with utilities as particularly important for two reasons. First, urban and rural utilities are clearly companies with very similar businesses. Even after adjusting for industry, as I do throughout the paper, it is possible that the nature of urban and rural firms' businesses could differ. In the case of utilities though, urban and rural firms are clearly in the same business. And, in the regressions, I control for factors like the prior year's return and the market capitalization of the firm. Yet, despite the fact that it is difficult to think of any significant way in which the urban and rural utilities differ, the rural utilities are less likely to seek external equity financing.

The utilities-only logit regression is interesting for a second reason, as well. An assumption underlying my work in this section is that firm location is exogenous. That is, differences in the need to issue equity do not determine whether firms locate in urban or rural areas. I argue that this is true generally. The proximity of resources, land, and customers, and the costs of moving employees to a new location are the primary determinants of firm location. It is particularly easy to make this case for utilities. A utility serves a particular geographic area. It cannot economically

[1]The high prior returns for the equity issuers is consistent with a market timing explanation. For papers that address potential market timing by new issue firms see Burch, Christie, and Nanda (2004), Jegadeesh (2000), Jensen (2005), and Loughran and Ritter (1995).

[2]If urban areas are redefined to be financial centers (e.g., if company headquarters are in the metropolitan areas of New York City, Los Angeles, Chicago, San Francisco, Philadelphia, or Boston) the rural dummy coefficient value becomes more negative.

locate its headquarters away from its customer base and power generation. Hence, it is implausible that results for utilities are muddled by endogeneity. And, as Table II demonstrates, rural utilities are less likely to conduct SEOs than urban utilities.

It seems most likely to me that differences in the propensity to issue equity are due to differences arising from the costs of obtaining or transmitting information. For example, a rural location could simply mean that investors are unaware of the company, and of course, investment requires awareness. It is also possible that for institutional investors, who rely on face-to-face contact with management, obtaining the information they require is prohibitively costly for rural firms and firms located far from major airports. It may also be more costly for managers of remote firms to travel to investment bankers, analysts, and institutional investors.

IV. Location and Investment Banker Quality

In this section, I look at underwriter participation in equity issues of urban, small city, and rural firms. Underwriter selection can be thought of as a two-sided matching process in which issuers choose the best available underwriter, while underwriters choose the most desirable firms who are willing to issue through them. A rural location may make a potential issuer undesirable to the best underwriters for two reasons. First, a rural location may make it more difficult or expensive for underwriters to gather information on issuers. Investment bankers, lawyers, and auditors would be forced to spend more time traveling to conduct needed due diligence.

Consistent with this, Loughran and Schultz (2005) and Malloy (2005) report that investment bankers provide less analyst coverage for rural firms than similar urban companies. Second, selling a rural issue may be more difficult because the investment banker's clients are less likely to be familiar with the firm. Under these circumstances, a rural issuer is likely to be forced to go with an underwriter who cannot be as selective.

I gather information on syndicates for all initial public offerings (IPOs) and SEOs conducted by urban, small city, or rural firms with offering prices over $10 during 1980-2002. I examine whether rural firms are constrained to use less prestigious underwriters. Identities of underwriting syndicate members are obtained from Securities Data Company (SDC). I obtain Carter-Manaster rankings from Jay Ritter's Web site and use them to rank lead underwriters for urban, small city, and rural firm equity offerings. Carter-Manaster rankings of underwriters are based on where underwriters' names appear on IPO prospectuses. The most prestigious underwriters, like Morgan Stanley and Goldman Sachs, never appear below others on prospectuses and are given a rank of nine. Underwriters ranked eight appear below the underwriters ranked nine and ahead of others, and so forth. The lower the Carter-Manaster ranking is, the less prestigious the underwriter.

The distribution of the ranks for urban, small city, and rural firms are reported in Table III. Panel A shows results for IPOs. Investment bankers with a Carter-Manaster rank of nine underwrite 44.9% of urban firm IPOs, but only 35.7% of small city IPOs and 30.8% of rural IPOs. On the other hand, 39.0% of rural firm IPOs are underwritten by investment bankers with ratings of seven or below, while only 27.9% of small city IPOs and only 19.6% of urban firm IPOs are underwritten by these investment bankers.

SEO results in Panel B are similar. A larger proportion of urban firm SEOs than rural firm SEOs are underwritten by investment bankers with rankings of eight or nine. SEOs by small city firms rank in between in their likelihood of a top tier underwriter. And, while only 10.8% of urban firm SEO underwriters have rankings of six or less, 17.0% of small city SEOs and 24.0% of rural firm SEOs have underwriters with these ranks.

Table III. Carter-Manaster Ranks for Lead Underwriters of Urban, Small City, and Rural Equity Offerings

The sample includes all equity offerings of US-based firms reported in SDC for 1980-2002. Carter and Manaster (1990) ranks are obtained from Jay Ritter's Web site and are based on the relative position of firms on IPO prospectuses. The highest possible Carter-Manaster rank is 9. Urban firms have headquarters in one of the 10 largest metropolitan areas of the United States according to the 2000 Census. Rural firms have headquarters at least 100 miles from any metropolitan area of 1,000,000 or more. All other firms are small city firms. Stocks with prices less than $10 are omitted.

Panel A. IPOs

Carter-Manaster Rank	Number Urban Firm IPOs	Number Small City IPOs	Number Rural Firm IPOs	Percent of Urban Firm IPOs	Percent of Small City IPOs	Percent of Rural Firm IPOs
9	798	645	89	44.9%	35.7%	30.8%
8	629	660	87	35.4%	36.5%	30.1%
7	175	245	61	9.8%	13.6%	21.1%
6	71	121	27	4.0%	6.7%	9.3%
5	79	96	20	4.4%	5.3%	6.9%
< 5	25	41	5	1.4%	2.3%	1.7%
All	1,777	1,808	289	100.0%	100.0%	100.0%

Panel B. SEOs

Carter-Manaster Rank	Number Urban Firm SEOs	Number Small City SEOs	Number Rural SEOs	Percent of Urban Firm SEOs	Percent of Small City SEOs	Percent of Rural Firm SEOs
9	671	639	82	43.5%	34.0%	29.3%
8	570	644	81	36.9%	34.2%	28.9%
7	136	277	50	8.8%	14.7%	17.9%
6	70	153	38	4.5%	8.1%	13.6%
5	74	120	17	4.8%	6.3%	6.1%
<5	23	49	12	1.5%	2.6%	4.3%
All	1,544	1,882	280	100.0%	100.0%	100.0%

Of course, there are significant differences between urban, small city, and rural firms in terms of market values and industry composition. To control for these differences, I estimate logistic regressions with a dummy variable for a lead underwriter Carter-Manaster rank greater than or equal to eight as a dependent variable. If the offering is underwritten by colead underwriters, I use the highest ranking to determine the dependent variable. This measure of underwriter prestige is regressed on a dummy variable for a rural location, a dummy variable for a small city location, the log of the firm's capitalization (in millions of dollars), the log of the offering proceeds (in millions of dollars), and industry dummies. The results are shown in Table IV.

Panel A reports results for IPOs. The first regression uses only the capitalization, proceeds, rural, and small city location variables. Firm size is an important determinant of underwriter prestige. In the first logistic regression, the coefficient on log of firm size is 0.515 with a heteroskedasticity-consistent z-statistic of 8.16. Likewise, the proceeds from the offering are highly significant with a coefficient of 0.776 and a z-statistic of 10.02. Finally, the coefficient on the rural dummy is -0.568 with a z-statistic of -3.74, while the coefficient on the small city dummy is -0.292 with a z-statistic of -3.32.

Table IV. Logistic Regressions of Top-Tier Investment Banker Quality Dummy on Firm Location

The sample includes all equity offerings of US-based firms reported in SDC for 1980-2002. Carter and Manaster (1990) ranks are obtained from Jay Ritter's Web site and are based on the relative position of firms on IPO prospectuses. The highest possible Carter-Manaster rank is 9. Firms with a lead underwriter with an updated Carter-Manaster investment banker of eight or more are assigned a value of one for the top-tier dummy. Urban firms have headquarters in one of the 10 largest metropolitan areas of the United States according to the 2000 Census. Rural firms have headquarters at least 100 miles from any metropolitan area of 1,000,000 or more. All other firms are small city firms. Size is the market capitalization of the issuing firm (in millions of dollars) on the day of the offering. Stocks with prices less than or equal to $10 are omitted. Robust *z*-statisticsare in parentheses. Marginal effects (dy/dx) of variable changes assume a shift from zero to one for discrete variables and mean values are assigned for other variables. Errors are assumed to be clustered at the firm level for SEOs.

Panel A. IPOs

Included Observations	Intercept	Rural Dummy	Small City Dummy	Ln (Minutes to Airport)	Log (Size)	Log (IPO Proceeds)	Year Dummies	Industry Dummies	Obs.	Rural Obs.
All	−3.963***	−0.568***	−0.292***		0.515***	0.776***	No	No	3,869	291
	(−16.59)	(−3.74)	(−3.32)		(8.16)	(10.02)				
All (dy/dx)		−0.100***	−0.045***		0.079***	0.119***	No	No	3,869	291
		(−3.31)	(−3.30)		(8.31)	(10.24)				
All	−3.808***			−0.110**	0.528***	0.769***	No	No	3,869	291
	(−13.07)			(−2.52)	(8.38)	(9.99)				
All (dy/dx)				−0.017	0.081***	0.119***	No	No	3,869	291
				(−2.51)**	(8.54)	(10.20)				
All	−4.080***	−0.638***	−0.333***		0.580***	0.766***	No	Yes	3,824	286
	(−11.36)	(−3.99)	(−3.65)		(8.39)	(9.30)				
All (dy/dx)		−0.110***	−0.049***		0.085***	0.113***	No	Yes	3,824	286
		(−3.47)	(−3.61)		(8.60)	(9.46)				
All	−4.821***	−0.570***	−0.310***		0.772***	0.851***	Yes	Significant only	3,846	288
	(−11.60)	(−3.58)	(−3.35)		(10.00)	(9.55)				
All (dy/dx)		−0.093***	−0.044***		0.108***	0.119***	Yes	Significant only	3,846	288
		(−3.13)	(−3.33)		(10.23)	(9.93)				
Firm size in 25th to 75th percentiles	−6.041***	−0.484**	−0.348**		1.129***	0.724***	Yes	Significant only	1,914	140
	(−5.86)	(−2.12)	(−2.71)		(6.44)	(5.24)				
Firm size in 25th to 75th percentiles (dy/dx)		−0.077*	−0.049**		0.157***	0.100***	Yes	Significant only	1,914	140
		(−1.88)	(−2.66)		(6.55)	(5.34)				

Table IV. Logistic Regressions of Top-Tier Investment Banker Quality Dummy on Firm Location (*Continued*)

Panel B. SEOs

Included Observations	Intercept	Rural Dummy	Small City Dummy	Ln (Minutes to Airport)	Log (Size)	Log (SEO Proceeds)	Year Dummies	Industry Dummies	Obs.	Rural Obs.
All	−3.406***	−0.822***	−0.428***		0.790***	0.205***	No	No	3,705	280
	(−16.19)	(−5.32)	(−4.77)		(13.99)	(3.36)				
All (dy/dx)		−0.163***	−0.071***		0.132***	0.034***	No	No	3,705	280
		(−4.68)	(−4.80)		(14.73)	(3.36)				
All	−3.325***			−0.119**	0.796***	0.208***	No	No	3,705	280
	(−12.69)			(−2.78)	(14.15)	(3.43)				
All (dy/dx)				−0.020	0.134***	0.035***	No	No	3,705	280
				(−2.78)**	(14.92)	(3.43)				
All	−3.352***	−0.921***	−0.482***		0.779***	0.236***	No	Yes	3,676	280
	(−10.34)	(−5.71)	(−5.19)		(13.30)	(3.68)				
All (dy/dx)		−0.184***	−0.079***		0.128***	0.039***	No	Yes	3,676	280
		(−4.91)	(−5.18)		(13.94)	(3.69)				
All	−4.269***	−0.975***	−0.431***		0.871***	0.484***	Yes	Significant only	3,705	280
	(−11.93)	(−5.99)	(−4.61)		(14.18)	(6.55)				
All (dy/dx)		−0.188***	−0.067***		0.135***	0.075***	Yes	Significant only	3,705	280
		(−5.11)	(−4.62)		(14.93)	(6.60)				
Firm size in 25th to 75th percentiles	−4.285***	−0.997***	−0.451***		0.999***	0.344***	Yes	Significant only	1,854	131
	(−5.49)	(−4.53)	(−3.59)		(7.18)	(3.16)				
Firm size in 25th to 75th percentiles (dy/dx)		−0.200***	−0.073***		0.162***	0.056***	Yes	Significant only	1,854	131
		(−3.94)	(−3.62)		(7.34)	(3.17)				

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

All else being equal, small city firms are significantly less likely to retain a prestigious underwriter for their IPOs than urban firms, and rural firms are even less likely to have a prestigious underwriter. The next row in the table calculates marginal affects at the mean firm size and offering proceeds. The marginal effect of −0.100 for the rural dummy indicates that rural firms of average size that are conducting an average size offering are 10% less likely to have a prestigious underwriter than urban firms. Small city stocks are 4.5% less likely to employ a top tier underwriter.

The next logistic regression in Table IV uses the driving time from the firm headquarters to the nearest major airport rather than rural and small city dummies. The results indicate that the greater the driving time to a major airport, the lower the probability that a firm uses a prestigious underwriter for their IPO. Driving time, however, is less significant than rural and small city dummies.

The third logistic regression reported in Table IV includes dummy variables for each of the 48 Fama-French industries. When industry dummies are included, the magnitude and significance of both the rural and small city variables increase slightly. Now, rural firms are 11% less likely and small city firms are 4.9% less likely than urban firms to employ a top tier underwriter. The next logistic regression includes dummies for the calendar year of the offering as well as the industry dummies that were significant in the previous regression. Year dummies are included because the investment banking industry consolidated, over the sample period, with fewer and fewer low ranking underwriters surviving. After including the calendar year dummies, a rural firm is 9.3% less likely and a small city firm is 4.4% less likely to use a prestigious underwriter than an urban firm.

For the final logistic regressions, I restrict the sample to IPOs by firms with capitalization between the 25th and 75th percentiles to make sure that my results are not driven by unusually large or small firms. Results remain strong. All else being equal, a rural firm is now 7.7% less likely to have a prestigious underwriter. The coefficients on both the rural and small city dummies remain significant at the 5% level even after omitting half of the observations.

Panel B repeats the analysis with SEOs. Some firms in my sample have more than one SEO; hence, I conservatively assume that errors are clustered by issuer. Results are qualitatively similar to those found with IPOs, but are statistically more significant. Rural firms and small city firms are significantly less likely to use a prestigious underwriter in SEOs than are urban firms. When all offerings are included and variables for industry and year are used, an otherwise average rural firm is 18.8% less likely to use a prestigious underwriter than a similar urban firm. A small city firm is 6.7% less likely to use a prestigious underwriter. When attention is restricted to SEOs of firms with capitalizations in the 25th to 75th percentiles, rural firms are still 20% less likely to use a prestigious underwriter.

It appears then, that rural firms cannot get the best underwriters to handle their equity offerings. They are stuck with second-tier investment bankers. This is consistent with prestigious underwriters being reluctant to bear the extra costs of gathering information on these firms, and being unwilling to jeopardize their reputations by underwriting offerings when they have incomplete information on a company.

V. Matching Firm Results

As a robustness test, each rural company is paired with one urban/small city firm of similar size and in the same industry as of the end of June for each year, 1980-2002. One hundred percent

of the rural firms are paired with a matching firm. The matched firms are used once per calendar year and cannot be more than 75 minutes from a major airport.

I use three different definitions of industry in my matching procedure (Tech, Biotech, and Fama-French, 1997). First, all Tech rural firms are paired with similarly sized urban or small city Tech firms. Tech firms are defined as having the following SIC codes: 3571, 3572, 3575, 3577, 3578 (computer hardware); 3661, 3663, 3669 (communications equipment); 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics); 3812 (navigation equipment); 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices); 3841, 3845 (medical instruments); 4812, 4813 (telephone equipment); 4899 (communications services); and 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software). This definition of Tech firms is used in Loughran and Ritter (2004).

Next, rural Biotech firms are matched on a yearly basis with urban/small city firms with similar market values. Biotech firms are defined as having the following SIC codes: 2830, 2833, 2834, 2835, 2836 (drugs), and 8731 (commercial physical and biological research). Lastly, all non-Tech, non-Biotech rural firms are paired using the standard Fama-French 48 industry classification and market value screens. Of the rural firms, 5% are Tech, 1% are Biotech, and 94% are matched using the Fama-French 48 industry classification.

When pairing rural firms with same industry urban/small city firms, I first look for matching firms with capitalizations within ±3% of the rural firm's market value as of the end of June. If no firms in the same industry are within ±3% of the rural firm's market value, I attempt to pair the firm using progressively wider market value screens of ±10%, ±15%, ±30%, and finally ±50%, always keeping the industry (Tech, Biotech, or Fama-French) screen in place. If no industry matched firms are within ±50% of the market value of the rural firm, I pair on the basis of market capitalization.

Fifty-four percent of the matches occurred with the ±3% market value screen, 33% were paired with the ±10% screen, 7% with the ±15% screen, 2% with the ±30% screen, and 1% with the ±50% screen. The remaining 3% of the sample is paired with urban or small city firms regardless of industry. These firms are usually quite small compared with the potential industry urban or small city matched universe.

My matching mechanism appears to do a reasonable job at controlling for industry and market value differences between the rural and urban or small city samples. As an example, rural Decatur, Illinois-based Archer Daniels Midland (a large capitalization food processor) is paired at some point in time with the following firms (all classified as within the Fama-French Food Products Industry) during the 23-year period: 1) Kraft, 2) Ralston Purina, 3) Consolidated Foods, 4) Pillsbury, 5) Sara Lee, 6) Quaker Oats, 7) Campbell Soup, 8) CPC International, 9) General Mills, and 10) Heinz. As another example, Vermont-based Ben & Jerry's Homemade Ice Cream is paired with firms like Manhattan Bagel, Celestial Seasonings, Tasty Baking, Wholesome and Hearty Foods, Smucker, and Goodmark Foods.

The yearly mean summary statistics for the rural and matched firm sample is reported in Table V. The market values for the two matched portfolios are similar throughout the 23-year time period. The average daily rural portfolio market value is $1,082.9 million compared to $1,175.7 million for the matched urban and small city sample.

Rural firm are less likely to conduct SEOs than their matches. Only 6.4% of rural firms issue stock in the succeeding year, as compared with 7.9% of their urban and small city matches. That difference is statistically significant with a t-statistic of −3.56. Rural firms have higher book-to-market ratios than their matched firms. Hence, even after adjusting for size and industry, rural firms are tilted more toward value than urban firms.

Using the rural firms and their matches, I run cross-sectional logit regressions of the probability of SEOs on location and other explanatory variables. In Table VI, I report time-series averages

Table V. Yearly Mean Summary Statistics for Rural and Matched Firms

All 5,985 rural firms are matched on an annual basis with an urban or small city firm by industry (Tech, Biotech, and Fama-French, 1997), and market value. Matching small city and urban stocks must be no more than 75 minutes from a major airport. Only stocks with a stock price of more than $10 as of June of year *t* are included. A stock is located in an urban area if the company headquarters is in the metropolitan area of New York City, Los Angeles, Chicago, Washington, San Francisco, Philadelphia, Boston, Detroit, Dallas, or Houston. A stock is located in a rural area if it is not within 100 miles of the center of a metropolitan area of 1,000,000 or more people as defined by the 2000 Census. Firms that are not located in urban or rural areas are defined as small city. Market values are in millions of dollars as of June of year *t*. The *t*-statistics are in parentheses.

	Rural Firms (1)	Matched Firms (2)	Difference (3)
Market value (in millions $)	$1,082.9	$1,175.7	−$92.8*
			(−1.96)
Percent with subsequent year SEO	6.4%	7.9%	−1.5%***
			(−3.56)
Book-to-market ratio	0.72	0.69	0.03***
			(3.63)
Number of observations	23	23	23

***Significant at the 0.01 level.
*Significant at the 0.10 level.

of coefficients from these regressions, as well as *t*-statistics for the coefficients based on the standard errors of annual coefficients as in Fama and MacBeth (1973).

The first column reports results of annual cross-sectional logistic regressions with SEO issuance as the dependent variable. As prior work suggests, my results indicate that SEOs are more likely for firms with positive stock returns before the offering and for firms that are covered by a lot of analysts. Firms with high book-to-market values are less likely to issue equity. This is not surprising as value firms should be less likely to need external funding than growth firms.

Of the most interest to me is that the coefficient on the dummy for a rural location is negative and significant, with a *t*-statistic of −4.36. Even after matching firms on the basis of size, industry, and whether the firm is a technology firm, and after controlling further for differences in book-to-market values and analyst coverage in the logistic regressions, rural firms are less likely to conduct SEOs. The logistic regression reported in Column (2) of the table is similar, but uses the driving time to the nearest major airport rather than a dummy variable for rural location. The greater the driving time to a major airport, the less likely is a firm to conduct an SEO.

VI. Headquarter Relocations

Throughout this paper, I have implicitly assumed that firm location was exogenous. That is, I have assumed that the geographical location of firms was determined primarily by proximity to natural resources, customers, and suppliers and not by potential future needs to issue equity. It is possible though, that firms that expected to issue equity could choose to locate in urban areas rather than rural ones.

A potentially powerful approach to address endogeneity would be to examine time-series equity issuance by relocated companies. If location is an important determinant of equity issues, one

Table VI. Average Parameter Values from Annual Cross-Sectional Regressions Using the Rural and Matched Firm Sample

Each June of year *t*, each rural firm is matched with an urban or small city firm on the basis of industry (Tech, Biotech, and Fama-French, 1997), market value, and having the matched firm be no more than 75 minutes from a major airport. The parameter values are the average of the 23 cross-sectional logit regressions. The rural dummy is set to one if the firm is not within 100 miles of the center of a metropolitan area of 1,000,000 or more people as defined by the 2000 Census. The *t*-statistics are in parentheses.

	Logit: Probability of SEO Next Year (1)	Logit: Probability of SEO Next Year (2)
Intercept	−2.59***	−2.15***
	(−9.68)	(−7.04)
Rural dummy	−0.33***	
	(−4.36)	
Log (minutes)		−0.13***
		(−3.71)
Nasdaq dummy	−0.29***	−0.31***
	(−3.44)	(−3.64)
Log (market value)	−0.09**	−0.09**
	(−2.45)	(−2.60)
Book-to-market	−0.97***	−0.97***
	(−4.37)	(−4.48)
PPE/TA	1.78***	1.79***
	(8.45)	(8.55)
Log (1+analysts)	0.21***	0.21***
	(3.82)	(3.80)
Prior return	0.01***	0.01***
	(3.97)	(4.01)
Number of regressions	23	23
Mean observations per regression	2, 668.7	2, 668.7
Mean rural firms per regression	260.2	260.2

***Significant at the 0.01 level.
**Significant at the 0.05 level.

would expect to see an increase in equity issues following relocation from rural to urban areas, or a decrease in equity issues following relocation from urban to rural areas.

To address potential endogeneity, I examine equity issuance patterns for firms that relocated their headquarters. According to Compact Disclosure, more than 7,000 firms changed their corporate headquarters.[3] The vast majority of these relocations are from urban to urban locations. That is, J.C. Penney moved its headquarters from New York City to Dallas, Texas, in 1988. Another common location change is to move from a major city to the suburbs of the same city. As an example, Sears moved its headquarters from Chicago to suburban Hoffman Estates in 1995.

After removing firms that were not publicly traded on an exchange at the time of the move and firms that relocated from urban/small city to urban/small city areas, a sample of 63 firms was created. Since the yearly potential rural firm universe is small, the total number of firms that relocate to or from a rural area is also quite low. Table VII reports that a total of 30 firms

[3]Data availability of Compact Disclosure is only for the 1988-2001 time period.

Table VII. Prior and Post Equity Issuance for Firms that Relocated Headquarters

A sample of firms that relocated their headquarters is created from Compact Disclosure during the 1988-2001 time period. A total of 30 firms moved from rural to urban or small city areas while 33 companies moved their headquarters from an urban or small city to a rural area. The market values are at the time of the headquarter relocation.

	Rural to Urban Move	Urban to Rural Move
Sample size	30	33
Average market value (in millions)	$851.1	$348.3
Percent with SEO in year prior to move	3.33%	6.06%
Percent with SEO in year after move	3.33%	0.00%

relocated from rural to urban/small city areas as compared to 33 firms that moved in the opposite direction.

The average market value in this restricted sample is, on average, smaller than my main sample. Firms that move from rural to urban areas have an average market value of $851 million compared to a value of only $348 million for companies that move from urban to rural areas. It appears that successful rural firms, such as Gateway Computer that moved its headquarters from South Dakota to San Diego, are likely to relocate to urban areas in an effect to expand operations by attracting high-end skilled employees.

Given the small sample size of Table VII, test statistics are not reported. There is some evidence that the propensity to issue equity is affected by the location of the firm's headquarters. For example, 6.06% of the urban to rural sample issued equity in the year prior to the move (i.e., when the firms were in an urban area). None of these 33 firms that moved to a rural location issued equity after the location change. For the sample of 30 firms that relocated from rural to urban areas, they had the same SEO percentage before and after the move. Hence, the table finds some evidence that firms are more likely to issue equity in urban and small city areas than in rural areas.

VII. Summary and Conclusions

In recent years, there has been a growing realization on the part of financial economists that information asymmetries may play at least some role in determining capital structure. When outside investors are at a significant information disadvantage to insiders, selling equity may be difficult. As a result, firms with the largest information costs may avoid issuing equity.

In this paper, I examine equity issuance using location as a proxy for information asymmetries. Recent papers show that both individual investors and institutions overweight their portfolio with local stocks. Easier or cheaper access to information is thought to be one reason for the bias toward local companies. This is supported by the findings of some papers that investors earn higher returns on investments in local companies and that analysts produce more accurate earnings forecasts for neighboring firms.

Rural companies have few potential purchasers of stock located nearby; therefore, the marginal investor for an equity offering by a rural firm is likely to be located quite a distance away. This puts the equity investor in a rural offering at a more significant information disadvantage to insiders than an equity investor in an urban company's offering. I expect then that rural companies will be more reluctant to issue equity.

That is what I find. Firms from rural areas are less likely to conduct a follow-on offering, even after adjusting for firm size, prior stock returns, book-to-market ratios, and other factors. When a rural firm does issue equity, it is often stuck with a less prestigious underwriter.

So, I conclude that geographic location is closely related to information asymmetries and that information asymmetries between corporate insiders and outside investors seem to play at least some role as a determinant of equity issuance. It seems likely that if anything, I have understated these effects. My data do not permit me to determine if rural firms are more likely to remain private than similar urban firms. Likewise, I cannot determine if rural firms are more likely to forego projects because of the difficulty of obtaining equity financing. These are interesting questions for future research. ■

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