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ABSTRACT

Local Ownership as Private Information: Evidence on the Monitoring-Liquidity Trade-Off*

This Paper investigates the impact of ownership patterns on the way the firm is monitored, on the liquidity of its shares, and on its stock price. Building on the literature showing that local mutual funds (funds holding geographically close firms) enjoy superior returns due to private information, we use local ownership as a proxy for the amount of informed investment. Since location is reasonably exogenous, local ownership provides an identifying restriction that is used to address endogeneity concerns that have been raised in the literature (Demsetz and Lehn, 1985). Using data on a broad panel of US firms, we show that informed ownership improves the quality of governance of the firm and induces value-enhancing decisions (less over-investment and fewer but better acquisitions). At the same time, its presence in the firm increases the adverse selection discount required by less informed investors to trade, reducing the firm's liquidity. Both effects are properly impounded in the firm's stock price. Our results provide an economic interpretation of why ownership seems to be unrelated to performance. Informed investors affect prices indirectly, and in opposite directions: their monitoring activity tends to raise prices, but the lower liquidity induced by their presence tends to reduce prices.

JEL Classification: G23, G30 and G32
Keywords: corporate governance, liquidity, local ownership, monitoring, mutual funds and private ownership

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1. Introduction

Recent corporate events have stirred up a debate on the role of corporate governance and the best way to enhance it. The background to this debate is the modern corporation's separation between ownership and control, and the idea that at least some monitoring by informed shareholders is necessary to prevent self-interested managers from taking sub-optimal decisions. This line of argument implies that there should be a relation between a firm's shareholding composition (i.e., ownership structure) and its performance. This implication has been extensively investigated in the literature (e.g., Morck, Shleifer and Vishny, 1988; McDonnell and Servaes, 1990; Holderness, Kroszner and Sheenan, 1999; Himmelberg, Hubbard, and Palia, 1999).

Unfortunately, the endogenous nature of the ownership structure (Demsetz, 1983; Demsetz and Lehn, 1985) makes the study of this issue very difficult. Ownership equilibrium patterns depend on their relative costs and benefits. Given the lack of a suitable identifying restriction, the literature has been unable to produce conclusive evidence on this issue. The current view argues that no relation exists between ownership and performance (Demsetz and Villalonga, 2001), but falls short of analyzing the underlying economic story that describes the costs and benefits of ownership.

Central to any such story is the role of information. In an important contribution, Kahn and Winton (1998) show that there is a trade-off for an informed institution between profitably trading on its private information ("speculation") and using that same information to monitor the firm ("intervention"). The choice between these two actions depends on the size of the informed shareholder's stake. High stakes provide an incentive to monitor the firm, but, at the same time, make uninformed shareholders require an adverse selection premium to trade in the firm's shares. The presence of such stakes has therefore observable implications for both the way the firm is run and for the liquidity of the firm's shares.

Our paper uses a proxy of informed investment to study the relationship between the existence of informed shareholders, corporate governance, and stock liquidity, as well as their implications for stock prices.

We use as a proxy for informed investment the fraction of local mutual fund investors – funds holding stock in geographically near firms. Coval and Moskowitz (2001) find that U.S. mutual funds earn substantial abnormal returns in their nearby equity holdings and that the amount of local investment in a stock is positively correlated with the stock's expected return. Therefore, local mutual fund ownership may "offer a unique method of identifying... perhaps

the first set of seemingly informed investors"[1]. Posterior research seems to vindicate their conclusion.[2] Local fund managers, being more informed and located close to the company headquarters, are in a better position to influence the management of the firm in governance-related issues.

The important feature of this measure is that the main determinant of proximity – the place where the investor is located – is reasonably exogenous. We can therefore generate a set of instruments to address any potential residual endogeneity. In summary, the choice of local ownership as an explanatory variable provides us with an identifying restriction that we can use to study the economic implications of informed investment.

Using local ownership as a proxy for the amount of private information, we empirically test the mechanism at work in Kahn and Winton's model. Our main testable hypothesis is that, as the stake of local (privately informed) ownership increases, we should observe a higher amount of monitoring, by which we mean that locally held firms should exhibit a higher quality of corporate governance (Hellwig, 2000). Simultaneously, the presence of informed investors should increase the adverse selection discount associated with the trading of the stock, which implies a decrease in the liquidity of the firm's shares.

To test this intuition, we construct data on the amount of local ownership (defined as holdings of mutual funds located in a 100-km radius of the firm's headquarters) for a broad panel of U.S. firms for the 1990-2002 period. We measure the quality of the firm's governance using the Governance Index of shareholder rights compiled by Gompers, Ishii and Metrick (2003), and the liquidity of the stock using the illiquidity measure proposed by Amihud (2002).

We find that locally held firms have stronger shareholder rights – exhibiting higher quality of corporate governance – but more illiquid shares. This effect is economically and statistically significant, particularly on the impact on illiquidity: an increase of one standard deviation in local ownership roughly doubles the observed price impact of a trade. In addition, and in line with Khan and Winton's (1998) predictions, we find the impact of informed investors on governance to be stronger in companies for which there is more public information

[1] Coval and Moskowitz (2001), page 839.

[2] Hau (2001) finds that German traders located near to the headquarters of firms they trade in exhibit higher trading profits. Massa and Simonov (2002), using a representative panel of Swedish investors, show that familiarity-driven investment is information-based as opposed to a behavioral heuristic. Butler (2003) finds that local investment banks seem to display informational advantages on the municipal bond market. Malloy (2003) finds that geographically-proximate equity analysts make more accurate forecasts than other analysts, and also that their recommendations have a higher price impact.

available (large firms, firms with greater analyst following, and firms with higher idiosyncratic volatility). This provides additional evidence in favor of the information story.

The theoretical framework used allows us to give an economic interpretation to the ownership-performance debate. An increase in informed holdings has two opposite effects: on the one hand, valuable monitoring activities increase the value of the firm and boost prices; on the other hand, uninformed investors require a premium to trade locally-held firms, making them less liquid and thereby decreasing prices (Amihud and Mendelsohn, 1986; Amihud, 2002). Once these two effects are properly accounted for, ownership should have no effect on prices. These predictions are exactly what we observe in the data. Moreover, our econometric approach provides strong evidence of causality from local ownership to quality of corporate governance and stock illiquidity, and no evidence of reverse causality in the other direction.

We complement our findings on two further dimensions. First, we investigate if shareholders' information affects corporate investment policies. We find that locally held firms exhibit lower investment, and make fewer but better acquisitions. These results provide an independent confirmation that the increase in governance brought by local ownership seems indeed associated with value-increasing decisions. Second, we focus on gathering evidence on the possible channels through which local owners make themselves heard. We show that local shareholders are more effective in improving governance in cases where they have a stronger bargaining position vis-à-vis the firm's managers (firms that are more equity dependent), and when other forms of shareholder control are weaker (firms with a smaller fraction of block holders, or firms where executive equity incentives are lower).

Our paper makes four main contributions. First, we focus on a measure of informed shareholding that is less subject to the usual criticisms of endogeneity and use a methodology that controls for residual endogeneity. We base ourselves in existing theory and use local ownership as an identifying restriction that provides an empirical decomposition of the effects of ownership structure that was not present so far in the literature. In doing so, we bring to the data the mechanism that determines the trade-off between the two components of the impact of insider behavior: gains from monitoring and gains from trading.

Second, our paper is, to our knowledge, one of the first attempts to understand the corporate finance consequences of the geography of investment. The latter has recently been the focus of increased attention by the finance literature. Our findings are consistent with the idea that (at least among the type of sophisticated investors we analyze here) investing locally is an inexpensive way to acquire information. If local ownership is valuable, why don't we observe (even) more of it in equilibrium, as Coval and Moskowitz (2001) suggest? The answer is that the information obtained by local investors comes at a cost – of making their stakes

more illiquid! Our paper suggests that, besides any diversification concerns, the liquidity consequences of investing locally act as a counterweight to any informational benefits.

The third contribution is related to the study of liquidity. As O'Hara (2003) points out, both the existence and the source of common liquidity factors have not yet been satisfactorily identified. We contribute to this literature by showing how an additional element – the quality of corporate governance – may change jointly with liquidity, affected by the same driving factor – private information. Indeed, if private information increases both the quality of corporate governance of the stock and its degree of illiquidity, the quality of corporate governance is an additional element that alters any direct estimate of the relationship between stock prices and liquidity that does not properly account for it.

Finally, our paper provides useful normative insights to the debate on the trade-off between liquidity and control. Regulatory measures (such as Regulation Fair Disclosure introduced in late 2000) destined to level the playing field between investors reduce the informational advantage of some investor groups, thereby increasing liquidity. However, these same measures might reduce the quality of corporate governance, because in equilibrium informed traders will lower their holdings to adjust to the new trade-off between informational benefits and liquidity costs. This will in turn reduce the amount of socially valuable monitoring. Our results therefore suggest that efforts to increase the market's liquidity must simultaneously consider measures to provide incentives for economic agents to engage in monitoring activities. The extent to which this objective can be achieved via legal constraints (such as the Sarbanes-Oxley Act of 2002) remains to be seen.

There is a vast literature that studies the relationship between liquidity, informed ownership and quality of corporate governance. Bhide (1993) and Coffee (1991), following the steps of Berle and Means (1932), suggested that the emphasis on the provision of liquidity is detrimental to monitoring incentives: the enhanced liquidity of the U.S. stock markets makes "exit" a more attractive solution relative to "voice". In contrast, Maug (1998) and Kyle and Vila (1991) argued that liquidity makes accumulation of shares easier due to the discount associated with the presence of liquidity traders, thus circumventing the Grossman and Hart (1980) paradox. Kahn and Winton (1998), Bolton and Von Thadden (1998a, 1998b) and Noe (2002) have identified the relative costs and benefits of concentrated shareholdings and analyzed the circumstances in which these shareholdings will emerge. If trading activity is publicly observed, Faure-Grimaud and Gromb (2003) show that market awareness of the large shareholder's activity increases the latter's incentive to engage in value-increasing activities. On a similar note, Holmstrom and Tirole (1993) have argued that the stock price contains performance information that is useful for structuring managerial incentives.

The impact of investor location on the issues of liquidity and governance has received very little attention. An exception is Dahlquist et. al (2002), who, in an international context, link the geography of investment to corporate governance measures across different countries. They suggest that the control premium associated with holding shares in countries with poor investor protection can partly explain the home-bias phenomenon of over-weighting of domestic shares [see Lewis (1999) for a survey of the home-bias literature].

The remainder of the paper is articulated as follows. Section 2 lays out our main testable hypothesis. Section 3 describes the sample and the variables we use. Section 4 analyzes the impact of local ownership on the governance characteristics of a stock and on the illiquidity of the firm's shares. Section 5 lays out the implications of these findings for firm valuation, in the context of a simultaneous equation model. Section 6 investigates the relation between local ownership and corporate investment policies. Section 7 focuses on evidence concerning the channels through which local owners can influence firm governance. Section 8 discusses our results. A brief conclusion follows.

2. Main hypothesis and testable propositions

The main hypotheses tested in this paper draw heavily from Kahn and Winton (1998), Maug (1998), and similar models to make predictions concerning the impact of private information on monitoring and liquidity.

The rationale for using local investment as informed holdings is based on the fact that geographical proximity lowers the cost of understanding the technical aspects of a firm's operations, as well as the cost of evaluating crucial intangible factors like management ability. Local fund managers can inspect the firm's facilities, foster informal information sources such as key employees, and gain a deeper understanding of the firm's corporate culture. Moreover, they are probably more acquainted with the firm's management and may interact with the firm's top officers in social circles outside office hours. This network of relationships lowers the cost of obtaining information about the firm and raises the visibility of the fund relative to the remaining shareholders. Local fund managers, being more informed and located close to the company headquarter are in a better position to influence the management of the firm in issues relating to the governance of the firm.

Our first prediction is that monitoring by local, better-informed investors should have an influence on the observed patterns of governance adopted by the firm. Hellwig (2000) argues pervasively that corporate governance is the result of an equilibrium incomplete-contract game between outside shareholders and management. Crucially, managers have "residual control

rights" (Grossman and Hart, 1986), in the sense that, by appropriately influencing the corporate charter, managers have the effective power to influence rules of decision-making in all circumstances not foreseen by the contract. The outcome of this game depends on the relative informational advantages of the two parties. We therefore expect that local (more-informed) investors are better suited to extract governance concessions from managers – for example, on the extent to which the firm adopts provisions that restrict the strength of shareholder rights – and to monitor the firm in an effective way – for example preventing value-reducing investment or acquisitions. The power of the local shareholders to condition the managers both in the definition of the governance rules and in the monitoring of the corporate policies is a function of their weight in the firm's ownership structure. This determines our first prediction.

H1a: *There is a positive correlation between the stake of local owners and the quality of corporate governance of the firm, measured by the strength of shareholder rights.*

Our second prediction concerns the impact of local, better-informed investors on liquidity. Informed investors may exploit their superior information by trading in the market. The presence of a better informed party increases the adverse-selection component of the bid-ask spread, making the stock less liquid (e.g. Kyle, 1985; Easley and O'Hara, 1987).[3] This reasoning assumes that the stake of the informed trader is only moderately large, such that his trading activity can still take place undetected by the broad market. We can safely assume that institutional constraints prevent our mutual fund investors from reaching such a size. This determines our second prediction.

H1b: *There is a negative correlation between the stake of local owners and the liquidity of the firm's shares.*[4]

Predictions H1a and H1b are tested against two broad alternative hypotheses.

The first alternative hypothesis still assumes that local investors are better informed, but argues that monitoring activities by informed investors might substitute, rather than

[3] The decision to trade rather than intervene through monitoring depends on how the market expects the firm to perform (Kahn and Winton, 1998).

[4] There is another channel of how the size of ownership stake could affect liquidity, which is simply the decrease in float available to be traded in the market (in fact, most models assume a direct mapping between the two). We argue that this effect is not relevant here, for three reasons. First, if this channel was the only impact of local ownership on liquidity, we should find that once we control for an external source of liquidity, like trading volume, or the size of the firm, the effect should disappear; that is not the case. Second, the ownership levels of local investors are relatively small compared to the total available float. Third, the empirical measure for liquidity that we use is highly correlated with the informational component of trading costs (see Amihud, 2002).

complement, good quality of governance. According to this view, provisions that enforce shareholder rights are less necessary if management is effectively monitored by a class of vigilant shareholders. Hence, we should observe weaker standards of governance for firms that are subject to monitoring. In addition, it could be the case that the competition between competitive informed traders is so fierce that the latter end up producing valuable information that is incorporated into the price (Grossman and Stiglitz, 1980; Kyle, 1989). Informativeness of prices would thereby increase, resulting in increased liquidity of the firm's shares.

The second alternative hypothesis is that local ownership is the result of familiarity bias. Evidence in this regard has been found for individual investors (Huberman, 2001; Grinblatt and Keloharju, 2001; Zhu, 2002). In this case, we should not observe any significant effect of local ownership on governance, and, to the extent that familiarity-based trading is uninformed trading, we should observe that local investment contributes to increase liquidity. Familiar investors' trades contain relatively more noise, contributing to lower the adverse selection discount. The predictions implied by these alternative hypotheses are therefore:

H2a. *There is either a negative or a zero correlation between the stake of local owners and the quality of corporate governance of the firm.*[5]

H2b: *There is a positive correlation between the stake of local owners and the liquidity of the stock.*

All these predictions are tested against a base null hypothesis that local ownership does not affect the quality of governance of a firm or the liquidity of its shares. This would be the case if local investors did not possess an informational advantage, or if they were unable to influence the governance of the firm.

3. Data and Empirical Testing Issues

3.1. Sample Construction

We use two different sources: data on firms and data on mutual funds holding them. Our primary data source on firms is the CRSP-Compustat Merged (CCM) database of firm-level annual accounting data for the period 1990-2002. To construct a measure of local

[5] Another possibility is that local investors grant managers more freedom to implement restrictions on shareholder rights and/or co-operate with managers in order to maximize private benefits of control in detriment of other shareholders. This could be another source of a negative relation between local investment and quality of corporate governance. We find this prediction less appealing, because it's hard to imagine the type of expropriation mechanism used by investors in our sample (mutual funds).

ownership we follow a procedure similar to the one employed in Coval and Moskowitz (1999, 2001). For each firm, we obtain the headquarters' location (city and state) from TFN/Disclosure and the corresponding value of latitude and longitude using the Geographic Names Information System (GNIS) of the U.S. Geological Survey. Our primary data source on mutual funds is the merged CRSP Mutual Fund and TFN/Spectrum Mutual Fund Holdings database (Wermers, 2000). This database merges information about individual fund managers and the quarterly stock holdings of each fund. We use the Nelson Directory of Investment Managers to obtain the location of each fund manager, and GNIS to obtain the corresponding latitude and longitude. Once latitudes and longitudes are in place for firms and funds, we calculate the kilometric distance between each firm and the funds that hold stock in it.[6] Appendix A provides a detailed description of the merge of the datasets and of the construction of the data.

We apply the following filters to the data: (i) we restrict ourselves to holdings of actively managed, U.S.-located, equity funds; [7] (ii) we require that a firm is held by at least 5 funds; (iii) we exclude foreign firms, ADRs, REITs, etc. and keep only securities with CRSP share code equal to 10 or 11; (iv) we exclude financial firms and utilities; (v) we winsorize all variables at the 1% level; (vi) we disregard all firms with dual-class common stock structures. The final sample results in 11,010 firm-years that have non-missing values for our main variables: market capitalization, distance, mutual fund ownership, institutional ownership, Tobin's Q, governance and illiquidity.[8]

3.2. Variables

The main variables we use in our study are the amount of local investors in the stock (Local Ownership), a measure of the quality of a firm's corporate governance (Governance) and a measure of the liquidity costs associated with the trading the firm's stock (Illiquidity).

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[6] The distance $d_{i,j}$ between fund i and stock j is given by

$$d_{i,j} = \mathbf{arccos}\left(\mathbf{deg}_{latlon}\right) \cdot \frac{2\pi r}{360}$$

$$\mathbf{deg}_{latlon} = \mathbf{cos}\left(lat_i\right) \cdot \mathbf{cos}\left(lon_i\right) \cdot \mathbf{cos}\left(lat_j\right) \cdot \mathbf{cos}\left(lon_j\right) + \mathbf{cos}\left(lat_i\right) \cdot \mathbf{sin}\left(lon_i\right) \cdot \mathbf{cos}\left(lat_j\right) \cdot \mathbf{sin}\left(lon_j\right) + \mathbf{sin}\left(lat_i\right) \cdot \mathbf{sin}\left(lat_j\right)$$

where *lat* and *lon* are fund and firm latitudes and r is the radius of the earth (approximately 6,378 km). We restrict ourselves to firms and funds located in the continental U.S. (Coval and Moskowitz, 1999).

[7] Equity funds are defined as the funds with ICDI investment objective codes AG ('Aggressive Growth'), GI ('Growth Income'), LG ('Long-term Growth'), IN ('Income') and BL ('Balanced').

[8] The most restrictive filter is that governance information should be non-missing. If we remove this requirement, the sample would have roughly 22,000 firm-year observations (out of the base-line 57,000 CCM firm-year observations that exhibit a valid distance measure).

Following Coval and Moskowitz (2001), we define a mutual fund as 'local' with respect to a firm if the mutual fund manager is located within a 100-km radius of the firm's headquarters. Local Ownership is calculated as:

$$\text{Local Ownership} = \frac{\sum_{i \in N_j} V_{i,j}}{\sum_{i \in M} V_{i,j}} - \frac{\sum_{i \in N_j} V_i}{\sum_{i \in M} V_i} \tag{1}$$

where N_j is the set of local mutual funds (within 100 km of the headquarters of stock j), M is the universe of mutual funds, $V_{i,j}$ is the dollar value of fund i's stake on stock j, and V_i is the total asset value of fund i.

The first term in (1) is the fraction of the firm held by local mutual funds relative to the total fund holdings in the firm. We call this ratio Raw Local Ownership. The second term in (1) is the fraction of the fund assets managed by funds within the 100-km vicinity of stock j. This term is subtracted from Raw Local Ownership to correct for the fact that fund managers are not uniformly located across the US. A firm located in Bloomington, Indiana, has probably less fund managers located in a 100-km vicinity than a firm located in New York city. A simple comparison of raw local ownership of these firms would be deceiving because firms in remote locations would exhibit lower levels of local ownership due to the fact that there are fewer assets around them available to be locally invested. Another interpretation of the second term is that it measures the "expected" level of local ownership around stock j's location. Hence, equation (1) represents the "excess" local ownership in one firm relative to the benchmark value we would expect to observe for the particular locality where the firm is headquartered.

Our measure of Governance is given by the Governance Index variable of Gompers, Ishii and Metrick (2003).[9] The index is calculated summing one point for each provision that restricts shareholder rights, from a set of 24 corporate-governance provisions compiled by the Investor Responsibility Research Center. Higher levels of the index therefore represent weaker shareholder rights.[10] The provisions used to construct the index can be divided in two broad categories. The first category relates to takeover defenses, like bylaws to delay hostile bids (e.g. staggered boards), submission to specific state takeover laws (e.g. Delaware business combination law), and general defense tactics (e.g. poison pills). The second category relates to power-sharing between management and shareholders, like the amount of protection given to officers and directors (e.g. golden parachutes), and the effective voting rights of shareholders (e.g. absence of confidential voting). The Index covers mostly large-capitalization firms, like

[9] We are grateful to Andrew Metrick for supplying us the data.

[10] The Index is measured at discrete points in time (1990, 1993, 1995, 1998, 2000 and 2002). We assume that in-between classification years, a firm keeps the last available Index classification.

the Standard & Poor's S&P500 index and the largest corporation lists of *Fortune*, *Forbes* and *Business Week*, with the addition of some smaller firms.

The use of the Governance Index as a proxy for the quality of corporate governance can be criticized on the grounds that it provides a measure of external, rather than internal, governance. We believe, however, that the advantages of using the Governance Index more than compensate its drawbacks, for two reasons. First, the criticism above applies more directly to the takeover defense category of provisions, but the power-sharing category of provisions partially reflects the bargaining power of existing management vis-à-vis inside monitors (Hellwig, 2000). Second, the use of measures of internal governance in a broad cross-sectional analysis is also not without problems. Board composition data is hard to obtain, while executive turnover reflects discrete, extreme situations of severe underperformance rather "business-as-usual" levels of governance.

To measure the liquidity characteristics of a stock, we use Illiquidity ("illiquidity ratio"), the average daily ratio between a stock's absolute return and its dollar volume (Amihud, 2002):

$$\text{ILLIQ}_{j,t} = \frac{1}{Days_{j,t}} \sum_{d=1}^{Days_{j,t}} \frac{\left|R_{j,t,d}\right|}{DVol_{j,t,d}}, \tag{2}$$

where $Days_{j,t}$ is the number of valid observation days in month t, and $R_{j,t,d}$ and $DVol_{j,t,d}$ are, respectively, the daily return and dollar volume of stock j on day d of month t. Illiquidity is a proxy for price impact of order flow, that is the price response associated with one dollar of trading volume. The magnitude of the price impact should be a positive function of the perceived amount of informed trading on a stock (Kyle, 1985), although illiquidity will also undoubtedly reflect the inventory costs associated with trading a given order size (Garman, 1976; Amihud and Mendelson, 1980). The advantage of this measure is that it is highly correlated with existing microstructure measures of liquidity costs (Amihud, 2002), but can be directly calculated from daily stock market data.[11] In our empirical implementation, we use yearly averages of the monthly values of the ratio and rescale them by a factor of 10^6.

Table 1 presents summary statistics for our main variables, as well as for the main auxiliary variables we use in our regressions (please see the caption of Table 1 for precise variable definitions). The first noteworthy feature of our sample is that the firms represented are rather large: the average market capitalization is above 5 USD $Bn.; the majority (71%) is

[11] See Amihud (2002) and the references therein. Alternative measures of liquidity costs include the effective bid-ask spread (e.g. Amihud and Mendelson, 1986), the transaction-level price impact (e.g. Brennan and Subramanyam, 1996), and the probability of informed trading (PIN) of Easley et al. (2002).

NYSE-listed; mutual funds hold on average 13% of the firms' shares, while other institutions hold 47%; the average number of analysts following these firms is 11. These characteristics are the result of the sample being restricted to the set of firms for which the Governance Index is available.[12]

The average Local Ownership in our sample is around zero (1%), consistent our interpretation of the measure as the "excess" local investment in a firm. In raw or unadjusted terms, local investors own on average 7% of the firm's shares held by mutual funds. In terms of total shares outstanding, local owners hold on average 1.6% of the firm's stock, a decent-sizeable position for firms of the size like we have in our sample. The average firm sums 9 points out of the 24 that compose the Governance Index, a number very similar to the figures reported in Gompers, Ishii and Metrick (2003). The mean statistic for Illiquidity, 0.05, is considerably lower than the mean statistic of 0.32 reported in Amihud (2002). This divergence is due to the different sample period (Amihud's sample begins in the 60s and stops in 1996) and to the predominance of rather large firms in our sample.

3.3. Methodology

The hypotheses set forward in Section 2 make clear that the observed amount of local investment is a result of equilibrium choices made by investors and by firms. Preliminary data analysis confirms it by providing evidence in favor of the endogeneity of Local Ownership. Durbin-Wu-Hausman tests performed on our base specifications that have Governance and Illiquidity as dependent variables report χ^2-values of around 30 and 41, respectively (both p-values <0.001). The test statistics therefore reject the null hypothesis of no endogeneity of Local Ownership with respect to Governance and Illiquidity. Similar numbers are found for the other specifications we use.

We address this problem by using standard Instrumental Variables (IV) techniques. As usual in these cases, the major issue is to find available instruments for the endogenous regressor that fulfill the conditions of (*i*) strong correlation with instrumented regressor and (*ii*) orthogonality with the errors. We choose as instruments a series of binary variables representing location dummies of the major 21 cities or metropolitan areas in the U.S., plus a dummy for a firm located in a remote city (Coval and Moskowitz, 2001). A remote city is defined as city located more than 250 km away from one of the 21 major cities. The list of the

[12] In the broader sample mentioned in footnote 8, that includes missing values of the Governance Index, the median market cap decreases to 388 million dollars and the proportion of NYSE firms drops to 46%.

major cities was provided by the U.S. Census Bureau population surveys of 1990 and 2000.[13] These variables represent ideal instrument as location of the investor is unlikely to directly affect the stocks for a channel different from the direct impact of the investors.

Moreover, to formally assess the quality of the instruments, we gather evidence on conditions (*i*) and (*ii*) mentioned above:

- Concerning the correlation with the instrumented regressor, we find that a least-squares regression of Local Ownership on the Location dummies reports an F-test statistic of 49 (p-value <0.001) and an adjusted R^2 of 6%, a value that we consider quite high for a broad cross-sectional regression.[14] In addition, we calculate the Partial-R^2 statistic of Bound et al. (1995) in our base specifications (that have Governance and Illiquidity as dependent variables). The Partial-R^2 test investigates the explanatory power of the instruments in the presence of all other exogenous variables used in the regression. The null hypothesis of the irrelevance of instruments in explaining Local Ownership is rejected, with the Partial-R^2 in the range of 4.1-4.6%, and F-values between 35 and 55 (p-values <0.001).

- Concerning the issue of orthogonality, in the analysis that follows we report the p-value of a Hansen (or Sargan) χ^2-test of instrument orthogonality (Wooldridge, 2002) along with every regression specification. This statistic jointly tests the null hypotheses of correct model specification and orthogonality of instruments with the errors. The set of instruments that we use performs adequately in our tests, leading us not to reject the null hypothesis of instrument suitability.

Finally, we report results using robust standard errors clustered by firm, to accommodate the serial correlation (between observations of the same firm) and the heteroskedasticity (between observations of different firms) that naturally arises in panel contexts. [15]

[13] Firms in our sample are dispersed in geographical terms. The city with most firms represented is New York, with slightly above 10% of firms. The average percentage across the 21 major cities is 3%. The complete listing includes: New York, NY; San Francisco, CA; San Jose, CA; Boston, MA; Los Angeles, CA; Philadelphia, PA; Chicago, IL; Dallas, TX; Houston, TX; Baltimore, MD; Washington, DC; San Diego, CA; Milwaukee, WI; Detroit, MI; Phoenix, AZ; Columbus, OH; Indianapolis, IN; Austin, TX; San Antonio, TX; Jacksonville, FL; and Memphis, TN.

[14] Staiger and Stock (1997) suggest that first-stage F-statistics lower than 10 indicate a weak set of instruments.

[15] Another way to deal with heteroskedasticity is to use Generalized Method of Moments (GMM) estimators. Estimation using GMM delivers the same results and is available upon request.

4. Results

4.1. Local Ownership and Governance

Table 2 presents the estimates of the following regression model using instrumental variables:

$$GOVI_{j,t} = \alpha_0 + \alpha_1 LO_{j,t-1} + \alpha_2 \mathbf{X}_{Controls\ j,t-1} + \eta_{j,t}, \quad (2)$$

where $GOVI$ represents the index of corporate governance, LO is a vector of local ownership data and $\mathbf{X}_{Controls}$ a matrix of control variables.[16] The latter includes, in our base specification, firm size, mutual fund holdings (to ensure that it is the effect of local funds, not mutual funds in general, that we pick up in our regressions), and institutional, non-mutual fund, ownership (because institutional ownership is frequently used as proxy for the presence of informed investors).[17] Firm size seems to be positively correlated with weak shareholder rights (high values of the index), in accord with Gompers, Ishii and Metrick (2003). The estimates are based on yearly data for the period 1990-2002. We recall that higher levels of $GOVI$ represent weaker shareholder rights.

The most important conclusion from Table 2 is that the impact of Local Ownership on Governance is negative and significant, indicating that firms with local investors exhibit better quality of corporate governance. The comparative static implies that a one standard deviation shock in Local Ownership decreases the value of the Governance Index by approximately 0.7 points, slightly more than "half" a provision. The result, although of moderate magnitude, is statistically robust to a series of controls made in other specifications, and provides evidence in support of hypothesis H1.

Table 2 also displays results for an important series of robustness checks. The specification of Column 2 controls for the level of information production about the firm using the number of analysts as well as trading volume. The specification also controls for the presence of institutional blockholders, since Cremers and Nair (2003) claim that there exists some complementarity between the Governance Index and measures of internal governance. The results indicate that firms characterized by greater blockholdings tend to have better governance levels. Finally, the specification includes the firm's free cash–flow and amount of

[16] The t-1 index of right-hand side variables in equation (2) refers to the fact these variables are measured using beginning-of-year values, while the dependent variable uses year-end values.

[17] Henceforth, we use the expression 'institutional ownership' to designate ownership by institutions other than mutual funds.

cash, two variables that should be correlated with the extent of agency problems within the firm and hence its choice of governance.

Incentives to monitor are a direct function of an investor's stake in the firm. Indeed, the investor will capture a bigger portion of corresponding increase in firm value through its existing holdings (Shleifer and Vishny, 1986; Kahn and Winton, 1998). We therefore expect, as minimum robustness requirement, to find that the impact of Local Ownership is more pronounced where local investors have bigger stakes. Column 3 splits Local Ownership into a stepwise set of interactive variables that reflect different levels of ownership, where we use ranges that are usual in the literature: 0 to 5%, 5% to 25%, and 25% or more. The results show that the impact of Local Ownership is statistically and economically stronger for firms where local investors hold a bigger portion of the firm.[18] The economic impact is stronger for the intermediate range, which might indicate that for some very high levels the local owner might in fact become an entrenched insider. This is consistent with the findings of Morck, Shleifer and Vishny (1988).

Finally, column 4 introduces two important controls: Management Holdings (the fraction of the firm held by the top officers and directors, obtained from ExecuComp) and Equity-based Compensation, the proportion of management's remuneration that is paid in the form of instruments (e.g. options) sensitive to the firm's stock price (Datta et al., 2001). Hellwig (2000) argues that governance of corporations is highly influenced by incumbent managers (who have sufficient discretionary power to induce changes in the corporate charter, thereby changing the rules of the game played between them and shareholders). Therefore, the alignment of interests of the managers with the shareholders will influence the quality of governance. In addition, cleverly designed compensation contracts can overcome the problems arising from the separation of ownership and control (e.g. Diamond and Verrechia, 1982). The negative coefficient signs in the regressions indicate that management ownership and pay-performance sensitivity seem to play a complementary rather than a substitute role to governance. More importantly, the impact of Local Ownership is still statistically significant, although at a lower level than in previous specifications.

4.2. Local Ownership and Illiquidity

The second prediction of our hypothesis is that, in addition to affecting the quality of governance, Local Ownership should simultaneously influence the liquidity of the firm's shares.

[18] We could also test if the amount of monitoring made depends on the *average size* of the stake of each local owner. In unreported regressions, we find that that is indeed the case.

To test this prediction we run a regression similar to the one described by equation (2), having Illiquidity as our dependent variable:

$$ILLIQ_{i,t} = \beta_0 + \beta_1 LO_{i,t-1} + \beta_2 \mathbf{X}_{Controls\ i,t-1} + \eta_{i,t} \quad (3)$$

The set of control variables we use is the same as the one used in the governance equation, with the exception that we replace Free Cash-Flow and Cash by two variables that have been shown to be correlated with illiquidity: the stock's beta, or measure of systematic risk (Amihud, 2002; Pastor and Stambaugh, 2002), and the stock's average price level during the year (Amihud and Mendelson, 1986). Controlling for price, for instance, is important because Local Ownership is relatively more predominant in small firms (Coval and Moskowitz, 2001); we therefore want to exclude that possibility that our results are due to the higher spreads implicit in lower-priced stocks.

Table 3 presents our results. The coefficients of the control variables are again in line with prior intuition. Bigger firms, firms held by non-mutual fund institutional owners and highly traded firms have lower illiquidity levels. The existence of blocks seems to increase illiquidity. Stocks that are very sensitive to market movements (that is, that have higher beta) also display lower levels of illiquidity, although the estimate is not significant in the last specification.

The main message from Table 3 is that the presence of local owners strongly increases the Illiquidity of a firm's stock. The parameter estimates range from 0.37 to 0.65. This implies that an increase of one standard deviation in Local Ownership produces a marginal impact of around 0.05 on Illiquidity. Confronting this figure with the numbers in Table 1, we see that such increase would basically double the Illiquidity of the average stock.[19] This impact is robust, both in magnitude and in statistical significance, to the inclusion of other variables such as proxies for information production, the level of trading volume, the price level as well as the controls for management participation and compensation. Column 3 also shows that the impact of Local Ownership is again concentrated among firms with higher local investment.

These results show that the presence of better-informed local investors improves the governance of the firm but worsens the liquidity of the firm's shares. As additional robustness check, we complement this evidence by replicating our analysis using Raw Local Ownership as our main variable. Although the use of this variable is arguably less compelling than the use of its corrected counterpart Local Ownership, the robustness of our findings is on safer ground if

[19] Comparative statics are rendered difficult by the rather skewed distribution of the Illiquidity variable, but still give us an idea of the magnitude of the effect.

the results are found to be similar.[20] We report the results in Table 4 (for both Governance and Illiquidity). They are of similar economic magnitude and even statistically stronger than the previous results, providing further confirmation of the robustness of our findings.

4.3 A further test of the informational dimension of local ownership

Khan and Winton's (1998) model predicts that the bigger the uncertainty surrounding the firm's underlying business, the bigger the marginal value of the information of the informed investor and therefore the more the informed investors would prefer exploit such information by trading (rather than by monitoring the firm). Therefore, if local-investors' impact is mostly information-based, we expect the impact on governance to be economically stronger in firms for which there is more information publicly available and the informational advantage of the informed investors is lower.[21] Therefore, we can formulate a second restriction that allows us to pin down the information-based nature of the impact of local ownership:

H3: *The impact of local ownership on governance is stronger for firms for which there is more publicly information available.*

We use three proxies for the level of information: the size of the firm, the amount of analyst coverage and the stock's idiosyncratic volatility. We choose the first two dimensions because they provide a split of firms in terms of information asymmetry between local owners and other investors. Also, if we assume – following Morck et al. (2003) – that high idiosyncratic volatility is actually a proxy for information production about the firm, the relative information advantage of local owners should be lower for high volatility firms.

We split the sample along these information-based dimensions and consider two groups (above and below median) across the three dimensions of interest. The results are reported in Table 5. At the bottom of the table, we present the average mean and average standard deviation of Local Ownership in each sample, along with the corresponding comparative statics calculations.

Table 5 conveys two main messages. First, our results are robust across the sample splits: Local Ownership is statistically significant in every sub-sample, albeit at varying degrees. Second, the comparative static figures indicate that the greatest impact of Local

[20] The difference between Raw Local Ownership and Local Ownership is that the latter is corrected for the "expected" value of local investment, that is, the volume of mutual fund assets available in a firm's location (the second term in equation (1)). If Raw Local Ownership did not deliver significant results, this would mean that the findings were driven by the correction term rather than Local Ownership itself.

[21] The implications for the impact on liquidity depend on the specific model parameters.

Ownership occurs among *large* firms and firms with *high* analyst following and high idiosyncratic volatility. The numbers indicate that in low public-information firms, a change of one standard deviation in Local Ownership changes the Governance Index by 0.8 points, while the corresponding impact for high public-information firms is 1.1 to 1.7 points. These findings are consistent with Kahn and Winton's (1998) prediction that the marginal value of intervention (rather than "exit") is greater for large firms where the informational advantage of the informed party is lower.

5. Local Ownership and Firm Prices

What is the effect of local ownership on firm valuation? This question is important in the light of the literature's debate on the impact of ownership patterns on performance, and whether existing evidence on the issue is affected by problems of endogeneity (e.g. Demsetz and Lehn, 1985). So far the literature has interpreted this evidence from an econometric perspective, arguing that an insignificant relation between ownership and valuation should be the result arising from a properly specified (endogeneity-controlled) specification.

The theoretical framework given by Kahn and Winton (1998) and similar models allows us to give an *economic* interpretation to results in this debate. Our hypotheses imply that the observed impact of local ownership on valuation can be due to the *indirect* effect of local ownership on monitoring and on the liquidity of the firm's shares.

Theory indicates that these two impacts have valuation effects of opposite sign. On one hand, Gompers, Ishii and Metrick (2003) find that firms with better governance have higher valuations, and they conjecture that this is due to investors capitalizing into stock prices the expected agency costs of monitoring. Hence, the positive impact of local ownership on governance would contribute to increase prices. On the other hand, Amihud and Mendelsohn (1985) and subsequent papers have conjectured and found a negative relation between prices and liquidity. The reason is similar: investors capitalize into prices the effects of increased trading costs, whether information- or inventory-related. Hence, the indirect impact of local ownership on illiquidity would contribute to decrease stock prices. Clearly, which of these two effects predominates in a simple OLS regression is an empirical issue.[22]

This reasoning leads us to conjecture two further hypotheses:

[22] We could find an insignificant loading of valuation on local ownership, even in a simple OLS regression, if the impacts on governance and illiquidity exactly matched one-for-one. We think this would be extremely unlikely.

H4. *There should be a significant impact of local ownership on firm valuation in a (improperly-specified) least-squares regression. Such impact should disappear once the endogeneity of the ownership structure is accounted for.*

In addition, and more importantly, we claim that this result is linked to the fact that local ownership affects valuation indirectly via monitoring and liquidity:

H5. *Local ownership should have only an indirect impact on firm valuation, arising form its direct impact on the firm's governance and illiquidity.*

Panels A and B of Table 6 test hypothesis H4 by presenting the regression of Tobin's Q on local ownership and firm characteristics. In both panels, three specifications are presented. The first specification is similar to the one employed earlier in the paper. The second is similar in spirit to the analysis of Morck, Shleifer and Vishny (1985) (MSV) and investigates whether there are non-linear patterns in the relation between ownership and valuation. The third specification adds some variables found in the ownership-performance literature, namely a measure of accounting performance (the firm's return on assets), the firm's leverage ratio, and a measure of the firm's specific risk (Demsetz and Lehn, 1985).

Panel A presents OLS estimates of the mentioned specifications. The results would lead us to conclude that there exists a relation between ownership and performance, in this case of a negative sign. Local ownership appears with a negative and statistically significant coefficient in all specifications. Although there are no changes in sign of the relation's slope (column 2), two of the coefficients of the MSV-type specification are also significant. In the context of our hypothesis, these results mean that the magnitude of the impact of local ownership on illiquidity (that decreases prices) is greater than the impact of local ownership on governance (that tends to raise prices).

Once we control adequately for the endogeneity of Local Ownership with our set of instruments (Panel B), the results look very different. The use of the instruments eliminates the variance associated with governance and liquidity, therefore eliminating the effects of these variables. The effect of Local Ownership has disappeared, with its coefficients still having a negative, but not statistically significant, impact in all specifications. This conclusion is in line with hypothesis H4 and with the existing evidence supporting the Demsetz and Lehn's (1985) argument of the observed 'irrelevance' of ownership on performance.

To address hypothesis H5, we employ a system of simultaneous equations that takes into account the interactions between all the relevant variables. Previous specifications accounted for the endogeneity of local ownership in separate regressions. Constructing a system

allows us to confirm our single-equation results and also to investigate whether there is some reverse causality from Illiquidity or Governance into Local Ownership. We estimate the following system, using three-stage least squares:

$$
\begin{aligned}
GOVI_{j,t} &= \gamma_0 + \gamma_1 ILLIQ_{j,t} + \gamma_2 LO_{j,t} + \gamma_3 Q_{j,t} + \gamma_4 \mathbf{X}_{Controls\ j,t-1} + \gamma_5 \mathbf{X}_{Eq1Controls\ j,t-1} + \varepsilon_{1j,t} \\
ILLIQ_{j,t} &= \delta_0 + \delta_1 GOVI_{j,t} + \delta_2 LO_{j,t} + \delta_3 Q_{j,t} + \delta_4 \mathbf{X}_{Controls\ j,t-1} + \delta_4 \mathbf{X}_{Eq2Controls\ j,t-1} + \varepsilon_{2j,t} \\
LO_{j,t} &= \lambda_0 + \lambda_1 GOVI_{j,t} + \lambda_2 ILLIQ_{j,t} + \lambda_3 Q_{j,t} + \lambda_4 \mathbf{X}_{Controls\ j,t-1} + \lambda_5 \mathbf{X}_{Eq3Controls\ j,t-1} + \varepsilon_{3j,t} \\
Q_{j,t} &= \phi_0 + \phi_1 GOVI_{j,t} + \phi_2 ILLIQ_{j,t} + \phi_3 LO_{j,t} + \phi_4 \mathbf{X}_{Controls\ j,t-1} + \phi_5 \mathbf{X}_{Eq4Controls\ j,t-1} + \varepsilon_{4j,t}
\end{aligned}
\tag{4}
$$

Identification of the system is provided by the use of specific variables for each equation: Free Cash-Flow and Cash for the Governance equation; Beta and Price for the Illiquidity equation; the Location dummy variables (formerly used as instruments) to identify the Local Ownership equation. To identify the Tobin's Q equation, we resort to variables relating valuation to the diversification of the firm (Lang and Stulz, 1994; Berger and Ofek, 1995), namely the number of business segments in which the firm operates and the Herfindahl Index of concentration of sales across those segments.

The results are presented in Table 7, for the two specifications: Panel A for our base specification, and Panel B for a specification with some additional variables (ROA, Leverage and firms specific risk) borrowed from the ownership-performance literature. The following discussion applies to both panels, which have quite similar results.

The most important result can be seen in the Tobin's Q equation. The coefficient of Local Ownership is negative and insignificant, indicating that ownership by itself has no impact on firm value. In contrast, the coefficients of Illiquidity and Governance are highly significant. Firms with higher values of the Governance Index (lower shareholder rights) have lower valuations (Gompers, Ishii and Metrick, 2003), and illiquid stocks also sell for lower prices (Amihud and Mendelsohn, 1986; Amihud, 2002).

In addition, Table 7 provides additional strong evidence in favor of our conclusions in the previous section. Local ownership decreases the Governance Index (increases the quality of governance) and at the same time increases the Illiquidity of the firm's shares. The parameter estimates are in both cases slightly higher and strongly significant. It is worth mentioning that the quality of the fit is reasonably good and that the control variables display coefficient signs consistent with previous findings: firms held by blockholders have better governance, while big firms and low-Q firms have less illiquid shares. Concerning the issue of reverse causality, both panels show no evidence of reverse causality from either Governance or Illiquidity to Local Ownership.

In summary, this section gives an economic interpretation to the empirical 'irrelevance' of ownership on performance, disentangling and demonstrating the existence of the two theoretical impacts conjectured in the literature. In addition, our results on hypothesis H1 are further confirmed in the context of a simultaneous-equation setting.

6. Local Ownership and Investment Policy

Do local owners affect a firm's investment policy? Answering this question is important to confirm our result that local ownership improves corporate governance. Our paper claims that a high governance index is associated with more effective monitoring on the part of shareholders. This high level of monitoring should be associated with value-increasing decisions being made. However, a high governance index could also be associated with strong takeover defenses and a high degree of management entrenchment, therefore potentially leading to value-reducing policies. This would invalidate our choice of the index as a measure of effective monitoring.

To disentangle these two possibilities and obtain confirmatory evidence on our results, this section inspects directly which type of corporate behavior is associated with local owners. In particular, we investigate the relation between Local Ownership and three variants of the firm's investment policy: the amount of total investment, the firm's acquisition behavior and the stock market reaction associated with the firm's acquisitions. Specifications reported are similar to the ones employed in Tables 2 and 3, but having as a dependent variables the relevant policy variable: total investment (normalized by assets), the probability of making an acquisition, and the bidder's stock price performance in a window surrounding the acquisition announcement (descriptions of all these variables, which are quite standard, can be found in the caption of Table 8). For each specification we include a set of control variables as suggested by the previous literature. In each case, we expect to find that local ownership is associated with the value-increasing policies.

Columns 1 and 2 of Table 8 report the results when the total investment is the dependent variable. The sign of Local Ownership is strongly negatively significant. We interpret this finding as consistent with the notion that firms held by local investors tend to over-invest less. In accord with the existing literature, firms with larger analyst following, larger Free Cash-Flow and larger Abnormal Return in the past 12 months (a measure of over-pricing) tend to invest more.

Columns 3 and 4 report the results of estimating a probit model of the likelihood of the firm making an acquisition bid.[23] The results show that locally owned firms seem to perform less acquisitions; the marginal effect (evaluated at the sample means) goes from around minus 0.16 to minus 0.18. Since we know that acquisitions are on average related to zero or negative returns to bidder shareholders, we take this as evidence that monitoring is more effective in locally held firms. In accord with the existing literature (e.g. Palepu, 1986), we find that there are surprising few variables that predict acquisition bidder behavior, apart from the size of the firm.

Finally, columns 5 and 6 show that acquisitions made by firms with high local ownership are characterized by higher returns on average. The abnormal return is estimated using a Heckman (1979) two-stage procedure in which the first stage is the probability of the firm initiating an acquisition bid. This result constitutes very strong evidence in favor of the hypothesis that local owners monitor effectively. Note that the use of Heckman's (1979) two-stage procedure takes care of the fact that locally-held firms tend to acquire less often, and that, in accord with previous literature, large acquisitions and acquisitions preceded by high abnormal bidder returns seem to destroy value.

In summary, locally owned firms invest less and make fewer but value-increasing acquisitions. The interpretation of these results is consistent with our previous findings and with our hypothesis that local owners influence firm policy through their monitoring activities.

7. Channels of Influence of Local Ownership

The convenient identifying restriction provided by local ownership has the downside that local investors effectively represent a minority fraction of the shareholders. Local investors, in spite of this, seem to affect a firm's governance and investment policies. It is therefore legitimate to ask *how* can local owners exert their pressure on the firm's management and make their voices heard. This section provides some evidence on the possible channels of influence used by local investors.

The main power of local investors is their implicit threat to walk away from the firm by selling their holdings – that is, taking the "Wall Street walk". This threat is probably communicated to management through informal channels (like conference calls or meetings with top management), rather than through formal communication channels (like board

[23] We use the Amemyia probit GLS estimator described in Newey (1987) with instrumental variables.

membership). This informality makes direct observation of these channels of influence difficult. We can however conjecture indirect effects that should be associated with its presence.

First, we expect the impact of local investors to be stronger in the case of firms that are equity-dependent (Baker, Wurgler and Stein, 2003). That is, the more the firm is dependent on the stock market to finance its investments, the more credible is the threat that local shareholders might sell. Second, we expect the impact of local shareholders to be higher in the absence of other control mechanisms. For example, if there are already large block holders of stock that provide effective monitoring, or if the incentives of managers are already aligned to those of shareholders, the impact of local owners on governance should be correspondingly lower.

We therefore expect to find that local ownership is more effective when equity dependence is high and when blockholding and alignment between managers and shareholders are low. To test this prediction, we replicate our tests using interactions between Local Ownership (LO) and several variables. We assess equity dependence using Kaplan and Zingales' (1997) KZ index of financial constraints. Baker, Stein and Wurgler (2003) use the KZ index to show that equity-dependent firms rely more heavily on external capital when making investment decisions. Higher values of the KZ index indicate higher financial constraints and therefore higher equity-dependence. Blockholdings are measured by the proportion of shares held by institutional investors (mutual funds or otherwise) that hold positions of 5% or more. To measure the alignment between managers and shareholders, we use the level of the managers' equity-based compensation, defined as the Black-Scholes value of recently awarded options relative to total compensation (Datta et al., 2001).

The results, reported in Table 9, support our predictions. Column 1 shows that, the interaction between LO and financial constraints is negative and significant, indicating that the impact of Local Ownership on the governance index is stronger in the case of equity-dependent firms. Columns 2 and 3, on the contrary, show that the effect of Local Ownership on governance is lessened in the presence of large block holdings and in the case of firms in which managers have a higher portion of their compensation tied to the stock price. Similar effects, but of the opposite sign, can be observed with respect to liquidity, in columns 4 through 6. The impact of local owners on illiquidity is higher in equity dependent firms, and lower in firms where alternative mechanisms of control are in place.

8. Discussion

What could be alternative explanations to our results? Local investors, even if not better informed, might "care" more about local companies, since they may have relatives or friends working in local companies, or companies may play a role in local infrastructure. This story could therefore constitute an alternative explanation of our governance results. Our view is that it is difficult that such "local concern" is completely unrelated to information: first, because we would then expect not to find any impact of local investment on liquidity; second, because it is precise these types of relationships that provide local owners with all kinds of 'soft' information about the company that is hard for other investors to acquire. What really matters to our results is whether investors are differentially more informed and have the incentives (that is, sizeable stakes) to act on that information.

There is also some debate concerning whether local investment is really informed investment, especially among retail investors (Zhu, 2002; Ivkovich and Weisbenner, 2004). Our paper does really not address this issue, since we focus on mutual funds, which are considered sophisticated investors. We argue however that our setting is the appropriate one to study the impact of private information on monitoring and liquidity, because these are investors with small to moderate stakes that can influence the firm's course of action while still retaining the ability to trade undetected. Our results therefore fall squarely within the camp of local ownership as a form of acquiring inexpensive information. We believe that the findings concerning investment policy are particularly convincing in that respect.

Finally, there could be some omitted variable that is correlated with local investment and who could constitute the driving force behind our results. One possibility is that local ownership of mutual funds is correlated with local ownership of other investor types, like local pension funds or local banks. The data necessary to address this issue does not exist, and gathering it manually would constitute a task of gigantic proportions. We were however particularly careful to account for all different types of ownership for which broad data does exist (like firm managers, institutions and block holders). Only further research can shed light on this issue.

9. Conclusion

Our paper uses local ownership as a measure of informed shareholding that is less subject to the usual criticisms of endogeneity. This measure provides an identifying restriction that allows us to empirically disentangle the effects of ownership structure.

The evidence presented in this paper is consistent with the idea that geographical proximity is an inexpensive way of obtaining information about a firm. Local investors can gather valuable information about the firm, which they can use to influence the firm's course of action. However, outside investors will recognize this informational ability and, as a consequence, the liquidity of the stock will suffer.

In their paper, Coval and Moskowitz (2001) conclude that it is puzzling the fact that so few funds do actually "go local" by investing in stocks where they have informational advantages. Our paper suggests that, besides the under-diversification motive that they mention, the liquidity costs of such movement will weigh on the valuation of the shares. In equilibrium, the observed ownership level of local investment adjusts to reflect the trade-off between its respective costs and benefits.

Appendix A: The merge of the datasets and the construction of the distance measures

To construct the measure of distance between a firm and its investors, we aggregate data from several data sources. To construct the measure of distance between a firm and its investors, we aggregate data from several data sources. The first source is the data set resulting from merging the CRSP Survivor-Bias Free US Mutual Fund database with the Thomson Financial/ Spectrum database of Mutual Fund Holdings. The merging procedure follows the suggestions of Wermers (2000). We proceed as follows.[24] First, we perform a merge based on the ticker code. The ticker is the five-digit code that is used to represent a stock or a mutual fund (it is an unofficial way of identifying a fund and there are no guarantees about it being unique). We found it to be reasonably consistent and hence we use it as the first step in generating the match between CRSP and SPECTRUM.[25] Ticker data is available in SPECTRUM only for three years, 1999, 2000 and 2001. The 1999 ticker matches are then extrapolated back for the prior years. The reliability of the ticker merge weakens as we move back in time as tickers of some funds change, funds die and their tickers can be reused.

A second step involves the name of the fund. Unfortunately, the CRSP database uses a 50-character text field for the fund's name, while SPECTRUM uses a 25-character field. Names are abbreviated differently in the two databases. We use a name recognition-code written in Delphi to match the two strings of text. Fund names from the two databases are arranged side by side and each fund name is compared with all fund names in the other database.[26] A name-matching algorithm compares these two strings, with a match above 90 percent being accepted. If there is a conflict in the merge between the name and the ticker merge, we consider the ticker merge as valid. Finally, for all the other cases as well as the ones that seemed to be dubious, we performed an 'eye match'. That is, funds are manually compared against each other.

The merge procedure is also useful in two other aspects. First, while CRSP Mutual Funds identifies different classes of same mutual funds as distinct funds, SPECTRUM has a single record for them. This is also described in Wermers (2000). Thus the merger procedure allowed us to identify multiple share classes of the same fund. Second, we identified all fund names with the string 'index', which was useful to filter out index funds from our analysis.

[24] The procedure is similar to the one proposed by Wermers (2000).

[25] The ticker in CRSP comes from the annual summary data file. The column called ticker has the NASDAQ ticker symbol as a five-character field. In SPECTRUM, the ticker comes from the file 8, the Fund Ticker Information file. The fund ticker symbol here is also a five-character symbol.

The resulting data set, called FUNDS, contains the quarterly holdings of each fund in each stock, the identification of the management firm to which the fund is affiliated, as well as the name of the individual fund manager.

The second source is the Nelson Directory of Investment Managers. This data source contains the names and geographic location (city and state) of individual mutual fund managers (organized by management firm). We merge the FUNDS data with the Nelson data using an 3-pass procedure: in the first pass, we match management firm names in each database, using a name-recognition algorithm; in the second pass, for each management firm matched in the first stage, we match names of individual managers; finally, in the third pass, we match every individual manager in one database with every fund manager in the other. This third additional step is necessary for two reasons: first, it is often the case that a management firm subcontracts management of specific funds to other management firms; second, there is a considerable number of mergers between management firms during the sample period. We make a considerable number of cross-checks on our results during each pass, using individual fund's prospectuses and management firm annual reports. These cross-checks are particularly important in the case of fund families that have grown through acquisitions, to ensure the highest possible matching accuracy. We call the resulting data set NELSON+FUNDS.

The quality of the NELSON+FUNDS match is very high. The funds matched represent 90% in terms of number and 99% in terms of assets of the starting FUNDS sample (there are 13,000 funds per year on average, with a mean 5.6 US$ Bn. in assets under management). 51% (52% in terms of assets) of the funds matched come from a direct match on manager name. The remainder are matches at the management firm level.[27] In that case, we take the manager's location as the location of the headquarters of the management firm.

The third data source also results from a merge of two databases: the CRSP-Compustat Merged (CCM) database, that contains stock market and accounting data for publicly listed firms in the U.S.; and the Thomson Financial/Disclosure database, from which we extract data concerning the location (city and state) of a firm's headquarters. The two databases are merged using the CUSIP identifier. If a CCM firm does not exhibit a corresponding match in Disclosure, we use the 'Firm Location Code' field in CCM (that contains the firm's *county* and state) as the firm's location. In the final data set, that we call FIRMS, 86% of the firms in

[26] Certain assumptions were made about the way the fund names were abbreviated in SPECTRUM. For example, for in each name of the fund, the word fund is dropped in SPECTRUM, company is abbreviated as Co.

[27] Out of these, nearly half (about 22% in terms of assets) refer to funds "non-matchable" at the manager level, that is, funds whose 'Manager Name' field in CRSP is empty or contains keywords like "Team managed", etc.

CCM have location data (of which 60% for city and state and 26% for county and state). Out of the remainder 14% for which we did not obtain location data, the vast majority (12.3%) are foreign firms located outside the U.S..

The final data source we use is the Geographic Names Information System (GNIS) Populated Places file that contains latitude and longitude data for all cities, towns, housing subdivisions, and neighborhoods throughout the U.S. We merge FIRMS, NELSON+FUNDS and the GNIS data to obtain the latitude and longitude of each firm and the latitude and longitude of every fund manager.[28] We are then able to calculate the distance between each firm and the fund managers that hold the firm in their portfolio.

[28] We assume that a firm is located in the largest city (in terms of population) within a county in all cases where we only have information about county and state of location.

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Table 1
Sample Characteristics

This table presents summary statistics for the sample used in this study. The sample includes all firms in the CRSP-Compustat Merged universe for the period 1990-2002 that have non-missing values for capitalization, distance, mutual fund ownership, governance and illiquidity variables (see Appendix A for a detailed description of the construction of the dataset). We remove securities with share codes different from 10 or 11, as well as financial companies and utilities. Following Coval and Moskowitz (2001), we define a mutual fund as 'local' if the mutual fund's manager is located within a 100-km radius of the company's headquarters. Local Ownership is calculated as

$$\text{Local Ownership} = \frac{\sum_{i \in N_j} V_{i,j}}{\sum_{i \in M} V_{i,j}} - \frac{\sum_{i \in N_j} V_i}{\sum_{i \in M} V_i}$$

where Nj is the set of local mutual funds (within 100 km of the headquarters of stock j), M is the universe of mutual funds, $V_{i,j}$ is the dollar value of fund i's stake on stock j, and V_i is the total asset value of fund i. The second term above corrects for the fact that mutual fund managers are not uniformly located across the US. Raw Local Ownership is equal to the fraction of the firm held by local mutual funds relative to the total mutual fund holdings in the firm (that is, it equals the first term in the above expression). Governance is the Governance Index of Gompers, Ishii and Metrick (2003), calculated from 24 corporate-governance provisions compiled by the Investor Responsibility Research Center. The index is obtained by summing one point for each provision that restricts shareholder rights (such that higher levels of the index represent weaker shareholder rights). The illiquidity of each stock is obtained, following Amihud (2002), by first calculating for each month the quantity

$$\text{ILLIQ}_{j,t} = \frac{1}{Days_{j,t}} \sum_{d=1}^{Days_{j,t}} \frac{\left|R_{j,t,d}\right|}{DVol_{j,t,d}}$$

where $Days_{j,t}$ is the number of valid observation days in month t, $R_{j,t,d}$ is the return and $Dvol_{j,t,d}$ is the dollar volume days of stock j on day d of month t. Illiquidity is defined as the yearly average of ILLIQ (multiplied by 10^6). Mutual fund ownership is the ratio of a firm's shares held by mutual funds relative to total shares outstanding. Non-Mutual Fund Institutions is the ratio of a firm's shares held by other institutional investors (defined as in the Thomson Financial/Spectrum 13F database) relative to total shares outstanding. Block Holdings is the ratio of a firm's shares held by institutional investors (mutual funds or otherwise) that hold positions of 5% or more in the firm, relative to total shares outstanding. Insider Block Dummy is a dummy variable equal to 1 if an insider block is reported in the TFN Insiders database. Management holdings is the ratio of a firm's shares held by management officers of the firm (obtained from the S&P's ExecuComp database) relative to total shares outstanding. Market capitalization is obtained from CRSP. Investment is capital expenditures (item 128) over lagged assets. Tobin's Q is constructed as follows. The numerator (Fama and French, 2002) is equal to liabilities (item 181) minus deferred taxes and investment credit (item 35) plus preferred stock (item 10, or 56, or 130, in that order) plus market value of equity (item 25 times item 199). The denominator (Lang and Stulz, 1994) is the sum of replacement value of property, plant and equipment (PPE), inventory (INV), and other assets. The replacement value of PPE is equal to the change in item 8 plus lag PPE×(1 −depreciation rate) × (1 + inflation rate). The depreciation rate is set at 5% and inflation is given by the CPI series of the Federal Reserve's FRED database. The replacement value of INV depends on the accounting method used: item 3 + (change in item 3) × (1 + inflation × 0.5) if LIFO is used; item 3 if FIFO is used; (item 3) × (1 + inflation × 0.5) if average cost method is used; item 3 for all other methods. The accounting method is obtained from item 59. The replacement value of other assets is the sum of items 68 and 69. The number of analysts following the stock is taken from the I/B/E/S database. Volume is the average monthly number of shares traded over total shares outstanding. Listing on the NYSE is obtained from CRSP.

Table 1
Sample Characteristics (cont.)

Variable	N	Mean	Std. Dev.	Q1	Median	Q3
Local Ownership	11,010	0.01	0.10	-0.02	0.00	0.01
Raw Local Ownership	11,010	0.07	0.13	0.00	0.01	0.07
Governance Index	11,010	9.09	2.81	7.00	9.00	11.00
Illiquidity	10,789	0.05	0.22	0.00	0.01	0.03
Mutual Fund (MF)	11,010	0.13	0.08	0.07	0.12	0.19
Non-MF Institutions	11,010	0.47	0.13	0.38	0.48	0.56
Block Holdings	11,010	0.16	0.11	0.07	0.14	0.22
Insider Block dummy	10,367	0.25	0.43	0.00	0.00	0.00
Mgmt. Holdings	7,901	0.01	0.02	0.00	0.00	0.01
Market Cap. (USD $Bn)	11,010	5.29	19.92	0.38	1.02	3.01
Investment	10,837	0.08	0.07	0.03	0.06	0.09
Tobin's Q	11,010	4.88	6.89	1.85	2.80	5.00
Number of Analysts	10,731	11.17	8.23	4.83	9.25	15.67
Volume	10,934	11.87	11.28	4.98	8.03	14.02
NYSE Dummy	11,010	0.71	0.46	0.00	1.00	1.00

Table 2
Do Local Owners Have an Impact on Firm Governance?

This table presents Instrumental Variables estimates of the relation between Local Ownership and the Governance Index. The left-hand side variable is the Governance Index of Gompers, Ishii and Metrick (2003), where higher levels of the index represent weaker shareholder rights. Local Ownership is calculated as

$$\text{Local Ownership} = \frac{\sum_{i \in N_j} V_{i,j}}{\sum_{i \in M} V_{i,j}} - \frac{\sum_{i \in N_j} V_i}{\sum_{i \in M} V_i}$$

where Nj is the set of local mutual funds (within 100 km of the headquarters of stock j), M is the universe of mutual funds, $V_{i,j}$ is the dollar value of fund i's stake on stock j, and V_i is the total asset value of fund i. Size is the log of market capitalization. Mutual fund ownership is the ratio of a firm's shares held by mutual funds. Non-Mutual Fund Institutions is the ratio of a firm's shares held by other institutional investors. Analysts is the log of the number of analysts following the stock. Volume is the average monthly number of shares traded over total shares outstanding. Block Holdings is the proportion of a firm's shares held by institutional investors (mutual funds or otherwise) that hold positions of 5% or more in the firm. Insider Block Dummy is a dummy variable equal to 1 if an insider block is reported in the TFN Insiders database. Listing on the NYSE is obtained from CRSP. Cash-Flow is income before extraordinary items (item 18) plus depreciation and amortization (item 14) over lagged assets (item 6). Cash is total cash (item 1) over assets. Management holdings is the ratio of a firm's shares held by management officers of the firm relative to total shares outstanding. Equity-Based Compensation is the proportion of total compensation to the management officers of the firm paid in the form of stock options (Datta et al., 2001). All right-hand side variables refer to beginning of year values. In Column 3 Local Ownership is replaced by interaction variables equal to its level if Local Ownership falls within the indicated percentages, and zero otherwise. Industry dummies follow the Fama and French (1997) industry definitions. The bottom of the table displays the p-value of Hansen's J test of the null hypothesis that the instruments used are orthogonal to the errors. T-statistics use robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Dependent Variable:	Governance Index							
	(1)		(2)		(3)		(4)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	5.041	4.65***	6.907	6.01***	7.619	5.21***	7.431	6.65***
Size	0.160	3.23***	0.015	0.20	-0.012	-0.14	-0.021	-0.25
MF Ownership	-2.725	-3.40***	-0.318	-0.35	-1.117	-1.03	-0.551	-0.58
Non-MF Institutions	3.980	8.41***	4.012	6.93***	4.162	6.20***	2.864	4.18***
Local Ownership	-6.206	-1.97**	-7.839	-2.09**			-9.027	-1.98**
LO <= 5 %					-3.573	-0.46		
5 < LO <= 25 %					-35.918	-2.60**		
LO > 25 %					-15.673	-2.88***		
Number of Analysts			0.068	0.52	-0.045	-0.29	0.099	0.68
Volume			-1.867	-3.44***	-1.481	-2.33**	-1.717	-2.64***
Block Holdings			-2.362	-3.42***	-2.349	-2.76***	-2.088	-2.82***
Insider Block Dummy			-0.489	-3.74***	-0.482	-3.32***	-0.483	-3.51***
NYSE Dummy			0.630	3.87***	0.592	2.73**	0.676	3.40***
Cash-Flow			-1.738	-4.07***	-1.976	-3.98***	-1.114	-2.20**
Cash			-1.705	-4.16***	-2.023	-4.04***	-1.430	-3.15***
Mgmt. Holdings							-10.545	-3.16***
Equity-Based Compensation							-0.482	-1.96*
Industry Dummies	yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes	
N	10452		9315		9315		7267	
Adjusted R^2	0.066		0.099		0.096		0.098	
Hansen's J (p-value)	0.269		0.352		0.300		0.288	

Table 3
Do Local Owners Have an Impact on Firm Illiquidity?

This table presents Instrumental Variables estimates of the relation between Local Ownership and Illiquidity. The left-hand side variable is the yearly average (multiplied by 10^6) of ILLIQ (Amihud, 2002), defined as

$$\text{ILLIQ}_{j,t} = \frac{1}{Days_{j,t}} \sum_{d=1}^{Days_{j,t}} \frac{\left|R_{j,t,d}\right|}{DVol_{j,t,d}}$$

where $Days_{j,t}$ is the number of valid observation days in month t, $R_{j,t,d}$ is the return and $Dvol_{j,t,d}$ the dollar volume days of stock j on day d of month t. Beta is the stock's measure of systematic risk, defined as the regression coefficient of a CAPM regression performed using the past 5 years of monthly returns. Price is the stock's average market price throughout the year. The remaining right-hand side variables are measured following the definitions detailed in the caption to Table 2. All right-hand side variables refer to beginning of year values. The bottom of the table displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Dependent Variable:	Illiquidity							
	(1)		(2)		(3)		(4)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	0.839	10.72***	0.578	10.21***	0.489	6.89***	0.431	8.01***
Size	-0.051	-12.35***	-0.030	-8.79***	-0.027	-7.05***	-0.025	-7.44***
MF Ownership	0.002	0.04	-0.012	-0.36	0.015	0.39	-0.047	-1.36
Non-MF Institutions	-0.219	-6.30***	-0.202	-7.32***	-0.186	-6.53***	-0.171	4.79***
Local Ownership	0.647	3.08***	0.372	2.35**			0.480	2.12**
LO <= 5 %					-0.667	-1.07		
5 < LO <= 25 %					0.795	2.33**		
LO > 25 %					0.490	2.32**		
Number of Analysts			-0.003	-0.56	0.001	0.09	0.002	0.46
Volume			-0.132	-5.37***	-0.144	-5.07***	-0.113	-5.10***
Block Holdings			0.138	4.38***	0.109	3.36***	0.136	3.84***
Insider Block Dummy			-0.001	-0.09	0.001	0.20	-0.003	-0.43
NYSE Dummy			-0.021	-2.26**	-0.025	-2.57**	-0.015	-1.74
Beta			-0.014	-3.07***	-0.015	-3.04***	-0.005	-1.15
Price			-0.000	-2.05**	-0.000	-2.30**	-0.000	-0.82
Mgmt. Holdings							-0.233	-1.87*
Equity-Based Compensation							-0.001	-0.15
Industry Dummies	yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes	
N	10235		9212		9212		7137	
Adjusted R^2	0.096		0.162		0.119		0.070	
Hansen's J (p-value)	0.263		0.582		0.501		0.432	

Table 4
Raw Local Ownership, Governance and Illiquidity

This table presents Instrumental Variables estimates of the relation between Raw Local Ownership and Governance, and Raw Local Ownership and Illiquidity. The specifications reported replicate Columns 1, 2 and 4 of Tables 2 and 4, with the exception that Local Ownership is replaced by Raw Local Ownership, the fraction of the firm held by local mutual funds relative to the total mutual fund holdings in the firm. Please refer to the captions of Tables 2 and 4 for a complete description of the variables. All right-hand side variables refer to beginning of year values. The bottom of the table displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Dependent Variable:	Governance Index						Illiquidity					
	(1)		(2)		(3)		(4)		(5)		(6)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	5.315	4.31***	6.931	5.64***	7.146	6.82***	0.843	12.49***	0.556	11.30***	0.421	7.78***
Size	0.181	3.85***	0.068	0.69	0.030	0.40	-0.052	-12.51***	-0.029	-9.78***	-0.022	-7.43***
MF Ownership	2.177	3.25***	0.424	0.51	0.120	0.14***	0.322	1.00	-0.022	-0.74	-0.035	-1.18
Non-MF Institutions	3.847	8.64***	3.723	-7.06***	2.675	4.39***	-0.229	-6.61***	-0.196	-7.50***	-0.170	-4.92***
Local Ownership	-2.197	-2.33**	-2.724	-2.66***	-2.821	-2.57**	0.176	2.44**	0.098	2.00**	0.156	2.01**
Number of Analysts			0.014	0.13	0.045	0.39			-0.006	-1.38	0.005	1.29
Volume			-1.646	-3.17***	-1.694	-2.80***			-0.128	-4.71***	-0.088	-4.35***
Block Holdings			-2.128	-3.29***	-1.746	-2.55***			0.137	4.58***	0.128	4.00***
Insider Block Dummy			-0.497	-4.21***	-0.464	-3.60***			0.001	0.16	-0.001	-0.29
NYSE Dummy			0.765	4.23***	0.728	3.72***			-0.024	-2.49**	-0.017	-1.95*
Cash-Flow			-1.785	-4.53***	-1.185	-2.52**						
Cash			-1.608	-4.14**	-1.359	-3.12***						
Beta									-0.014	-3.34***	-0.008	-2.12**
Price									-0.000	-2.18**	-0.000	-1.56
Mgmt. Holdings					-11.245	-3.40***					-0.195	-1.66
Equity-Based Compensation					-0.324	-1.37					0.004	0.61
Industry Dummies	yes		yes		yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes		yes		yes	
N	10452		9315		7267		10235		9212		7137	
Adjusted R^2	0.105		0.156		0.172		0.162		0.185		0.129	
Hansen's J (p-value)	0.215		0.720		0.822		0.278		0.396		0.474	

Table 5

The informational dimension of local ownership

This table presents Instrumental Variables estimates of the relation between Local Ownership and the Governance Index, for several subsets of our sample. The left-hand side variable is the Governance Index of Gompers, Ishii and Metrick (2003), where higher levels of the index represent weaker shareholder rights. The right-hand side variables are all measured following the definitions detailed in the caption to Table 2. All right-hand side variables refer to beginning of year values. Columns 1, 3 and 5 display estimation results for the subsamples of companies that are below the median (in each year) in terms of, respectively, number of analysts, firm size (log of capitalization) and the log of total idiosyncratic volatility. Columns 2, 4 and 6 display the estimations results for companies above the median for each of those three variables. Log of Idiosyncratic Volatility is the log of yearly sum of the monthly idiosyncratic volatilities, where the latter is the sum of squares of daily residuals obtained from fitting a CAPM model (estimated with past 3 years data) to observed daily returns in the current month. The bottom of the table displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero. The bottom panel shows comparative statics results (of the impact of Local Ownership on Governance) for each subsample.

Table 5

The informational dimension of local ownership (cont.)

Dependent Variable:	Governance Index											
	Firms by Number of Analysts				Firms by Size				Firms by Id. Volatility			
	Below median		Above median		Below median		Above median		Below median		Above median	
	(1)		(2)		(3)		(4)		(5)		(6)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	6.184	3.82***	8.040	6.63***	8.036	4.78***	9.093	4.69***	8.024	5.67***	7.381	5.24***
Size	0.066	0.63	-0.043	-0.40	-0.029	-0.27	-0.214	-1.69	-0.108	-0.96	0.041	0.52
MF Ownership	0.096	0.08	-0.462	-0.39	-0.443	-0.37	-0.253	-0.19	0.413	0.28	-1.301	-1.31
Non-MF Institutions	4.274	5.64***	3.928	4.88***	4.013	5.43***	4.497	4.75***	4.189	4.94***	2.985	4.55***
Local Ownership	-6.419	-1.69*	-12.742	-2.18**	-5.309	-1.90*	-23.361	-2.19**	-7.987	-1.84*	-10.067	-2.00**
Number of Analysts	-0.134	-0.80	0.271	1.32	-0.142	-0.96	0.296	1.27	0.147	0.77	0.010	0.07
Volume	-3.048	-3.59***	-1.306	-1.84*	-1.648	-2.48**	-2.542	-3.02***	-0.914	-0.59	-1.324	-2.40***
Block Holdings	-2.888	-3.30***	-2.188	-2.29**	-2.771	-3.19***	-2.358	-1.99**	-2.892	-2.91***	-1.191	-1.43
Insider Block Dummy	-0.382	-2.48**	-0.615	-3.62***	-0.418	-2.84***	-0.581	-2.88***	-0.393	-2.21**	-0.549	-3.86***
NYSE Dummy	0.738	3.30***	0.455	1.75*	0.792	3.67***	0.255	0.84	0.689	2.46**	0.549	2.66**
Cash-Flow	-1.630	-2.99***	-2.206	-3.87***	-1.918	-3.85***	-1.589	-2.34**	-2.198	-1.90*	-1.608	-3.68***
Cash	-1.687	-3.09***	-1.559	-2.84*	-1.439	-2.89***	-1.851	-2.61**	-2.404	-2.88***	-1.508	-3.24***
Industry Dummies	yes		yes		yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes		yes		yes	
N	4429		4886		4394		4921		4833		4482	
Adjusted R^2	0.102		0.080		0.095		0.082		0.081		0.122	
Hansen's J (p-value)	0.273		0.216		0.288		0.285		0.288		0.253	
Subsample:												
Average Governance	8.84		9.32		8.68		9.47		9.73		8.43	
Average Local Own.	0.018		0.009		0.019		0.009		0.015		0.013	
Std. Dev. Local Own.	0.117		0.087		0.125		0.075		0.097		0.107	
Comparative Statics[a]	0.796		1.149		0.723		1.762		0.774		1.135	

[a] Impact on Governance of a one std. dev.-size shock in Local Ownership

Table 6
Local Ownership and Prices – Single-Equation Analysis

This table presents estimates of the relation between Local Ownership and Tobin's Q. Panel A presents OLS estimates, while Panel B presents Instrumental Variables (IV) estimates. In Panel B Local Ownership is instrumented with the location dummies used in the previous tables. Segment Number is the firm's number of reported segments (lines of business) reported in Compustat. Segment Concentration is the firm's Herfindahl Index of sales across its reported segments. Leverage is defined as total long-term debt (data item 9) over total assets (item 6). ROA is operating profits (before depreciation, interest, special items and taxes) over total assets. The numerator is calculated as sales (item 12) minus cost of goods sold (item 41) minus selling, general and administrative expenses (item 189). Whenever this is not possible, we use operating income (item 13). Log of Idiosyncratic Volatility is the log of yearly sum of the monthly idiosyncratic volatilities, where the latter is the sum of squares of daily residuals obtained from fitting a CAPM model (estimated with past 3 years data) to observed daily returns in the current month. Please refer to the captions of Tables 2 and 4 for a complete description of all other variables. All right-hand side variables refer to beginning of year values. The bottom of Panel B displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Panel A: OLS Estimates

Dependent Variable:	Tobin's Q					
	(1)		(2)		(3)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	-10.373	-5.99***	-10.475	-6.01***	-10.338	-5.14***
Size	1.702	9.96***	1.698	9.97***	1.698	8.67***
MF Ownership	4.926	2.44**	4.906	2.43**	4.906	2.49**
Non-MF Institutions	-1.698	-1.85*	-1.629	-1.77*	-1.629	-1.24
Local Ownership	-1.861	-2.48**			-1.589	-2.97***
LO <= 5 %			-4.670	-2.01**		
5 < LO <= 25 %			-5.400	-2.12**		
LO > 25 %			-0.502	-0.58		
Number of Analysts	-1.654	-7.15 ***	-1.621	-7.07 ***	-1.151	-5.60***
Volume	9.395	6.44 ***	9.373	6.43 ***	4.196	2.77***
Block Holdings	0.404	0.35	0.246	0.21	1.168	1.20
Insider Block Dummy	0.450	2.38 **	0.440	2.32 **	0.469	2.50**
NYSE Dummy	-2.669	-6.83 ***	-2.689	-6.88 ***	-1.854	-5.18***
Cash-Flow	2.781	1.52	2.817	1.54	4.639	3.04***
Segment Concentration	0.276	3.76 ***	0.276	3.76 ***	0.460	0.75
Segment Number	-0.304	-5.61 ***	-0.306	5.65 ***	-0.174	3.66***
Leverage					-4.685	-8.48***
Return on Assets					4.432	2.12**
Idiosyncratic Volatility					3.930	6.47***
Industry Dummies	yes		yes		yes	
Time Dummies	yes		yes		yes	
N	9310		9310		8462	
Adjusted R^2	0.246		0.247		0.279	

Table 6

Local Ownership and Prices – Single-Equation Analysis (cont.)

Panel B: IV Estimates						
Dependent Variable:	Tobin's Q					
	(1)		(2)		(3)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	-10.077	-4.65***	-10.652	-4.84***	-10.331	-4.30***
Size	1.503	8.71***	1.534	8.85***	1.345	8.01***
MF Ownership	3.735	1.82*	4.403	2.02**	3.205	1.64*
Non-MF Institutions	-1.689	-1.78*	-1.858	-1.89*	-1.360	-1.54
Local Ownership	-4.042	-0.68			-5.041	-0.97
LO <= 5 %			-7.081	-0.78		
5 < LO <= 25 %			22.076	0.94		
LO > 25 %			1.614	0.19		
Number of Analysts	-1.447	-6.40 ***	-1.378	-5.60 ***	-1.057	-5.46***
Volume	6.728	4.62 ***	6.511	4.42 ***	3.034	1.98***
Block Holdings	1.014	0.86	1.095	0.88	1.628	1.59
Insider Block Dummy	0.425	2.26 **	0.425	2.21 **	0.468	2.45**
NYSE Dummy	-2.354	-5.96 ***	-2.286	-5.82 ***	-1.771	-4.93***
Cash-Flow	4.303	2.56 **	4.491	2.65**	4.886	3.20***
Segment Concentration	0.245	2.88 ***	0.253	2.84 ***	0.790	1.25
Segment Number	-0.247	-4.77 ***	-0.250	-4.76 ***	-0.174	-3.66***
Leverage					-3.718	-6.39***
Return on Assets					4.392	2.16**
Idiosyncratic Volatility					2.779	4.31***
Industry Dummies	yes		yes		yes	
Time Dummies	yes		yes		yes	
N	9310		9310		8462	
Adjusted R^2	0.404		0.269		0.305	

Table 7
Local Ownership and Prices – Simultaneous Equations Analysis

This table presents Three-Stage Least Squares estimates of the simultaneous relation between Local Ownership, Governance, Illiquidity and Tobin's Q. All variables follow the definitions provided in the captions of Tables 2, 3, and 6. All right-hand side variables refer to beginning of year values. Location Dummies refer to the location dummy variables of whether a firm is located in one of the 21 major cities in the US, as well as a dummy for location in a remote city (that is, more than 250 km away from a major metropolitan area) (Coval and Moskowitz, 2001). The bottom of the table displays the p-value of a Chi-Square joint significance test of the right-hand side variables. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Panel A: Local Ownership, Governance, Illiquidity and Tobin's Q

Dependent Variable:	Governance Index		Illiquidity		Local Ownership		Tobin's Q	
	(1)		(2)		(3)		(3)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Governance Index			0.025	11.66***	-0.002	-0.47	-0.239	-3.38***
Illiquidity	19.030	19.73***			0.009	0.21	-32.120	-9.38***
Local Ownership	-6.002	-4.72***	0.131	3.17***			-1.106	-0.60
Tobin's Q	-0.071	-2.61***	0.001	0.79	-0.002	-1.89*		
Intercept	-1.419	-2.13**	0.215	9.29***	-0.031	-1.01	12.307	9.10***
Size	0.520	13.35***	-0.021	-18.21***	0.001	0.38	-0.421	-5.15***
MF Ownership	0.803	1.69*	-0.048	-3.22***	-0.007	-0.40	-0.518	-0.73
Non-MF Institutions	5.545	18.92***	-0.189	-16.6***	0.032	1.91*	-2.298	-3.86***
Number of Analysts	0.180	3.13***	-0.011	-6.23***	-0.010	-5.02***	-0.344	-3.87***
Volume	-0.107	-0.30	-0.045	-3.83***	0.022	1.56	-3.459	-5.81***
Block Holdings	-3.588	-9.83***	0.131	10.75***	-0.018	-1.18	1.412	2.26**
Insider Block Dummy	-0.45	-6.64***	0.0092	3.75***	0.0037	1.21	-0.196	-1.68*
NYSE Dummy	0.870	10.96***	-0.032	-11.03***	-0.004	-1.03	-0.774	-5.71***
Cash-Flow	-0.803	-3.37***					-0.202	-0.45
Cash	-0.791	-3.44***						
Beta			0.001	0.60				
Price			0.000	-5.39***				
Segment Concentration							0.789	13.75***
Segment Number							0.083	4.41***
Location Dummies					yes			
Industry Dummies	yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes	
N	8978		8978		8978		8978	
Adjusted R^2	0.100		0.048		0.071		0.489	
p-value of Chi-Square	0.00		0.00		0.00		0.00	

Table 7

Local Ownership and Prices – Simultaneous Equations Analysis (cont.)

Panel B: Local Ownership, Governance, Illiquidity and Tobin's Q

Dependent Variable:	Governance Index		Illiquidity		Local Ownership		Tobin's Q	
	(1)		(2)		(3)		(4)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Governance Index			0.018	10.04***	0.002	0.76	-0.182	-2.99***
Illiquidity	13.576	13.33***			0.031	0.77	-21.09	-7.64***
Local Ownership	-3.989	-3.25***	0.096	2.74***			-1.749	-1.18
Tobin's Q	-0.045	-4.74***	0.001	4.83***	-0.000	-1.11		
Intercept	-0.684	0.99	0.267	12.70***	-0.078	-2.61**	8.649	7.95***
Size	0.406	9.84***	-0.021	-18.24***	0.002	0.95	-0.234	-3.56***
MF Ownership	1.037	2.11**	-0.059	-3.99***	-0.007	-0.40	-0.344	-0.56
Non-MF Institutions	5.105	16.69***	-0.169	-15.81***	0.028	1.86*	-1.883	-3.82***
Number of Analysts	0.133	2.22***	-0.011	-5.87***	-0.013	-5.95***	-0.194	-2.55***
Volume	-0.590	-1.59	-0.065	-5.53***	0.035	2.42**	-4.050	-6.45***
Block Holdings	-3.347	-8.82***	0.124	10.45***	-0.019	-1.28	1.561	2.94**
Insider Block Dummy	-0.385	-5.49***	0.004	1.89*	0.007	2.17**	-0.056	-0.57
NYSE Dummy	0.851	10.50***	-0.027	-9.87***	-0.004	-1.20	-0.546	-4.65***
Cash-Flow	-1.563	-5.53***					-1.879	-3.30***
Cash	-1.075	-4.09***						
Beta			-0.001	-0.03				
Price			-0.000	-6.63***				
Segment Concentration							-0.096	-0.46
Segment Number							-0.007	-0.34
Leverage							-0.690	-0.34
Return on Assets							2.263	3.66***
Idiosyncratic Volatility							0.826	2.95***
Location Dummies					yes			
Industry Dummies	yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes	
N	8191		8191		8191		8191	
Adjusted R^2	0.038		0.044		0.077		0.489	
p-value of Chi-Square	0.00		0.00		0.00		0.00	

Table 8
Local Ownership and Investment Policy

This table presents Instrumental Variables estimates of the relation between Local Ownership and three different left-hand side variables related to investment policy: Investment, the likelihood of making an acquisition bid, and the bidder's short-term stock price performance from such acquisitions. Probit regressions for the likelihood of acquisition are conducted using the Newey (1987) estimator. The bidder's short-term stock price performance equation is estimated using Heckman's sample-selection correction technique (Heckman, 1979). Investment is defined as capital expenditures (Compustat annual data item 128) over lagged assets. Acquisition bids are obtained from all acquisition bids (with non-missing values for the relevant variables) recorded in the SDC database for the sample period (1990-2002). The bidder's abnormal return is defined as the cumulative abnormal return, measured relative to a CRSP value-weighted market model regression using a year of prior daily data, to the bidder firm's stock for trading days [-63,+126] relative to the announcement date (Schwert, 2000). Percentage Sought denotes the percentage of the target firm's shares that the firm wishes to acquire. Tender Offer is a dummy variable equal to one if the bid involved a tender offer. Competing bids is a dummy variable indicating whether SDC records another bid by a different bidder for the same target firm in the following 6 months. Intra-industry is a dummy variable indicating whether the acquisition involved two firms belonging to the same Fama and French (1997) 49-industry classification. Toehold is a dummy variable equal to 1 if the fraction of the target's common stock owned by the bidder is greater than 5% at the bid announcement date. An acquisition is considered hostile if the 'attitude' field in SDC is marked 'unsolicited' or 'hostile'. The statistical significance of Heckman's Lambda can also be seen as a test for the null hypothesis that sample-selection is irrelevant in the sample. The remaining right-hand side variables are all measured following the definitions detailed in the captions to Tables 1, 2 and 4. All right-hand side variables refer to beginning of year values. The bottom of the table displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Table 8

Local Ownership and Investment Policy (cont.)

Dependent Variable:	Investment				Probability of Making an Aquisition Bid						Abnormal Returns of Acquisitions			
	(1)		(2)		(3)			(4)			(5)		(6)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	Marg. Eff.	t-stat.	Coeff.	Marg. Eff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	0.006	0.32	0.061	3.39***	-5.607		-12.44***	-6.688		-10.68***	3.571	3.08***	2.862	2.92***
Size	0.003	4.01***	-0.003	-2.45**	0.227	0.03	9.64***	0.344	0.04	9.77***	0.129	-3.12***	-0.119	-3.05***
MF Ownership	0.054	3.40***	0.030	1.80*	-0.838	-0.09	-1.89*	-0.582	-0.07	-1.31	0.294	1.52	0.143	0.75
Non-MF Institutions	-0.010	-1.12	-0.015	-1.40	0.634	0.08	2.91***	0.948	0.11	3.19***	-0.552	-3.74***	-0.555	-4.17***
Local Ownership	-0.284	-3.92***	-0.234	-3.42***	-1.591	-0.18	-3.40***	-1.375	-0.16	-2.54**	7.29	2.92***	5.449	2.46**
Number of Analysts			0.008	3.85***				-0.249	-0.03	-2.64**			0.06	2.37**
Volume			0.038	2.72***				0.429	0.05	1.47			-0.08	-0.5
Block Holdings			0.000	0.05				-0.171	-0.02	-0.51			0.17	1.2
Insider Block Dummy			0.007	2.69***				0.003	0.00	0.05			0.00	-0.03
NYSE Dummy			-0.001	-0.42				-0.005	-0.00	-0.06			0.01	0.29
Cash-Flow			0.133	9.84***				-0.263	-0.03	-1.00			0.019	2.10**
Abnormal Return			0.014	7.85***				-0.053	-0.01	-0.90			-0.124	-5.51***
Percentage Sought											-7.308	-2.58**	-6.012	-2.22**
Tender Offer											0.020	0.87	0.025	1.06
Competing Bidders											-0.013	-0.26	-0.020	-0.41
Intra-Industry											0.013	0.72	0.010	0.56
Toehold											-0.000	-0.00	0.010	0.33
Hostility											0.030	0.86	0.023	0.66
Heckman's Lambda											-0.624	-3.05***	-0.474	-2.88***
Industry Dummies	yes		yes		yes			yes			yes		yes	
Time Dummies	yes		yes		yes			yes			yes		yes	
N	10293		9155		10401			9240			960		949	
Adjusted R^2	0.013		0.161		0.131			0.137			0.044		0.045	
Hansen's J (p-value)	0.136		0.373		-			-			-		-	

Table 9

Channels of Influence of Local Owners

This table presents Instrumental Variables estimates of the relation between Local Ownership and Governance, and Local Ownership and Illiquidity, introducing several interaction terms not used in previous specifications. The base specification employed replicates Columns 2 of Tables 2 and 4. Financial Constraints is the KZ index of Kaplan and Zingales (1997), defined as –1.001909*[(item 18+item 14)/item 8] + 0.2826389*[(item 6+CRSPMarketEquity – item 60 – item 74)/item 6] + 3.139193*[(item 9+item 34)/(item 9+item 34+item 216)] – 39.3678*[(item 21+item 19)/item 8] – 1.314759*[item 1/item 8]. Item 8 is lagged. Please refer to Tables 2 and 4 for a complete description of the remaining variables. Financial Constraints × LO, Block Holdings × LO, and Equity-Based Compensation × LO refer to interactions between the mentioned variables and Local Ownership. All right-hand side variables refer to beginning of year values. The bottom of the table displays the p-value of Hansen's J statistic for the null hypothesis test that the instruments used are orthogonal to the errors. T-statistics are calculated using robust clustered (by firm) standard errors. The symbols ***,**,* denote significance levels of 1%, 5% and 10%, respectively, for the two-tailed hypothesis test that the coefficient equals zero.

Table 9

Channels of Influence of Local Owners (cont.)

Dependent Variable:	Governance Index						Illiquidity					
	(1)		(2)		(3)		(4)		(5)		(6)	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Intercept	6.402	5.69***	6.657	6.00***	6.914	6.39***	0.587	10.03***	0.553	11.31***	0.399	8.44***
Size	0.065	0.91	0.062	0.87	0.018	0.25	-0.029	-8.97***	-0.030	-9.43***	-0.022	-7.36***
MF Ownership	0.980	1.11	0.397	0.46	0.093	0.11	-0.013	-0.35	-0.034	-1.07	-0.014	-0.45
Non-MF Institutions	4.271	7.49***	3.807	6.98***	2.854	4.81***	-0.215	-7.41***	-0.203	-7.55***	-0.157	-5.12***
Local Ownership (LO)	-9.354	-1.96**	-9.661	-2.14**	-4.905	-2.65**	0.500	2.41**	0.965	2.14**	0.918	2.00**
Number of Analysts	0.061	-0.50	-0.008	-0.07	0.095	0.81	-0.004	-0.84	-0.004	-0.80	0.001	-0.22
Volume	-1.744	-3.07**	-1.518	-2.85***	-1.312	-2.17**	-0.139	-4.83***	-0.124	-4.73***	-0.099	-4.69***
Block Holdings	-2.587	-3.78***	-2.183	-3.24***	-1.727	-2.52**	0.155	4.42***	0.199	4.44***	0.129	3.77***
Insider Block Dummy	-0.416	-3.18***	-0.553	-4.64***	-0.629	-4.81***	0.000	0.01	-0.002	-0.31	-0.003	-0.59
NYSE Dummy	0.778	4.14***	0.705	3.81***	0.763	3.92***	-0.020	-2.01**	-0.018	-1.93*	-0.014	-1.75
Cash-Flow	-2.023	-4.45***	-1.878	-4.53***	-1.215	-2.59***						
Cash	-1.697	-3.53***	-1.703	-4.22***	-1.725	-4.06***						
Beta							-0.015	-3.25***	-0.014	-3.28***	-0.007	-1.95*
Price							-0.000	-2.62**	-0.000	-1.95*	0.000	-3.76***
Financial Constraints	0.007	0.88					0.000	-0.71				
Financial Constraints × LO	-0.515	-1.98**					0.024	2.25**				
Block Holdings × LO			17.444	1.85*					-3.397	-2.02**		
Eq.-Based Compensation					-0.336	-1.41					0.025	2.01**
Eq. Based Compensation × LO					11.777	2.70***					-1.961	-1.89*
Industry Dummies	yes		yes		yes		yes		yes		yes	
Time Dummies	yes		yes		yes		yes		yes		yes	
N	8401		9315		7267		8222		9212		7203	
Adjusted R^2	0.093		0.083		0.166		0.157		0.113		0.203	
Hansen's J (p-value)	0.357		0.223		0.229		0.696		0.325		0.608	