Local Institutional Investors, Information Asymmetries, and Equity Returns

Bok Baik, Jun-Koo Kang, and Jin-Mo Kim*

This version: August 2009

* Baik is from the Department of Accounting, College of Business, Seoul National University, Tel.: 822-880-2524, E-mail: bbaik@snu.ac.kr; Kang is from Division of Banking and Finance, Nanyang Business School, Nanyang Technological University, Nanyang Avenue, Singapore 639798, Tel.: (+65)6790-5662, E-mail: jkkang@ntu.edu.sg; and Kim is from the Department of Finance and Economics, Rutgers Business School, Rutgers University, Piscataway, NJ 08854-8054, Tel: 732-445-4236, E-mail: kimjm@business.rutgers.edu. We thank an anonymous referee for many detailed and helpful suggestions. We also thank Xuemin Yan and Zhe Zhang for providing us with institutional classification (short-term and long-term) data and Russ Wermers for providing us with updated risk-adjusted returns. We are grateful for comments from Joong Hyuk Kim, Noolee Kim, Woo Jin Kim, Dong Wook Lee, Kuan Hui Lee, Lilian Ng, Jin Yu, Dan Weaver, Ken Zhong, Xing Zhou, and seminar participants at the 2008 Korean Finance Association meeting, Florida State University, and Korea University. Kang acknowledges financial support from the Nanyang Technological University Academic Research Fund Tier 1.

Local Institutional Investors, Information Asymmetries, and Equity Returns

ABSTRACT

Using geographically proximate institutions as a close approximation to informed investors, this paper examines the informational role of institutional investors in stock markets. We find that both the level of and change in local institutional ownership predict future stock returns; in contrast, such predictive abilities are relatively weak for nonlocal institutional ownership. Moreover, the positive relation between local institutional holdings and stock performance is pronounced in firms with high information asymmetry. The positive relation is also more evident for holdings by institutions that are more likely to possess and exploit local information, such as local investment advisors, high local ownership institutions, and high local turnover institutions. Finally, we find that the stocks that local institutional investors hold (trade) earn higher excess returns around future earnings announcements than those that nonlocal institutional investors hold (trade). These findings suggest that geography proxies for the availability of information and allows local institutional investors to execute profitable trades based on their superior information.

1. Introduction

Academics and practitioners have long been interested in understanding institutional investors' informational advantages in stock investments and the impact of such advantages on stock returns. Yet, although a growing body of literature has examined these issues extensively, the results so far are not conclusive. For example, while several studies show that certain groups of institutional investors, such as mutual fund managers, are able to capitalize on their superior information (Grinblatt and Titman, 1989, 1993; Daniel, Grinblatt, Titman, and Wermers, 1997; Baker, Litov, Wachter, and Wurgler, 2007) another line of research documents that mutual fund managers underperform appropriate risk-adjusted benchmarks (Jensen, 1968; Malkiel, 1995; Gruber, 1996; Carhart, 1997).

In a related study, Gompers and Metrick (2001) find that aggregate institutional ownership is a strong and positive predictor for future returns, but the change in aggregate institutional ownership is not. They interpret these results as evidence that the return forecasting power of institutional ownership comes from demand shocks rather than informed trading of institutional investors. In contrast, Nofsinger and Sias (1999) find that institutional investors herd toward undervalued stocks and away from overvalued stocks and argue that institutional investors trade based on value-relevant information about the firm. Chakravarty (2001) and Sias, Starks, and Titman (2006) also show that institutional investors are better informed on average and that their information is incorporated into security prices when they trade.

In this paper we provide new evidence on the controversy surrounding the link between institutional investors' informational advantages and stock returns using geographic proximity as a measure of information asymmetry between informed and uninformed investors. Specifically, using state identifiers as our primary measure of geographic proximity and geographically proximate institutions as a close approximation to informed investors, we examine whether the effect of stock trading on future stock returns is different across local (in-state) and nonlocal (out-of-state) institutional investors.

Previous studies use institutional investors' stock trading style, such as portfolio turnover and diversification, as proxies for information advantage and show that certain types of institutional investors

have a consistent information advantage over other types of institutional investors. For example, Bushee (1998), Ke and Ramalingegowda (2005), and Ke, Ramalingegowda, and Yu (2006) classify institutional investors into transient, dedicated, and quasi-indexing institutions based on institutional investors' portfolio turnover and diversification, and document that transient institutional investors have private information about future earnings and returns. Similarly, Yan and Zhang (2009) classify institutional investors into short- and long-term investors based on investors' past portfolio turnover and provide evidence that the positive association between institutional ownership and future returns documented in Gompers and Metrick (2001) is largely driven by short-term institutional investors.[1] However, the approaches used in these studies to classify institutional investors into informed and uninformed investors are unclear in explaining the sources of information advantages that institutional investors have. Furthermore, their classifications of institutional investors themselves may simply identify some firm characteristics related to future stock returns. For example, the superior stock performance of high turnover investors may be a manifestation of the predictability of past trading volume for future returns (Lee and Swaminathan, 2000). Unlike the Bushee (1998) and Yan and Zhang (2009) classifications, our classification attributes geographic proximity to be a major source of informational advantage and thus is less likely to be subject to an endogeneity problem.[2] To the extent that the geographic proximity of investment is based on the informational characteristics of an investor's investment in each portfolio firm, our paper is similar to Bushee and Goodman (2007), who show that institutional investors are more likely to have private information in only certain portfolio firms.

Defining local institutional investors as those investors who are located within the same state as the firm's headquarters, we find that from January 1, 1995 to June 30, 2007, the fraction of local stocks in the

[1] We examine whether the classification measures used in previous papers result in stable outcomes over time. Surprisingly, we find that 38.1% (29.2%) of institutional investors who are classified into short-term (transient) investors in the current quarter change their classification during next four quarters. The corresponding change during the next 12 quarters is almost 74.4% (56.9%). It is puzzling that many institutional investors change their investment horizon and trading styles in such a short period of time.

[2] Gaspar and Massa (2007) and Kang and Kim (2008) document evidence on the exogeneity of local ownership.

market portfolio (i.e., the fraction of the market of securities located within the same state) is only 6.6% while institutional investors on average invest about 8.2% of their assets in stocks located within the same state.

We also find that stocks in the highest quintile of local holdings outperform stocks in the lowest quintile of local holdings by a significant 6.6% (Daniel et al. (1997) risk-adjusted return) per year, whereas stocks in the highest quintile of nonlocal holdings outperform stocks in the lowest quintile of nonlocal holdings by a significant 6.1% per year. Furthermore, when we separate stocks according to the change in local and nonlocal holdings, stocks in the highest quintile of the change in local holdings outperform those in the lowest quintile by a significant 1.6% per year. In contrast, the difference in risk-adjusted returns between the highest and lowest quintiles of the change in nonlocal holdings is not statistically significant. These findings indicate that informed trading by local institutional investors is a strong predictor of future returns.

Furthermore, the level of local institutional ownership is positively and significantly related to one-quarter-ahead stock returns, while the relation is positive but relatively weak for nonlocal institutional ownership. More important, we find a significant positive relation between the change in local institutional ownership and future returns but no such relation between the change in nonlocal institutional ownership and future returns. Supporting the results in previous studies, we also find that positive relations between local ownership and stock performance are manifested in firms with high information asymmetry, such as small firms, firms with high return volatility, firms with high R&D intensity, and young firms. Such positive relations are also more evident for holdings by institutions that are more likely to possess and exploit local information, such as local investment advisors, high local ownership institutions, and high local turnover institutions. These results further highlight the importance of institutional investors' informational role in forecasting future stock returns.

Finally, consistent with informed trading of local institutional investors, we find that the stocks that local institutional investors hold (trade) earn higher excess returns around future earnings announcements than those that nonlocal institutional investors hold (trade). These results suggest that local institutional

investors possess private information about the future prospects of firms, which allows them to trade more actively than nonlocal institutional investors to exploit their informational advantages.

Our study contributes to the literature in at least four areas. First, it contributes to the ongoing debate over whether institutional investors' informational advantages can predict future returns. Using local institutional ownership as a measure of information advantages, we show that future returns are positively and significantly related to both the level of local institutional ownership and its change. The results, however, are weak for nonlocal institutional ownership. These results suggest that for certain types of institutional investors, their return predictive ability is due to their informational advantages, extending prior research on the informational role of institutional investors (Nofsinger and Sias, 1999; Bennett, Sias, and Starks, 2003; Yan and Zhang, 2009).

Second, by using a dataset that covers the 1995-2007 sample period and by expanding it to include other types of institutions such as investment advisors, banks, and insurance companies, we provide evidence beyond that of Coval and Moskowitz (2001), who examine the importance of geographic proximity in mutual fund investment from 1975 to 1994. Our study therefore provides a 13-year out-of-sample picture of the importance of local information in setting asset prices and shows that much of the incremental significance is driven by investment advisors as opposed to mutual funds studied by Coval and Moskowitz (2001).

Third, unlike previous studies that use institutional investors' past trading behavior as a proxy for their informational advantage (Bushee, 1998; Yan and Zhang, 2009), we use institutional investors' geographic proximity as a proxy for their private information. While Yan and Zhang (2009) document that only short-term institutional ownership forecasts future stock returns, we find that local institutional investors are able to predict future returns irrespective of their investment horizon, suggesting that geographic proximity is another important factor that determines institutional investors' informational advantages.

Finally, although several studies document that the home bias phenomenon in international portfolio selection exists even in domestic portfolio selection (Coval and Moskowitz, 1999; Ivkovic and

Weisbenner, 2005), few studies examine the extent of local institutional ownership in the U.S. and its determinants. Using the expanded data set that covers all types of institutional investors, we show that during our sample period the mean (median) local institutional ownership accounts for only 3.8% (0.8%) of firms' total ownership, whereas the corresponding number for nonlocal institutional ownership is almost 34.7% (30.5%). Consistent with the results in previous studies, we also find that local institutional investors have stronger preferences for stocks that have greater information asymmetry than do nonlocal institutional investors.

The rest of this paper proceeds as follows. In Section 2, we review the literature on geographic proximity. Section 3 describes the data and summary statistics. In Section 4, we provide empirical evidence on the determinants of local and nonlocal institutional ownership. In Section 5, we investigate the effect of local and nonlocal institutional ownership and trading on future stock returns. Section 6 presents the results from robustness tests. Finally, we present a summary and concluding remarks in Section 7.

2. Literature Review: Geographic Proximity and Informational Advantages

Previous literature shows that investors located near firms have significant informational advantages over nonlocal investors and that geographic proximity can serve as a good proxy for the measure of the extent of private information held by investors. For example, Coval and Moskowitz (1999) analyze the role of geographic proximity in the portfolio choice of U.S. mutual fund managers and find that U.S. fund managers exhibit a strong bias toward locally headquartered firms, particularly small, highly leveraged firms that produce nontraded goods. In another paper, Coval and Moskowitz (2001) show that on average U.S. fund managers earn an additional return of 2.65% per year from their local investments compared to their nonlocal investments. They also find that the investment returns are particularly higher for funds that are small and old, and for those that operate out of remote areas.

In a study of the stock investments of U.S. households from 1991 to 1996, Ivkovic and Weisbenner (2005) find that individual investors exhibit a local bias to an even larger degree than professional money managers and that the average household realizes an additional return of 3.2% per year from its local holdings relative to its nonlocal holdings. Ivkovic and Weisbenner (2005) also show that investment returns to local holdings are larger for stocks in the non-S&P 500 index than for those in the S&P 500 index, suggesting that investment returns are higher when information asymmetries between local and nonlocal investors are severe.

In a related study, Gaspar and Massa (2007) investigate the relations among informed local shareholders, corporate governance, and stock liquidity. They find that firms with higher ownership by local mutual funds have a lower shareholder rights index (i.e., stronger shareholder protection) but more illiquid shares, suggesting that there is a trade-off between the costs and benefits of local investment. Similarly, Kang and Kim (2008) find that geographically proximate block acquirers are more likely to engage in post-acquisition governance activities in targets than are remote acquirers, and targets located near acquirers experience both higher abnormal announcement returns and better post-acquisition operating performance than do remote targets.

Several papers also investigate the relation between distance and analyst performance. Malloy (2005) shows that compared to other analysts, in the U.S., geographically proximate analysts issue more accurate earnings forecasts, update their forecasts more frequently, and have a greater impact on stock prices, suggesting that geographically proximate analysts possess an informational advantage over other analysts. These effects are strongest in small firms, in firms located in small cities, and in firms located in remote areas. Orpurt (2004) and Bae, Stulz, and Tan (2008) also find evidence of local analysts' informational advantages for a sample of seven European countries and 32 non-U.S. countries, respectively.

This literature on geographic proximity provides the necessary theoretical background for a test of the informational role of institutional investors. First, it suggests that local ownership is associated with strong return forecasting power. Institutional investors are likely to enjoy significant informational advantages with respect to local firms. For example, investors can follow geographically proximate firms

through local media reports. They are also more likely to have informal access to information about local firms, through conversations with employees, managers, suppliers, and customers, and as locally located institutional investors, they can visit geographically proximate firms and meet CEOs of these firms face-to-face at lower cost. It is also possible that compared to remote investors, investors located near firms expend less time collecting information about their firms since they are on-the-spot. This value-relevant information about the firm allows local institutional investors to make informed trading, resulting in a positive relation between local ownership and future stock returns.

Second, the literature on geographic proximity suggests that the informational advantages of local investors are particularly pronounced when firms have greater information asymmetries. This predicts that the positive relation between local ownership and future stock returns is stronger when firms are small, when they are risky, when they have a higher level of R&D investment, or when they are young.

Finally, the literature shows that local institutional investors have an advantage over nonlocal institutional investors with respect to collecting private information about firms, suggesting that they are able to trade actively surrounding forthcoming news to exploit their private information. For example, local institutional investors who are able to predict firms' forthcoming negative news are expected to reduce their holdings prior to such negative news in order to minimize losses associated with their stock holdings.

3. Sample Selection

3.1. Data

Our initial sample includes the set of all firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for the period from January 1, 1995 to June 30, 2007. The CDA/Spectrum data are based on the SEC's Form 13-F, which requires institutions managing more than $100 million in equity to file a quarterly report of all equity holdings greater than 10,000 shares or $200,000 in market value. We then match our initial sample with Compact Disclosure to obtain locations

of firm headquarters. We exclude cases in which either the firms or institutional investors are from foreign countries. To avoid distance outlier effects, we also exclude cases in which either the firms or institutional investors are located in Alaska, Hawaii, Puerto Rico, or the Virgin Islands. We also exclude those observations with total institutional ownership in 13f Holdings greater than 100%. Our final sample comprises of 171,989 firm-quarters. We collect locations of institutional investors' headquarters from Nelson's Directory of Investment Managers, Moody's Bank & Finance Manual, and SEC filings.[3] Previous studies use a fund manager number (Id key = MGRNO) in CDA/Spectrum Institutional (13f) Holdings as the institution identifier. However, we find that the fund manager number is reassigned to a different institutional investor if the assigned institutional investor disappears. To identify the cases in which the same fund manager number is assigned to different institutional investors, and to fully utilize these cases in the analysis, we track fund manager numbers and name changes for all institutional investors during our sample period. We find 4,718 institutional investors with different fund manager numbers and names. Out of these 4,718 institutional investors, state location information is available for 4,606 institutional investors. Finally, we obtain stock return and financial data from CRSP and COMPUSTAT, respectively, and analyst forecast data from I/B/E/S.

We adopt state identifiers, not physical distance between the firm and the investor, as a measure of geographic proximity since the quarterly change in local ownership using physical distance as a measure of locality is small and economically insignificant in our sample. For example, we find that the mean quarterly change in local ownership using 100 kilometers as a measure of locality is only 0.003% and that the quarterly change in local ownership provides little power in explaining the cross-sectional variation in

[3] It is possible that the institutional investor's headquarters is far away from the firm, but its major branch or division is close to the firm. In this case, the institutional investors can easily access private information about the firm. However, since the institutional investor's headquarters tends to be located in its main business area, this is not likely to be an important concern. Furthermore, Kang and Kim (2008) show that headquarters provide an important base for the acquirers to obtain information about targets, but branches or divisions do not.

future returns.[4] We also find that in many cases (about 1% of the sample), city information on the location of institutional investors' headquarters is not available. We do not face such problems when we use state identifiers as a measure of locality.

Furthermore, state identifiers can serve as a good proxy for geographic proximity since the state represents the boundary of economic interactions and is an appropriate geographical unit for measuring the informational advantage of local investors. Investors whose headquarters are located within the same state as the firms' headquarters are expected to have better access to information than nonlocal investors because they are geographically close to the firms and thus can more easily obtain valuable private information about the firms through informal talks with CEOs, employees, and customers, or they can readily visit the firms and directly observe the firms' operations.[5] In addition, local investors are able to derive their information about local firms from statewide information sources. For instance, local media such as newspaper, radio, and TV stations occasionally provide coverage of the local events within the

[4] Coval and Moskowitz (1999, 2001), Malloy (2005), and Gaspar and Massa (2007) adopt 100 kilometers as a measure of locality and Ivkovic and Weisbenner (2005) set the perimeter of locality at a distance of 250 miles. In untabulated tests, we use their formula for calculating the distance, $d_{i,j}$, between the firm and the investor as follows: $d_{i,j} = \text{arc cos}\{\cos(lat_i)\cos(lon_i)\cos(lat_j)\cos(lon_j) + \cos(lat_i)\sin(lon_i)\cos(lat_j)\sin(lon_j) + \sin(lat_i)\sin(lay_j)\}2\pi r/360$, where *lat* and *lon* are the latitudes and longitudes of the firm and the investor locations (headquarters), respectively, and *r* denotes the radius of the earth (approximately 6,378 kilometers). We find that about 98.6% of institutional investors who are located within 100 kilometers of a firm's headquarters are classified as in-state institutional investors. Neither the level of nor change in ownership by these institutional investors, however, is significantly related to future returns, possibly due to their small magnitudes. However, for the time-series averages of annualized quarterly returns (Daniel et al. (1997) risk-adjusted return) on the portfolios sorted according to the levels of local and nonlocal institutional ownership, the results using 100 kilometers as an alternative measure of geographic proximity are qualitatively similar to those using states as a measure of locality.

[5] One would argue that out-of-state investors near a firm can also have information advantages over other investors with respect to the firm. For example, investment managers based just across the river in Jersey City, NJ might have superior information about New York, NY companies, relative to investment managers based in Syracuse, NY. However, we find that such cases represent a very small portion of our sample firms: Out-of-state institutional investors who are located within 100 kilometers of a firm's headquarters account for only 0.011% of our sample and the mean equity ownership by these institutional investors is very small, 0.09%. Excluding these firms from our sample does not change the results reported in the paper.

state. Kang and Kim (2008) argue that a firm's state serves as an important geographic constraint to information flows and use state identifiers as their primary measure of geographic proximity.

Several papers also show that social interaction is an important mechanism for information exchange and state-level sociability is an important source of private information. For example, Hong, Kubik, and Stein (2005) show that stock market participation is influenced by social interaction. Brown, Ivkovic, Smith, and Weisbenner (2008) document evidence of a causal relation between stock ownership of an individual's community and the individual's own portfolio choice. Ivkovic and Weisbenner (2007) also find that the level of sociability prevailing in the state to which the household belongs explains a significant portion of the overall information diffusion effect and such information diffusion effects are more pronounced among local investments. To the extent that the state is an important geographic boundary where social interactions take place, these arguments suggest that the state can serve as a good proxy for the measure of informational distance.

3.2. Descriptive statistics

Panel A of Table 1 shows local and nonlocal institutional ownership aggregated at the firm level. At the end of March of each year from 1995 to 2007, we compute fractional local and nonlocal institutional ownership by dividing the number of shares held by local and nonlocal institutional investors by total shares outstanding.[6] The mean local ownership over our sample period is 3.8%, with a standard deviation

[6] Coval and Moskowitz (2001) and Gaspar and Massa (2007) define local ownership as the difference between the percentage of mutual fund dollars devoted to stock *j* that are provided by local mutual fund managers (within 100 km) and the percentage of total mutual fund assets that reside within 100 km of stock *j*'s headquarters. Therefore, their local ownership measure is likely to capture local bias at the firm level rather than actual local ownership (i.e., fraction of shares held by local mutual funds) per se. Because of this limitation, their local mutual fund ownership measure cannot be used to calculate changes in ownership and thus does not allow one to examine whether changes in local mutual ownership impact stock returns. Unlike Coval and Moskowitz (2001) and Gaspar and Massa (2007), we use actual ownership held by local institutions in the firm as a measure of local institutional ownership. Our ownership measure is also different from their ownership measure in that our measure includes equity ownership by

of 6.6%, while the mean nonlocal ownership during the same period is 34.7%, with a standard deviation of 26.5%. We also find that the mean local ownership over our sample period is much larger than the median local ownership (3.8% versus 0.8%), suggesting that the distribution of local ownership is highly skewed to certain firms.[7] The time-series average of the Pearson correlation coefficients between local and nonlocal ownership from 1995 to 2007 is 0.11 with a *p*-value of 0.01 (not reported).

To examine the variation of local ownership across states, in unreported tests, we examine the distribution of local institutional ownership by state. New York has the highest mean local institutional ownership (10.63%), followed by Massachusetts (7.65%) and California (7.57%). In contrast, the mean local institutional ownership is almost zero in New Mexico. Given the high local institutional ownership in the states of New York, Massachusetts, and California, our main findings may be driven by these states. Hence, we examine the robustness of our findings by replicating the key regression analyses below including state dummies. We obtain results that are qualitatively similar to those reported in the paper.

In Panel B of Table 1, we break the mean local institutional ownership down according to 13f classification of manager types.[8] The mean local ownership over the sample period is the highest for investment advisors (3.85%), followed by banks (0.81%), insurance companies (0.51%), and mutual funds (0.47%). The mean local ownership by other institutional investors (pension funds, university endowments, and foundations) is about 0.18%.

In Panels A and B of Table 1, we compute local ownership at the firm level. To parsimoniously examine local holdings by institutions, in Panel C of Table 1 we measure the fraction of local institutional

---

all institutions whereas their measure includes only mutual fund holdings, which account for only 13.9% of total institutional holdings. In unreported tests, we examine the robustness of our results by replicating the key analyses below excluding mutual fund holdings. We obtain results that are qualitatively similar to those reported in the paper.

[7] Following Gompers and Metrick (2001), we denote institutional ownership as zero for those firms that are not held by any institutions in the CDA/Spectrum data.

[8] In 1999, the 13f unexpectedly changed the classification of manger types. We find that for the 1999 to 2007 period, most of managers in the 13f are classified as "other" investors. To maintain consistency in the classification of manager types over the sample period, we classify institutional investors during the 1999 to 2007 period following the classification used in the 1995 to 1998 period.

holdings at the manager level, which is calculated as the total market value of local equity held by each manager divided by the total market value of equity held by each manager. Other institutional investors show the largest fraction of local ownership in their portfolio holdings, a mean of 12.2% over the sample period, followed by investment advisors (10.3%). During the same period, banks, insurance companies, and mutual fund managers invested about 5.4%, 6.9%, and 8.2% of their total investments in local stocks, respectively.

In unreported tests, we find that local investment advisors are smaller and more localized than other local institutional investors. For example, compared to other local institutions, local investment advisors on average manage a smaller portfolio size ($5,103 billion versus $2,484 billion), have higher local turnover (0.20% versus 0.24%), and have greater local ownership (7.76% versus 11.10%). All these differences are statistically significant at the 1% level. These findings suggest that local investment advisors are more focused on local stock trading and thus they might have greater incentives to seek value-relevant local information than other local institutional investors.

Panel D of Table 1 reports the extent of local bias for institutional investors. To measure the extent of local bias for institutional investors, we follow Coval and Moskowitz (2001). Specifically, we compute the actual fraction of local holdings by each institutional manager and compare it with the fraction of the market value of available securities that are located within the same state (i.e., expected fraction of stocks invested within the same state if the institutional investor holds the market portfolio). The difference between these two fractions measures the extent of local bias for each manager. To estimate local bias for aggregate institutional ownership, we average the actual fractions of local holdings (the fractions of the market value of available securities) across managers using the total market value of equity held by each manager as the weight. The results show that the fraction of local stocks in the market portfolio is only 6.6% while the actual fraction of holdings by local institutional investors is on average 8.2%. Therefore, the extent of local bias is about 1.6%, which accounts for about 20% (=1.6/8.2) of the institutional investors' investment in local stocks. This extent of local bias is also statistically significant at the 1% level. In comparison, in a study of local bias for mutual funds, Coval and Moskowitz (2001) report that

while the fraction of the market of securities that are located within 100 kilometers is 6.16%, the fund managers, on average, invest about 6.95% of their assets in stocks located within 100 kilometers, suggesting that the extent of local bias for their sample is only 0.79%. Thus, the extent of local bias seems to be much larger when other types of institutions are included and state identifiers are used as a measure of geographic proximity.

In Table 2, we provide summary statistics of institutional ownership, stock returns, and other firm characteristics. The table reports the time-series mean, median, standard deviation, first quartile, and third quartile of the quarterly cross-sectional averages of the 50 quarters from January 1, 1995 to June 30, 2007. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity for the current quarter. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. Turnover is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. S&P 500 inclusion is a dummy for S&P 500 index membership. Firm age is calculated as the number of months since a firm's first stock return appears in CRSP, and dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise.

We find that the mean institutional ownership is 39.3%, with a median of 36.5%. Consistent with the results in Table 1, the mean (median) local ownership is small compared to the mean (median) nonlocal ownership, at 3.8% (3.8%) and 35.3% (32.6%), respectively. The mean one-quarter-ahead stock return is 3.7%, with a median of 2.7%. The mean and median market-to-book ratios are about 2.7. The mean (median) market capitalization is $2.8 billion ($2.6 billion). Return volatility has a mean (median) of 13.2% (12.6%). The mean turnover is 9.5, with a median of 10.8. The mean and median stock prices are close to $41 and $38, respectively. The S&P 500 inclusion dummy shows that about 9% of our sample firms are included in the S&P 500 index. The mean (median) cumulative market-adjusted return for the preceding 6 months is 3.4% (3%), and the mean (median) cumulative market-adjusted return for the

penultimate 6 months is 3.9% (3.3%). On average, our sample firms have 14 years of CRSP data. The mean and median dividend yields are close to 0.3%. Finally, R&D expense averages 1.1% of total assets.[9]

4. Determinants of Local Institutional Ownership

To examine the cross-sectional determinants of local institutional holdings, for each quarter from January 1, 1995 to June 30, 2007, we estimate cross-sectional regressions of fractional local (nonlocal) institutional ownership on firm characteristics. Similar to previous studies (Falkenstein, 1996; Gompers and Metrick, 2001), we include ten stock characteristics: market-to-book, size (the log of market capitalization), return volatility, turnover, stock price, S&P 500 inclusion, cumulative market-adjusted return for the preceding 6 months, cumulative market-adjusted return for the penultimate 6 months, age, and dividend yield.[10] In addition, we include the ratio of R&D expenses to total assets as an explanatory variable.

Table 3 presents the results. Rather than reproducing the coefficient estimates for each quarter, we average them for the entire sample quarters. We provide three different measures to help assess the statistical significance of the results: the average of time-series *t*-statistics for coefficients using the Fama-MacBeth (1973) method, the number of coefficients that are significantly different from zero at the 10% level or better, and the *t*-statistic for the difference in coefficients between the two regressions (local versus nonlocal institutional ownership as the dependent variable).

The results show that the coefficients on all explanatory variables are significant in local and nonlocal ownership regressions. The variables whose coefficients are most frequently significant during the 50-quarter sample period are firm size and turnover.

[9] Missing values for R&D are set to zero. Excluding firms with missing R&D from the analysis does not change the results reported in the paper.

[10] Market-to-book is winsorized at the 1st and 99th percentiles. Using cumulative raw returns for the preceding 6 months and the penultimate 6 months instead of cumulative market-adjusted returns for the same time intervals does not change the results.

The coefficient on firm size in the local (nonlocal) ownership regression is significantly positive in 45 (49) quarters out of 50. Similarly, consistent with the notion that institutional investors generally prefer liquid stocks (Gompers and Metrick, 2001), the coefficient on turnover in the local (nonlocal) ownership regression is significantly positive in 41 (50) quarters.[11] In contrast, the coefficients on market-to-book and return volatility in the local (nonlocal) ownership regression are significantly negative in 11 (45) quarters and 25 (39) quarters, respectively. These results indicate that both local and nonlocal institutional investors prefer firms with low market-to-book and firms with low risk. Although the time-series averages of these coefficients are significant in both local and nonlocal ownership regressions, their magnitudes in the nonlocal ownership regression are several times larger than those in local ownership regression, suggesting that nonlocal institutional investors have a stronger preference for stocks that have less information asymmetry than do local institutional investors.

We also find that nonlocal institutions prefer old firms and firms with lower R&D intensity. In contrast, local institutions show a preference for young firms and firms with high R&D intensity. To the extent that nonlocal institutional investors face greater difficulty in obtaining private information about young firms and firms with high R&D intensity, the results suggest that local institutional investors choose stocks with higher information asymmetry in which they are better able to exploit their information advantage, but nonlocal institutional investors avoid such firms. Although institutional

[11] The magnitude of the coefficient on turnover in the nonlocal ownership regression (0.009) is about nine times larger than that in the local ownership regression (0.001) and the difference in these two coefficients is statistically significant at the 1% level, suggesting that nonlocal institutional investors have a stronger demand for liquidity than local institutional investors. This result is consistent with the view that adverse selection from local institutional investors results in less liquidity in stocks sensitive to local information. However, a consistently positive coefficient on turnover in the quarterly local ownership regression suggests that local institutional investors also prefer liquid stocks. One potential explanation for this high demand for liquidity by local institutional investors is that stock liquidity allows local institutional investors to execute profitable future trades. For example, our results in Tables 8, 10, and 11 below show that local institutional investors trade actively surrounding an important firm event to exploit their private information. If local institutional investors hold illiquid stocks, they might not be able to exploit this private information because illiquidity prohibits them from actively trading stocks even when they forecast value-relevant firm-specific news.

investors prefer low price stocks, non-S&P 500 index stocks, and stocks with a low dividend yield, the effects are stronger in the nonlocal ownership regression than in local ownership regression.

Overall, the results in Table 3 make it clear that local institutional investors have a stronger preference for firms that have greater information asymmetry, that is, for firms in which they are better able to exploit their private information.

5. Local Institutional Holdings and Future Stock Returns

5.1. Level of local institutional ownership and future returns

In this section we examine the relation between the levels of local and nonlocal institutional ownership and future returns. Models (1), (3), (5), and (7) of Table 4 show the results. Each quarter, we estimate a cross-sectional regression of one-quarter-ahead returns on local and nonlocal ownership variables and ten stock characteristics used in Gompers and Metrick (2001). Instead of reporting coefficients for each quarter, we report the time-series average coefficients from 50 cross-sectional regressions along with their time-series *t*-statistics (Fama and MacBeth, 1973). Model (1) shows that future returns are positively and significantly related to total institutional ownership, indicating that the current levels of institutional ownership predict future stock returns. This result is consistent with that of Gompers and Metrick (2001). As discussed in Gompers and Metrick (2001), there are two possible explanations for the return forecasting power of the level of institutional ownership. First, if the level of institutional ownership reflects the accumulated purchase of undervalued stocks by institutional investors, the positive relation between institutional ownership and future returns suggests that institutional investors are informed investors. Second, the growth in institutional ownership generates a large demand for the stocks institutional investors prefer, so the positive relation between institutional ownership and future returns is evidence of institutional demand shocks.

To distinguish between these two possibilities, we decompose total institutional ownership into local and nonlocal institutional ownership and reestimate model (1) separately using local and nonlocal

institutional ownership as explanatory variables. The results are reported in models (3) and (5). Because the growth rate in nonlocal institutional ownership is much higher than the growth rate in local institutional ownership during our sample period, if demand shocks associated with the growth in institutional ownership impact stock returns, we would expect nonlocal institutional ownership to predict stock returns better than local institutional ownership. Alternatively, if informed trading of institutional investors is responsible for the positive relation between institutional ownership and future returns, we expect local institutional ownership to predict stock returns better than nonlocal institutional ownership. The result in model (3) shows that the local ownership variable has a coefficient of 0.03, which is significant at the 5% level. On the other hand, the coefficient on nonlocal institutional ownership in model (5) is small and insignificant. These results do not support the view that the demand shocks impact stock prices, but are consistent with the view that informational advantages of institutional investors have an effect on stock returns. In model (7), we include both local and nonlocal institutional ownership as explanatory variables and find similar results as those in models (3) and (5). The difference in coefficients between local and nonlocal institutional ownership is significant at the 1% level.

To more closely investigate the importance of the informational role of local institutional investors in forecasting future returns, we examine whether the return forecasting power of local institutional ownership is particularly pronounced in stocks with greater information asymmetry and hence in which value-relevant private information is relatively difficult to obtain by nonlocal institutional investors (Coval and Moskowitz, 1999; Ivkovic and Weisbenner, 2005; Malloy, 2005; Kang and Kim, 2008). Specifically, using standard information asymmetry variables (size, return volatility, R&D, and age), we divide stocks into those with high information asymmetry and those with low information asymmetry based on the sample median of each information asymmetry variable and reestimate model (7) in Table 4 separately for these two groups.

Untabulated tests show that the positive relation between the current levels of local institutional ownership and future returns is particularly strong among stocks that are small, stocks that have high return volatility, stocks that have high R&D intensity, and stocks that are young. While the coefficients on

local institutional ownership are positive and significant at least the 5% level for small stocks, stocks with high return volatility, stocks with high R&D intensity, and young stocks, the corresponding coefficients are not significant for large stocks, stocks with low return volatility, stocks with low R&D intensity, and old stocks.

In contrast, nonlocal institutional ownership forecasts future returns only for stocks with high return volatility and young stocks. Although the coefficients on nonlocal institutional ownership are positive and significant for stocks with high return volatility and young stocks, the significance levels of these coefficients are weaker than those on local institutional ownership for the same stocks. The difference in coefficients between local and nonlocal institutional ownership is significant for small stocks, stocks with high return volatility, and young stocks at least the 5% level.

These findings suggest that the return forecasting power is stronger for local institutional ownership than for nonlocal institutional ownership and is more pronounced for information-sensitive stocks for which local institutional investors have a relative information advantage.

5.2. Local institutional trading and future returns

Gompers and Metrick (2001) use the level of lagged institutional ownership as a measure for future institutional demand and the change in institutional ownership as a measure for an institutional information advantage. They argue that because the institutional demand patterns are relatively stable over time, the level of lagged institutional ownership can serve as a good proxy for future institutional demand. On the other hand, the change in institutional ownership is a good indicator for an institutional information advantage because if institutional investors trade stocks on information, future stock returns should be related to changes in their ownership.

Gompers and Metrick (2001) find a strong and positive relation between the level of lagged institutional ownership and future returns, but a weak relation between the change in institutional ownership and future returns. In this section we use the Gompers and Metrick (2001) approach to

disentangle these two different effects of institutional ownership on one-quarter-ahead returns. Specifically, we divide the current level of institutional ownership (*Institutional ownership*$_t$) into the two-quarter lagged institutional ownership (*Institutional ownership*$_{t-1}$) and the change in institutional ownership over the previous two quarters (*ΔInstitutional ownership*). We focus on the change in institutional ownership over the previous two quarters rather than over the previous one quarter since local institutional ownership does not change markedly over a short period such as one quarter.[12]

Models (2), (4), (6), and (8) of Table 4 report the regression results. Similar to Gompers and Metrick (2001), in model (2) we find a positive relation between *institutional ownership*$_{t-1}$ and future returns and little statistically discernable relation between *Δinstitutional ownership* and future returns, supporting the view that the demand shock effect drives the return forecasting power of institutional ownership. When we break total institutional ownership down into local and nonlocal ownership, we find that the change in local institutional ownership is positively related to future returns (model 4), whereas the change in nonlocal institutional ownership has little effect on future returns (model 6). Thus, the informational role of institutional investors in predicting future returns is stronger for local institutional investors than for nonlocal institutional investors. The results in models (4) and (6) also show that the levels of local and nonlocal ownership have coefficients of 0.03 and 0.01, respectively, which are significant at the 5% and 10% levels, consistent with the view that the demand shocks impact stock prices. Finally, we find that the magnitude of the coefficient on the level of local ownership is much smaller than the magnitude of the coefficient on the change in local ownership (model 8). We also find that the coefficient on the change in local institutional ownership is significant at the 5% level whereas the coefficient on the change in nonlocal institutional ownership is statistically insignificant. The difference in coefficients between these two changes in local and nonlocal institutional ownership is statistically significant at the 1% level,

[12] The mean change in local (nonlocal) institutional ownership over the previous one quarter is 0.04% (0.73%) and the mean change in local (nonlocal) institutional ownership over the previous two quarters is 0.08% (1.36%**)**. The regression results using the change in local (nonlocal) institutional ownership over the previous three quarters are qualitatively similar to those reported in the paper.

consistent with the view that local institutional investors have information advantages over nonlocal institutional investors.

To further examine the effects of informed trading of local institutional investors on stock returns, we divide stocks into those with high information asymmetry and those with low information asymmetry and reestimate model (8) in Table 4 separately for these two groups. Table 5 reports the results. We find that the positive relation between the change in local institutional ownership and future returns exists only for small stocks, stocks with high R&D intensity, and young stocks. These findings suggest that informational advantages of local institutional investors over nonlocal institutional investors in information-sensitive stocks are the driving source of their superior return forecasting ability. Furthermore, the effect of informed trading of local institutional investors on future returns is economically large and significant. For example, the coefficient on the change in local institutional ownership for stocks with high R&D intensity is 0.11. Evaluating the estimated coefficient at the mean indicates that all else being constant, a 10% increase in local institutional trading in stocks with high R&D intensity results in about 1.1% increase in one-quarter-ahead stock returns.

In sum, the results in Tables 4 and 5 support both the institutional demand shift and informed institutional trading explanations. Consistent with the institutional demand shock explanation, the levels of local and nonlocal institutional ownership forecast future returns (Gompers and Metrick, 2001). However, we find that future returns are positively related to changes in local institutional ownership, suggesting that informed institutional trading also predicts future returns. Moreover, this return forecasting power of local institutional trading is particularly pronounced in small stocks, stocks with high R&D intensity, and young stocks. To the extent that these stocks provide local institutional investors with better opportunities to exploit their private information, our findings suggest that local institutional investors buy stocks in which they have informational advantages.

It is noteworthy that the mean local ownership over our sample period is the highest for investment advisors (see Table 1). To gain further insight into the return forecasting ability of local institutional investors, we decompose local institutional ownership into local investor advisor and other local

institutional ownership and examine whether the return forecasting ability of local investment advisors is superior to that of other local institutional investors. The results are reported in Table 6. We find that the significance of the coefficient on local institutional ownership documented in Table 4 is entirely driven by local investment advisor ownership. For example, model (6) shows that the coefficients on the level of and change in local investment advisor ownership are 0.035 and 0.044, respectively, significant at the 1% and 10% levels, whereas those on the level of and change in other local institutional ownership are negative and insignificant. The differences in these coefficients between local investment advisor ownership and other local institutional ownership are statistically significant. These results clearly suggest that local investment advisors have superior return forecasting ability than other local institutional investors.

5.3. Portfolio performance

To provide a robustness check on our previous results and gauge the economic significance of the effect of demand shocks and informed institutional trading on future returns, we use a portfolio approach. Each quarter, we sort stocks into quintiles on the basis of the level of local (nonlocal) ownership and its change, and we then compute annualized one-quarter-ahead value-weighted returns on the quintile portfolios. We also form a zero-cost investment (i.e., hedge portfolio (Q5 – Q1)) strategy that is long in portfolio Q5, which is the quintile portfolio with the largest ownership holding (the largest ownership increase), and short in portfolio Q1, which is the quintile portfolio with the smallest ownership holding (the largest ownership decrease), and compute the average return on this hedge portfolio. To rule out the possibility that the hedge portfolio strategy simply captures the risk-premium, we also estimate the risk-adjusted return on the hedge portfolio as suggested by Daniel et al. (1997).

Panel A of Table 7 presents the time-series averages of annualized quarterly returns on the portfolios sorted by the levels of local and nonlocal institutional ownership. The table shows that for the sort based on the level of local institutional ownership, the average annualized raw and risk-adjusted returns on the

hedge portfolio Q5-Q1 are 2.22% and 6.60%, respectively, both of which are significant at the 1% level. The corresponding returns for the hedge portfolio based on the level of nonlocal institutional ownership are smaller, -0.23% and 6.13%.

In Panel B of Table 7, we report the time-series averages of annualized quarterly returns on the portfolios sorted by the changes in local and nonlocal institutional ownership. We find that the raw return for stocks in the highest quintile of local holding change (i.e., those stocks most heavily purchased by local institutional investors) is 2.27% higher than the raw return for stocks in the lowest quintile of local holding change (i.e., those stocks most heavily sold by local institutional investors). Similarly, the risk-adjusted return difference between the highest and lowest quintiles of local holding changes is a significant 1.61%. In contrast, the raw return for stocks in the highest quintile of nonlocal holding change is 2.05% lower than the raw return for stocks in the lowest quintile of nonlocal holding change. The risk-adjusted return difference between the highest and lowest quintiles of nonlocal holding changes, however, is not significant.

In Panel C of Table 7, we further decompose local institutional ownership into local investment advisor and other local institutional ownership and report returns on the portfolios sorted by the levels of and changes in each of these ownership types. Although the risk-adjusted return on the hedge portfolio based on the level of local investment advisor ownership is similar to the corresponding return on the hedge portfolio based on the level of other local institutional ownership, the risk-adjusted return on the hedge portfolio based on the change in local investment advisor ownership is significantly larger than the corresponding return based on the change in other local institutional ownership. For example, the risk-adjusted return on the hedge portfolio based on the change in local investment advisor ownership is 1.14%, which is significant at the 10% level. In contrast, the corresponding return based on the change in other local institutional ownership is small (-0.00%) and insignificant.

Overall, the results in Table 7 suggest that stocks with the highest local institutional ownership or those purchased predominantly by local institutional investors consistently outperform stocks with the smallest local institutional ownership or those sold predominantly by local institutional investors. The

evidence on stock-picking ability is particularly strong for local investment advisors, but is weak for nonlocal institutional investors. These results provide further support for the view that local institutional investors, particularly local investment advisors, have a significant information advantage over nonlocal institutional investors.[13]

5.4. Earnings surprise and institutional trading

Thus far, we have shown superior return performance of local institutional investors, which suggests that local institutional investors have better information about firms' future prospects than nonlocal institutional investors. To provide further evidence on this issue, in this section we investigate whether local institutional investors trade actively prior to earnings announcement surprises to exploit their private information. Baker et al. (2007) find that trades by mutual funds forecast quarterly EPS surprises of the underlying stocks and argue that mutual fund managers have skill at forecasting economic fundamentals. This finding suggests that if local institutional investors are better informed than nonlocal institutional investors and have skill at forecasting earnings fundamentals, they are more likely to decrease (increase) their holdings prior to negative (positive) earnings surprises than nonlocal institutional investors.

Panel A of Table 8 reports the mean and median changes (percentage changes relative to the previous period) in local and nonlocal institutional ownership prior to the earnings announcement surprise over the past four quarters for two subsamples of firms that experience the most negative earnings surprises and the most positive earnings surprises, respectively. Specifically, each quarter, we sort stocks into quintiles on the basis of the EPS surprise, and we then compute the change in local and nonlocal institutional ownership on the bottom quintile and the top quintile over the past four quarters. We measure the EPS surprise as the difference between the actual and consensus earnings per share (i.e., the beginning-of-

[13] It should be noted, however, that the portfolio evidence is fairly weak from the perspective of offering an investable trading strategy, particularly in consideration of informational delays, execution/turnover costs and the like.

quarter mean forecast from I/B/E/S), scaled by the per-share price at the beginning of the forecast period.[14]

For quintile portfolio with the most negative earnings surprises (Q1), we find that institutional investors start to sell their holdings prior to negative earnings surprises, but the pattern of stock sales is more evident for local institutions than for nonlocal institutions. For example, at quarter *t*-3, the median change in local institutional ownership is -3.65% while the median change in nonlocal institutional ownership is 0.35%. These results suggest that local investors sold 3.65% of their holdings during quarter *t*-3, but nonlocal investors increased their holdings 0.35% over the same period. The difference in these holding changes is statistically significant at the 1% level. Similarly, the median change in local institutional ownership at quarter *t*-1 is -1.96%, whereas the median change in nonlocal institutional investors for the same period is only -0.74%. The difference in these changes is again significant at the 1% level. The mean and median cumulative changes in local ownership from quarter *t*-3 to quarter *t*-1 are -1.69% and -3.74%, respectively, while the corresponding changes in nonlocal ownership for the same period are -0.48% and -0.11%.[15] These results clearly suggest that local institutions have predictive ability with respect to earnings disappointments and use such ability to avoid losses in their investments by reducing their holdings accordingly. We also find decreases in median local and nonlocal institutional ownership at the event quarter, but the difference is not statistically significant.

However, unlike the results for portfolio Q1, those for quintile portfolio with the most positive earnings surprises (Q5) in Panel A of Table 8 show no discernable differences in predictive ability between local and nonlocal institutional investors. The mean (median) cumulative change in local ownership from quarter *t*-3 to quarter *t*-1 is 0.93% (1.81%), which is statistically indistinguishable from the 2.29% (2.38%) for nonlocal institutional ownership. These results, together with those for portfolio

[14] The results remain the same if we measure the end-of-quarter mean forecast as our consensus forecast.

[15] Barber and Odean (2000) suggest that informed investors trade infrequently to avoid high transaction costs. Since, as shown in footnote 11, local institutional investors generally tend to trade less actively than nonlocal institutional investors, active trading of local institutional investors prior to negative earnings surprises suggests that they trade actively only when they are able to exploit their private information about firms.

Q1, suggest that local institutions are particularly better informed than nonlocal institutions with respect to unfavorable information about firms' future prospects. Previous studies show that managers have incentives to limit the flow of negative information and that firms with good news are likely to be more forthcoming with investors. For example, Verrecchia (1983), Dye (1985), and Jung and Kwon (1988) show that firms with relatively good news disclose while all other firms remain silent. Hong, Lim, and Stein (2000) also show that negative information about the firm diffuses slowly across investors. Lang and Lundholm (1993) and Miller (2002) provide some empirical evidence that firms are less likely to be forthcoming when they have bad news. These studies suggest that nonlocal institutional investors have difficulties in obtaining negative information about firms and that information asymmetry between local and nonlocal institutional investors should be greater when firms have unfavorable information about their future prospects.

To examine whether the results for negative earnings surprises documented in Panel A of Table 8 are more pronounced for firms exhibiting greater opacity in their financial statements, we further partition portfolio Q1 into two groups according to accounting quality and compare cumulative changes (from quarter -3 to quarter -1) in local and nonlocal institutional ownership prior to the earnings announcement surprise. Accounting quality is measured as the absolute value of abnormal accruals derived from a modified Jones model (1991) adjusted for ROA (Kothari, Leone, and Wasley, 2005).

The results are reported in Panel B of Table 8. We find that the mean cumulative change in local institutional ownership is significantly more negative than that in nonlocal institutional ownership only for opaque firms (i.e., firms with an above-median abnormal accrual). However, the median cumulative change in local institutional ownership is significantly more negative than that in nonlocal institutional ownership for both transparent firms (i.e., firms with a below-median abnormal accrual) and opaque firms. Thus, the results provide weak evidence that informational advantages of local institutional investors are larger when the firms have greater opacity.

In Panel C of Table 8, we divide local institutional investors into local investment advisors and other local institutional investors and repeat the analysis in Panel A of Table 8 for the bottom quintile of

earnings surprises. We find that stock sales prior to negative earnings surprises are more evident for local investment advisors than for other local institutional investors, suggesting that the former have a superior ability in forecasting firms' unfavorable earnings fundamentals relative to the latter.

To provide additional evidence on local institutional investors' information-based trading, we focus on an event with more extreme negative news, namely, a break in strings of consecutive nonnegative earnings as in Ke and Petroni (2004).[16] In untabulated tests, we examine the mean and median changes in institutional ownership prior to an earnings break for a sample of firms that meet or beat analysts' earnings estimates over the past 4 consecutive quarters but miss the consensus forecast in the current quarter. We find that at quarter *t*-2, the median change in local institutional ownership is -4.27%, whereas the median change in nonlocal institutional ownership is -0.74%. These results suggest that local investors sold more than 4% of their holdings during quarter *t*-2, but nonlocal investors sold their holdings only less than 1% over the same period. The difference in median changes is statistically significant at the 1% level. The median changes in local and nonlocal institutional ownership at quarter *t*-1 show similar patterns.[17] The mean and median cumulative changes in local ownership from quarter *t*-3 to quarter *t*-1 are -4.93% and -13.9%, respectively, while the corresponding changes in nonlocal ownership for the same period are -1.34% and -3.3%.

When we further divide the changes in local institutional ownership prior to an earnings break into the changes in local investment advisor ownership and the changes in other local institutional ownership, we find that the mean cumulative change in local investment advisor ownership from quarter *t*-3 to quarter *t*-1 is -10.24% while that in other local ownership for the same period is only -0.09%. The difference in these holding changes is statistically significant at the 1% level.

[16] Skinner and Sloan (2002) and Conrad, Cornell, and Landsman (2002) find that a negative earnings surprise generates a large negative return when the positive news was anticipated.

[17] Ke and Petroni (2004) show that transient institutional investors can predict the break in strings of consecutive earnings at least one quarter in advance.

In sum, these results suggest that local institutions, particularly local investment advisors, can anticipate negative earnings surprises a few quarters in advance and start to decrease their holdings to avoid the drop in stock price. Although nonlocal institutional investors also appear to have foreknowledge about negative earnings surprises, the magnitude of their sales is much smaller than that of local institutional investors' sales. These findings corroborate the results from the previous section, and further suggest that superior performance of local institutional investors can be, in part, attributed to their foreknowledge about the firm's accounting information.

5.5. Do local investors have an advantage in forecasting a component of future returns?

One advantage of our focus on earnings surprises in the previous section is that it enables us to examine a component of returns that local investors ought to have an advantage in forecasting. Another way to examine such issue is to isolate the component of returns that local investors have an advantage in forecasting and show that these returns are positively related to local institutional ownership. Since the returns that are driven by systematic factors such as interest rate shocks, commodity prices, exchange rates, etc. are not likely to be much more knowable by local investors than by distant investors, we focus on the returns that are mainly determined by a firm-specific factor for which local investors have superior access to information. We create such returns by subtracting out the returns of distant (i.e., out-of-state) firms in the same industry as the local firm from the future returns. Since the residual return estimated by this approach is largely due to a firm-specific component, the return forecasting ability of local investors is expected to be particularly pronounced for this return.

Table 9 shows the results from the regressions of one-quarter-ahead residual returns on the levels and changes in local and nonlocal institutional ownership. One-quarter-ahead residual returns are estimated by subtracting out the equally-weighted portfolio returns of distant firms operating in the same Fama and French (1997) industry as the local firm from one-quarter-ahead returns. The results show that future residual returns are positively and significantly related to the levels of both local and nonlocal

institutional ownership, but the magnitude of the coefficient on the level of local institutional ownership is about three times larger than the magnitude of the coefficient on the level of nonlocal institutional ownership. We also find that future residual returns are positively and significantly related to the change in local institutional ownership, but are negatively and insignificantly related to the change in nonlocal institutional ownership. The differences in coefficients between the levels of local and nonlocal institutional ownership and between the changes in local and nonlocal institutional ownership are statistically significant. These results confirm those in Section 5.4 and further suggest that local institutional investors' return forecasting ability is particularly strong for a component of returns that is mainly determined by a firm-specific factor.

5.6. Earnings announcement returns of institutional holdings

So far, we have performed the analyses at the firm level. In this and next sections, we examine the performance of institutions around the earnings announcement date at the manager level. Baker et al. (2007) examine stock-picking skill of mutual fund managers based on the earnings announcement returns of the stocks that they hold and show that the announcement return earned by the average fund manager is not significantly larger than that earned on a portfolio of firms with matching characteristics. However, they find that the announcement returns for some subgroups of mutual fund managers are larger than those for other subgroups of mutual fund managers. These results suggest that although mutual fund managers as a whole do not possess stock-picking ability, subsets of mutual fund managers do.

We build on Baker et al.'s (2007) measures of stock-picking skill of mutual fund managers to examine whether local investors as a whole and subsets of local investors that appear particularly to be capable of possessing and exploiting local information realize high returns surrounding their holdings' earnings announcements. Specifically, for each fund-report date-holding observation, we calculate raw returns and benchmark-adjusted return (BARs) over the three-day window around the subsequent earnings announcement dates. The BAR is estimated as the difference between the raw return and the

value-weighted average earnings announcement return on the corresponding benchmark portfolio (i.e., one of 5*5*5 sorts on book-to-market, size, and momentum) in the matched quarter.[18] We then annualize the returns by multiplying three-day quarterly earnings announcement returns by four.

Panel A of Table 10 shows the annualized average subsequent three-day quarterly earnings announcement returns for local and nonlocal institutional investors. We find that local institutional investors earn 70 basis points more around their holdings' next earnings announcement than matching stocks, which is significant at the 5% level. In contrast, the corresponding average BAR for nonlocal institutional investors is only 14 basis points and statistically insignificant. Dividing local institutional investors into local investment advisors and other local institutional investors, we find that the average BAR for the former is a significant 80 basis points (at the 5% level), whereas the average BAR for the latter is an insignificant 44 basis points. The differences in BARs between local and nonlocal institutional investors and between local investment advisors and other local institutional investors are statistically significant at the 5% and 1% levels, respectively. The differences in raw returns show similar patterns. These results confirm the existence of stock-picking ability among local institutional investors, particularly among local investment advisors, documented in Section 5.4.

In Panel B of Table 10, we sort local funds into tercile portfolios according to local ownership concentration and local ownership turnover, respectively. Low (high) local ownership concentration portfolio funds are in the bottom (top) tercile of local holdings, where local holdings is measured as the total market value of local stocks held by each manager divided by the total market value of stocks held by each manager. Low (high) local ownership turnover portfolio funds are in the bottom (top) tercile of churn rate, where churn rate is measured following Gasper, Massa, and Matos (2005). The results show that high local ownership concentration portfolio funds earn higher earnings announcement BARs than low local ownership concentration portfolio funds (1.06% versus 0.65%) and high local ownership turnover portfolio funds earn higher earnings announcement BARs than low local ownership turnover

[18] See Baker et al. (2007) for a detailed description of the estimation of BARs.

portfolio funds (0.84% versus 0.32%). Although the difference in the mean BARs between high and low local ownership concentration portfolio funds is not significant, the test for a difference in the mean BARs between high and low local ownership turnover portfolio funds is strongly rejected. Thus, local institutional investors as a whole and subsets of local institutional investors that are expected to have better access to information realize higher earnings announcement returns for the stocks they hold, suggesting stock-picking ability of these investors.

5.7. Earnings announcement returns following trades

Chen, Jegadeesh, and Wermers (2000) and Baker et al. (2007) argue that the methodology based on fund trades is better than the methodology based on fund holdings and find skilled trading by mutual funds around earnings announcements.[19] To show whether such ability also exists for local institutional investors, we follow Baker et al. (2007) and examine earnings announcement returns for holdings whose weight increased or decreased. We sort stocks into quintiles on the basis of the changes in local and nonlocal holdings from the previous report date to the current report date, and estimate the annualized average subsequent three-day quarterly earnings announcement returns on the quintile portfolios.

The results are reported in Table 11. In Panel A, we find that stocks in which local institutional investors have increased their weight earn 0.96% more upon their next earnings announcement than matching stocks, which is significant at the 1% level. The BAR for stocks in which local institutional investors have decreased their weight is small (0.4%) and statistically insignificant. The corresponding BARs for nonlocal institutional investors are 0.21% and -0.04%, both of which are insignificant. We also find that the average annualized BARs on the hedge portfolio Q5-Q1 (increase-decrease) is positive and

[19] See also Ke, Huddart, and Petroni (2003), Ali, Durtschi, Lev, and Trombley (2004), Christophe, Ferri, and Angel (2004), and Seasholes (2004) for a study that examines the skill of investors from the perspective of trades and earnings announcement returns.

significant only for local institutional investors, suggesting that local institutional investors possess better skill than nonlocal institutional investors.[20]

In Panel B of Table 11, we report the subsequent earnings announcement returns by local institutional investors with different local ownership concentration and local ownership turnover. We find that for both weight increases and decreases, the BARs on the low local ownership concentration (turnover) portfolio are not significant. However, for weight increases, the BAR on the high local ownership concentration (turnover) portfolio is positive and significant. For weight decreases, the BAR on the high local ownership concentration portfolio is also significant, but the BAR on the high local ownership turnover portfolio is not. We also find that for weight increases, the BAR on the hedge portfolio of buying high local ownership turnover portfolio and selling low local ownership turnover portfolio is 1.3%, which is significant at the 5% level. The BARs on other hedge portfolios (increase-decrease), however, are not significant.

Overall, these results suggest the existence of stock-picking skill among local institutional investors, particularly among high local turnover institutions.

6. Additional Tests

To check the robustness of the results, we conduct several additional tests. Below, we briefly summarize the results of these tests.

[20] In untabulated tests, we find that the average BAR for stocks in which local investment advisors have increased (decreased) their weight is a significant 1.05% (0.61%), whereas the average BAR for stocks in which other local institutional investors have increased (decreased) their weight is a significant 0.62% (insignificant 0.12%). Tests of differences in average BARs of weight increases (decreases) between local investment advisors and other local institutional investors do not reject the null hypothesis that they are equal. We also find that the BAR on the hedge portfolio for local investment advisors is about seven times larger than that for other local institutional investors (0.44% versus 0.06%). BARs on the hedge portfolio for both local investment advisors and other local institutional investors, however, are statistically insignificant.

6.1. Investment horizons (short-term versus long-term institutional investors)

Several studies document that short-term institutional investors are better informed than long-term institutional investors and argue that institutional investors' investment horizon reflect their information advantage (Ke and Ramalingegowda, 2005; Ke, Ramalingegowda, and Yu, 2006; Yan and Zhang, 2009). To the extent that our results so far indicate that local institutional investors are better informed than nonlocal institutional investors and that their informed trading impacts stock returns, it is possible that our results for the informational role of local institutional investors are mainly driven by local institutional investors with a short-term investment horizon.

To examine this issue, we divide institutional ownership into short- and long-term ownership according to Yan and Zhang's (2009) classification and regress one-quarter-ahead returns on institutional ownership variables and the ten control variables used in Table 4. The regression results are reported in the first two columns of Table 12. In the first regression, we replicate the findings of Yan and Zhang (2009) by disaggregating institutional ownership into short-term and long-term institutional ownership. Consistent with the results in Yan and Zhang (2009), we find that future returns are significantly and positively related to short-term institutional ownership, but are insignificantly related to long-term institutional ownership.

In the second regression, we further divide short- and long-term institutional ownership into short-term local and nonlocal institutional ownership, and long-term local and nonlocal institutional ownership. We find that that both short- and long-term local institutional ownership are positively and significantly related to future turns, indicating that both ownership variables predict future returns. These findings suggest that it is the source of information (e.g., geographic proximity) that mainly determines the informational role of institutional investors, not investor characteristics such as investment horizon and trading styles. We also find that the coefficient on short-term nonlocal institutional ownership is positive and significant, whereas the coefficient on long-term nonlocal institutional ownership is negative and

insignificant. These results suggest that nonlocal institutional investors with a short-term investment horizon have a stronger return forecasting power than those with a long-term investment horizon.

6.2. Institutional investor types

The previous literature shows that mutual fund mangers have an informational advantage and actively trade based on their superior information (Grinblatt and Titman, 1989, 1993; Daniel et al., 1997; Wermers, 1999, 2000; Baker et al., 2007). Furthermore, Coval and Moskowitz (2001) document that local mutual fund managers consistently earn positive abnormal returns from their local investments compared to their nonlocal investments, suggesting that they have significant informational advantages. These results imply that the return forecasting power of institutional ownership documented in the previous studies is primarily driven by the informed trading of mutual fund managers.

To test whether mutual fund ownership derives our results, we break total institutional ownership down according to manager type: banks, insurance companies, mutual funds, investment advisors, and other investors. The results are reported in the third column of Table 12. It shows that mutual fund ownership, investment advisor ownership, and other institutional ownership are positively and significantly associated with future returns. In contrast, bank ownership and insurance company ownership do not predict future returns.

In the fourth regression, we decompose local institutional ownership by manager type. The results show that the coefficient on local mutual fund ownership is positive but statistically insignificant. However, we find that local investment advisor ownership is positively and significantly related to future returns. This result confirms those in the previous sections and is consistent with Bushee and Goodman (2007), who show that private information trading is most pronounced for investment advisers. Finally, we find a positive but insignificant relation between future returns and other institutional ownership.

6.3. Local ownership characteristics

To further show the importance of the informational role of local institutional investors in forecasting future returns, we examine whether subsets of local institutional investors that are more likely to possess and exploit local information are able to forecast future stock returns better. Each quarter, we track funds' local ownership holdings (turnover) at the fund manager level and divide them into high and low local ownership holding (turnover) funds. Then, for each firm, we compute ownership by high local ownership holding (turnover) funds and ownership by low local ownership holding (turnover) funds and regress one-quarter-ahead returns on these two ownership measures. The results are reported in regressions (5) and (6) of Table 12. We find that the positive relation between local institutional holdings and future returns is evident only for high local ownership holding institutions and high local ownership turnover institutions. These results further support the view that the return forecasting power of local institutional investors is stronger when they possess more local information.

6.4. Index funds

Index funds are known to be passive traders since they tend to replicate the movements of the market index with little input in portfolio decisions. Therefore, it is possible that the weak relation between the change in nonlocal institutional ownership and future returns shown in this paper is due to some nonlocal institutional investors who are specialized mainly in index funds. To address this issue, in untabulated tests, we exclude institutional investors who focus on index funds from our sample of institutional investors and reestimate analyses in Tables 3 through 11.[21] We obtain results that are qualitatively similar to those reported in the tables.

7. Summary and Conclusion

[21] Following Yan and Zhang (2009), we define institutional investors specializing in index funds as those that either invest more than $1 billion in index funds or have more than 50% of their total net assets in index funds.

In this paper we use institutional investors' geographic proximity as a proxy for their information advantages and investigate the informational role of institutional investors in stock markets. Employing a dataset that covers the 1995-2007 sample period and expanding it to include all types of institutions such as mutual funds, investment advisors, banks, and insurance companies, we show that local institutional investors, particularly local investment advisors, have a significant information advantage over nonlocal institutional investors and that this information advantage allows local institutional investors to execute more profitable trades.

Specifically, we find that although the levels of both local and nonlocal institutional ownership forecast future returns, the return forecasting power of local institutional ownership is statistically and economically more significant than that of nonlocal institutional ownership. Moreover, the positive relation between the levels of local institutional ownership and future returns is particularly evident for local investment advisors, institutions with high local ownership, and institutions with high local turnover. We also find that consistent with the results in previous studies, this positive relation is more pronounced in firms with high information asymmetry, such as small stocks, stocks with high return volatility, stocks with high R&D intensity, and young stocks. We further find that that the change in local institutional ownership predicts future returns, but the change in nonlocal ownership does not.

Finally, we find that prior to negative earnings surprises, local institutional investors decrease their holdings more significantly than nonlocal institutional investors. Furthermore, the stocks that local institutional investors hold (trade) earn higher excess returns around future earnings announcement than those that nonlocal institutional investors hold (trade).

Overall, these results suggest that local institutional investors possess private information about the future prospects of firms, which allows them to trade more actively than nonlocal institutional investors to exploit their informational advantages. Our results highlight the importance of informed trading in the relation between institutional ownership and stock returns.

REFERENCES

Ali, A., Durtschi, C., Lev, B., Trombley, M., 2004, Changes in institutional ownership and subsequent earnings announcement abnormal returns, *Journal of Accounting, Auditing and Finance* 19, 221-248.

Bae, K., Stulz, R., Tan, H., 2008, Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts, *Journal of Financial Economics* 88, 581-606.

Baker, M., Litov, L., Wachter, J. A., Wurgler, J., 2007, Can mutual fund managers pick stocks? Evidence from their trades prior to earnings announcements, *Journal of Financial and Quantitative Analysis*, forthcoming.

Barber, B., Odean, T., 2000. Trading is hazardous to your wealth: The common stock investment performance of individual investors, *Journal of Finance* 55, 773-806.

Bennett, J., Sias, R., Starks, L., 2003, Greener pastures and the impact of dynamic institutional preferences, *Review of Financial Studies*16, 1203-1238.

Brown, J., Ivković, Z., Smith, P., Weisbenner, S., 2008, Neighbors matter: Causal community effects and stock market participation, *Journal of Finance*, 63, 1509-1531.

Bushee, B., 1998, The influence of institutional investors on myopic R&D investment behavior, *Accounting Review* 73, 305-333.

Bushee, B., Goodman, T., 2007, Which institutional investors trade based on private information about earnings and returns?, *Journal of Accounting Research*, 45, 289-321.

Carhart, M., 1997, On persistence in mutual fund performance, *Journal of Finance* 52, 57-82.

Chakravarty, S., 2001, Stealth-trading: Which traders' trades move stock prices?, *Journal of Financial Economics* 61, 289-307.

Chen, H.-L., Jegadeesh, N., Wermers, R., 2000, The value of active mutual fund management: An examination of the stockholdings and trades of fund managers, *Journal of Financial and Quantitative Analysis* 35, 343-368.

Christophe, S., Ferri, M., Angel, J., 2004, Short-selling prior to earnings announcements, *Journal of Finance* 59, 1845-1875.

Conrad, J., Cornell, B., Landsman, W., 2002, When is bad news really bad news?, *Journal of Finance* 57, 2507-2532.

Coval, J., Moskowitz T., 1999, Home bias at home: Local equity preference in domestic portfolios, *Journal of Finance* 54, 2045-2073.

Coval, J., Moskowitz T., 2001, The geography of investment: Informed trading and asset prices, *Journal of Political Economy* 109, 811-841.

Daniel, K., Grinblatt, M., Titman, S., Wermers, R., 1997, Measuring mutual fund performance with characteristic-based benchmarks, *Journal of Finance* 52, 1035-1058.

Dye, R., 1985, Disclosure of nonproprietary information, *Journal of Accounting Research* 23, 123-145.

Falkenstein, E., 1996, Preferences for stock characteristics as revealed by mutual fund portfolio holdings, *Journal of Finance* 51, 111-135.

Fama, E., French, K., 1997, Industry costs of equity, *Journal of Financial Economics* 43, 153-193.

Fama, E., MacBeth, J., 1973, Risk, return, and equilibrium: Empirical tests, *Journal of Political Economy* 81, 607-36.

Gaspar, J., Massa, M., 2007, Local ownership and private information: Evidence on the monitoring-liquidity trade-off, *Journal of Financial Economics* 83, 751–792.

Gaspar, J., Massa, M., Matos, P., 2005, Shareholder investment horizons and the market for corporate control, *Journal of Financial Economics* 76, 135–165.

Gompers, P., Metrick, A., 2001, Institutional investors and equity prices, *Quarterly Journal of Economics* 116, 229-259.

Grinblatt, M., Titman, S., 1989, Portfolio performance evaluation: Old issues and new insights, *The Review of Financial Studies* 2, 393-421.

Grinblatt, M., Titman, S., 1993, Performance measurement without benchmarks: An examination of mutual fund returns, *Journal of Business* 66, 47-68.

Gruber, M., 1996, Another puzzle: The growth in actively managed mutual funds, *Journal of Finance* 51, 783–810.

Hong, H., Kubik, J., Stein, J., 2005, Thy neighbor's portfolio: Word-of-mouth effects in the holdings and trades of money managers, *Journal of Finance* 60, 2801-2824.

Hong, H., Lim, T., Stein. J., 2000, Bad news travels slowly: Size, analyst coverage and the profitability of momentum strategies, *Journal of Finance* 55, 265-295.

Jones, J., 1991, Earnings management during import relief investigation, *Journal of Accounting Research* 29, 193-228.

Ivković, Z., Weisbenner, S., 2005, Local does as local is: Information content of the geography of individual investors' common stock investments, *Journal of Finance* 60, 267-306.

Ivković, Z., Weisbenner, S., 2007, Information diffusion effects in individual investors' common stock purchases: Covet thy neighbors' investment choices, *Review of Financial Studies* 20, 1327-1357.

Jensen, M., 1968, The performance of mutual funds in the Period 1945-1964, *Journal of Finance* 23, 389-416.

Jones, J., 1991, Earnings management during import relief investigations, *Journal of Accounting Research* 29, 193-228.

Jung, W., Kwon. Y., 1988, Disclosure when the market is unsure of information endowment of managers, *Journal of Accounting Research* 26, 146-153.

Kang, J., Kim, J., 2008, The geography of block acquisitions, *Journal of Finance* 63, 2817-2858.

Ke, B., Huddart, S., Petroni, K., 2003, What insiders know about future earnings and how they use it: Evidence from insider trades, *Journal of Accounting and Economics* 35, 315-346.

Ke, B., Petroni, K., 2004, How informed are actively trading institutional investors? Evidence from their trading behavior before a break in a string of consecutive earnings increases. *Journal of Accounting Research* 42, 895-927.

Ke, B., Ramalingegowda, S., 2005, Do institutional investors exploit the post-earnings announcement drift?, *Journal of Accounting and Economics* 39, 25-53.

Ke, B., Ramalingegowda, S., Yu, Y., 2006, The effect of investment horizon on institutional investors' incentives to acquire private information on long-term earnings, Working paper, Pennsylvania State University.

Kothari, S., Leone, A., Wasley, C., 2005, Performance matched discretionary accrual measures, *Journal of Accounting and Economics* 39, 163-197.

Lang, M., Lundholm, R., 1993, Cross-sectional determinants of analyst ratings of corporate disclosures, *Journal of Accounting Research* 31, 246-271.

Lee, C., Swaminathan, B., 2000, Price momentum and trading volume. *Journal of Finance* 55, 2017-2069.

Malkiel, B., 1995, Returns from investing in equity mutual funds 1971 to 1991, *Journal of Finance* 50, 549-572.

Malloy, C., 2005, The geography of equity analysis, *Journal of Finance* 60, 719-755.

Miller, G., 2002, Earnings performance and discretionary disclosure, *Journal of Accounting Research* 40, 173-204.

Nofsinger, J., Sias, R., 1999, Herding and feedback trading by institutional and individual investors, *Journal of Finance* 54, 2263-2295.

Orpurt, S., 2004, Local analyst earnings forecast advantages in Europe, Working paper, Singapore Management University.

Seasholes, M., 2004, Re-examining information asymmetries in emerging stock markets, Working paper, University of California at Berkeley.

Sias, R., Starks, L., Titman, S., 2006. Changes in institutional ownership and stock returns: Assessment and methodology. *Journal of Business* 79, 2869-2910.

Skinner, D., Sloan, R., 2002. Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio, *Review of Accounting Studies*, 7,289-312.

Verrecchia, R., 1983, Discretionary disclosure, *Journal of Accounting and Economics* 5, 179-194.

Wermers, R., 1999. Mutual fund herding and the impact on stock prices, *Journal of Finance* 54, 581-622.

Wermers, R., 2000. Mutual fund performance: An empirical decomposition into stock-picking talent, style, Transactions Costs, and Expenses, *Journal of Finance* 55, 1655-1695.

Yan, S., Zhang, Z., 2009, Institutional investors and equity returns: Are short-term institutions better informed?, *Review of Financial Studies* 22, 893-924.

Table 1
Descriptive Statistics of Local and Nonlocal Institutional Ownership and the Extent of Local Bias

Panels A and B of this table summarize local and nonlocal institutional ownership at the firm level and mean local institutional ownership at the firm level by manager type, respectively. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for the period from January 1, 1995 to June 30, 2007 for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. "Other" manager type includes pension funds, university endowments, and foundations. Panel C summarizes local institutional ownership at the manager level. Local institutional ownership at the manager level is defined as the total market value of local equity held by each manager divided by the total market value of equity held by each manager. Panel D summarizes the extent of local bias. The actual fraction of local holdings by each institutional manager is computed by the total market value of local stocks held by each manager divided by the total market value of stocks held by each manager. The fraction of the market of available securities that is located within the same state is the expected fraction of stocks invested within the same state if the institutional investor holds market portfolio. To estimate the fractions for aggregate institutional ownership, the actual fractions of local holdings (the fractions of the market of available securities) are averaged out using the total market value of equity held by each manager as the weight. The reported numbers are the time-series average of these value-weighted averages. Standard deviation is in parenthesis and *p*-value is in square bracket.

Panel A: Local and nonlocal institutional ownership at the firm level (%)

Local institutional ownership		Nonlocal institutional ownership	
Mean (Standard deviation)	Median	Mean (Standard deviation)	Median
3.80 (6.61)	0.78	34.72 (26.49)	30.52

Panel B: Mean (standard deviation) local institutional ownership at the firm level by manager type (%)

Banks	Insurance companies	Mutual funds	Investment advisors	Other
0.81 (2.48)	0.51 (4.47)	0.47 (1.75)	3.85 (8.26)	0.18 (0.82)

Panel C: Local institutional ownership at the manager level (%)

Banks		Insurance companies		Mutual funds		Investment advisors		Other	
Mean (Standard deviation)	Median	Mean (Standard deviation)	Median	Mean (Standard deviation)	Median	Mean (Standard deviation)	Median	Mean (Standard deviation)	Median
5.40 (7.50)	2.22	6.92 (10.89)	3.25	8.20 (10.98)	3.27	10.34 (13.55)	4.62	12.22 (23.57)	2.62

Panel D: Degree of local bias

Actual fraction of local holdings	Fraction of the market of available securities in the same state	Test-of-difference [*p*-value]
8.20%	6.60%	1.60% [<0.01]

Table 2

Descriptive Statistics of Local and Nonlocal Institutional Ownership, Future Returns, and Other Firm Characteristics

This table provides descriptive statistics for the quarterly cross-sectional averages during the period from January 1, 1995 to June 30, 2007 for institutional ownership, future stock returns, and other firm characteristics. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. $RET_{t,t+3}$ is one-quarter-ahead stock return. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity for the current quarter. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. $Turnover_{t-6,\ t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. $MRET_{t-6,\ t}$ is the preceding 6-month cumulative market-adjusted return and $MRET_{t-12,\ t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP, and dividend yield is cash dividend divided by share price. R&D is research and development expense (0 for missing values) divided by total assets. All variables are estimated at the same quarter-end unless noted otherwise.

	Number of firm-quarters	Mean	Median	Standard deviation	Q1	Q3
Ownership and future returns						
Institutional ownership (%)	50	39.28	36.53	6.70	33.32	47.06
Local institutional ownership (%)	50	3.82	3.77	0.33	3.61	3.97
Nonlocal institutional ownership (%)	50	35.27	32.60	6.61	29.78	43.12
$RET_{t,t+3}$ *(%)*	50	3.67	2.67	10.42	-3.37	11.91
Other firm characteristics						
Market-to-book	50	2.67	2.76	0.54	2.40	2.94
Size: Market capitalization ($mil)	50	2,755.4	2,629.9	1,286.3	1,759.2	3,325.9
Return volatility (%)	50	13.21	12.57	3.29	10.43	15.60
$Turnover_{t-6,\ t}$	50	9.54	10.76	4.37	9.88	11.96
Price ($)	50	41.34	37.91	10.15	34.96	51.86
SP500 (dummy)	50	0.09	0.09	0.02	0.07	0.09
$MRET_{t-6,\ t}$*(%)*	50	3.44	3.02	9.96	-2.77	6.56
$MRET_{t-12,\ t-7}$*(%)*	50	3.89	3.26	10.14	-2.19	7.39
Age (months)	50	171.09	157.62	26.74	149.02	200.93
Dividend yield	50	0.003	0.003	0.001	0.002	0.004
R&D	50	0.011	0.012	0.004	0.011	0.013

Table 3
Determinants of Local and Nonlocal Institutional Ownership

This table reports estimates from the time-series cross-sectional regressions of fractional local (nonlocal) institutional ownership on firm characteristics. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. $RET_{t,t+3}$ is one-quarter-ahead stock return. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. $Turnover_{t-6,\,t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. $MRET_{t-6,\,t}$ is the preceding 6-month cumulative market-adjusted return and $MRET_{t-12,\,t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. R&D is research and development expense (0 for missing values) divided by total assets. All variables are estimated at the same quarter-end unless noted otherwise. Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution. Numbers in brackets are those of coefficients that are significantly positive and negative at least at the 10% level, respectively.

	Local institutional ownership		Nonlocal institutional ownership		Test-of-difference in coefficients
Independent variables	Coefficient (*t*-statistic)	Number of significance	Coefficient (*t*-statistic)	Number of significance	*t*-test
Intercept	0.001		-0.089		
	(0.43)		(-7.46)		
Market-to-book	-0.000	[0, 11]	-0.004	[2, 45]	8.85
	(-6.09)		(-9.83)		
Size	0.007	[45, 0]	0.082	[49, 0]	27.55
	(20.80)		(30.43)		
Return volatility	-0.019	[2,25]	-0.155	[1,39]	6.59
	(-5.09)		(-7.67)		
$Turnover_{t-6,\,t}$	0.001	[41,0]	0.009	[50,0]	3.38
	(5.50)		(3.68)		
Price	-0.000	[0,0]	-0.000	[0,48]	3.41
	(-14.90)		(-4.01)		
SP500	-0.005	[7,26]	-0.066	[2,42]	6.66
	(-3.89)		(-7.30)		
$MRET_{t-6,\,t}$	-0.002	[8,11]	-0.015	[8,28]	2.99
	(-1.63)		(-3.43)		
$MRET_{t-12,\,t-7}$	-0.003	[5,17]	-0.021	[6,33]	3.86
	(-3.46)		(-4.58)		
Age	-0.000	[0,6]	0.000	[26,0]	5.20
	(-4.18)		(4.66)		
Dividend yield	-0.230	[2,17]	-3.635	[1,46]	6.62
	(-4.17)		(-7.12)		
R&D	0.103	[40,0]	-0.200	[0,31]	11.50
	(9.33)		(-8.37)		
Average R^2	0.06		0.43		

Table 4
Regression of Future Returns on Levels of and Changes in Local and Nonlocal Institutional Ownership

This table reports estimates from the time-series cross-sectional regressions of one-quarter-ahead returns on local (nonlocal) institutional ownership and other firm characteristics. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Local (nonlocal) institutional ownership$_t$ is the current quarter local (nonlocal) institutional ownership. Local (nonlocal) institutional ownership$_{t-1}$ is the two-quarter lagged local (nonlocal) institutional ownership. Δ Local (nonlocal) institutional ownership is the change in local (nonlocal) institutional ownership over the previous two quarters. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. Turnover$_{t-6,\ t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. MRET$_{t-6,\ t}$ is the preceding 6-month cumulative market-adjusted return and MRET$_{t-12,\ t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise. Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution.

	Total institutional ownership		Local institutional ownership		Nonlocal institutional ownership		Local and nonlocal institutional ownership	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07
	(4.18)	(4.22)	(4.02)	(4.07)	(4.16)	(4.21)	(4.18)	(4.22)
Institutional ownership$_t$	0.02							
	(1.92)							
Institutional ownership$_{t-1}$		0.02						
		(1.99)						
Δ Institutional ownership		-0.007						
		(-0.52)						
Local institutional ownership$_t$			0.03				0.03	
			(2.12)				(2.23)	
Local institutional ownership$_{t-1}$				0.03				0.04
				(2.03)				(2.14)
Δ Local institutional ownership				0.06				0.06
				(2.06)				(2.06)
Non-local institutional ownership$_t$					0.01		0.01	
					(1.52)		(1.61)	
Non-local institutional ownership$_{t-1}$						0.01		0.01
						(1.64)		(1.73)
Δ Nonlocal institutional ownership						-0.01		-0.01
						(-0.92)		(-0.91)
Market-to-book	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-2.49)	(-2.30)	(-2.72)	(-2.48)	(-2.60)	(-2.37)	(-2.56)	(-2.33)
Size	-0.004	-0.004	-0.002	-0.002	-0.003	-0.004	-0.004	-0.004
	(-2.29)	(-2.34)	(-1.35)	(-1.40)	(-2.06)	(-2.13)	(-2.30)	(-2.35)
Return volatility	-0.04	-0.04	-0.04	-0.05	-0.04	-0.05	-0.04	-0.04
	(-0.97)	(-1.04)	(-0.99)	(-1.08)	(-0.98)	(-1.06)	(-0.95)	(-1.03)
Turnover$_{t-6,\ t}$	-0.0003	-0.0004	-0.0004	-0.0004	-0.0003	-0.0003	-0.0003	-0.0003
	(-1.24)	(-1.35)	(-1.30)	(-1.35)	(-1.21)	(-1.32)	(-1.25)	(-1.37)
Price	-0.0000	-0.0000	-0.000	-0.0000	-0.000	-0.0000	-0.0000	-0.0000
	(-0.46)	(-0.47)	(-0.64)	(-0.64)	(-0.51)	(-0.52)	(-0.45)	(-0.47)
SP500	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	(4.54)	(4.64)	(4.01)	(4.12)	(4.48)	(4.59)	(4.56)	(4.66)

$MRET_{t-6,\ t}$	0.02 (2.78)	0.02 (2.92)	0.02 (2.75)	0.02 (2.72)	0.02 (2.75)	0.02 (2.91)	0.02 (2.74)	0.02 (2.89)
$MRET_{t-12,\ t-7}$	-0.001 (-0.19)	-0.0005 (-0.08)	-0.001 (-0.16)	-0.0008 (-0.13)	-0.001 (-0.21)	-0.0005 (-0.09)	-0.001 (-0.20)	-0.0005 (-0.09)
Age	-0.000 (-1.17)	-0.00001 (-1.21)	-0.000 (-1.14)	-0.00001 (-1.09)	-0.000 (-1.16)	-0.00001 (-1.21)	-0.000 (-1.17)	-0.00001 (-1.24)
Dividend yield	0.05 (0.15)	0.02 (0.04)	-0.03 (-0.08)	-0.07 (-0.21)	0.03 (0.07)	-0.01 (-0.03)	0.04 (0.13)	0.006 (0.01)
Average R^2	0.08	0.08	0.07	0.07	0.08	0.08	0.08	0.08
Test-of-difference in coefficients between local and nonlocal (Δ local and Δ nonlocal) institutional ownership: p-value							0.00 (-)	0.07 (0.01)

Table 5

Regression of Future Returns on Levels of and Changes in Local and Nonlocal Institutional Ownership by the Extent of Information Asymmetry

This table reports estimates from the time-series cross-sectional regressions of one-quarter-ahead returns on local (nonlocal) institutional ownership and other firm characteristics. Stocks are divided into those with high information asymmetry and those with low information asymmetry based on the sample median of each information asymmetry variable. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions for each subgroup from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Local (nonlocal) institutional ownership$_t$ is the current quarter local (nonlocal) institutional ownership. Local (nonlocal) institutional ownership$_{t-1}$ is the two-quarter lagged local (nonlocal) institutional ownership. Δ Local (nonlocal) institutional ownership is the change in local (nonlocal) institutional ownership over the previous two quarters. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. Turnover$_{t-6,\ t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. MRET$_{t-6,\ t}$ is the preceding 6-month cumulative market-adjusted return and MRET$_{t-12,\ t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise. Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution.

	Size		Return volatility		R&D		Age	
	Small	Large	Low	High	Low	High	Young	Mature
Intercept	0.08	0.08	0.05	0.07	0.06	0.08	0.06	0.06
	(4.81)	(3.44)	(4.70)	(3.26)	(4.12)	(3.04)	(3.70)	(4.37)
Local institutional ownership$_{t-1}$	0.07	0.01	0.004	0.06	0.02	0.06	0.05	0.02
	(2.85)	(0.69)	(0.42)	(2.19)	(1.70)	(2.23)	(2.06)	(1.12)
Δ Local institutional ownership	0.09	0.01	0.04	0.07	0.02	0.11	0.07	0.02
	(2.02)	(0.56)	(1.41)	(1.55)	(0.75)	(1.63)	(1.79)	(0.50)
Nonlocal institutional ownership$_{t-1}$	0.01	0.01	-0.0001	0.03	0.01	0.02	0.02	0.007
	(1.18)	(1.12)	(-0.01)	(2.10)	(1.43)	(1.42)	(1.96)	(0.66)
Δ Nonlocal institutional ownership	-0.03	-0.01	-0.01	-0.002	-0.01	0.00	-0.004	-0.02
	(-1.42)	(-1.02)	(-0.92)	(-0.16)	(-0.97)	(0.03)	(-0.25)	(-1.69)
Market-to-book	-0.001	-0.001	-0.0004	-0.0009	-0.002	-0.00	-0.001	-0.001
	(-2.69)	(-1.56)	(-1.09)	(-2.20)	(-4.54)	(-2.15)	(-2.11)	(-2.41)
Size	-0.006	-0.02	-0.002	-0.001	-0.003	-0.006	-0.005	-0.003
	(-2.35)	(-2.74)	(-1.57)	(-2.74)	(-1.67)	(-2.75)	(-2.35)	(-2.07)
Return volatility	-0.06	-0.0002	0.02	-0.05	-0.03	-0.05	-0.04	-0.02
	(-1.81)	(-0.50)	(0.35)	(-2.25)	(-0.63)	(-1.98)	(-1.10)	(-0.56)
Turnover$_{t-6,\ t}$	0.0001	-0.0002	-0.0002	-0.0003	-0.0005	-0.0005	-0.0006	-0.000
	(0.13)	(-0.57)	(-0.32)	(-1.24)	(-1.50)	(-1.70)	(-2.07)	(-0.23)
Price	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000
	(-0.93)	(-0.45)	(0.62)	(-0.70)	(1.73)	(-0.19)	(0.17)	(-0.58)
SP500	0.04	0.02	0.01	0.03	0.02	0.02	0.03	0.02
	(1.67)	(6.65)	(3.51)	(5.18)	(4.32)	(4.27)	(4.18)	(5.37)
MRET$_{t-6,\ t}$	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
	(3.26)	(2.98)	(3.32)	(3.43)	(2.81)	(2.13)	(3.12)	(2.43)
MRET$_{t-12,\ t-7}$	0.001	-0.001	0.008	-0.001	0.005	-0.004	0.0009	-0.002
	(0.23)	(-0.20)	(1.02)	(-0.28)	(0.68)	(-0.96)	(0.16)	(-0.40)
Age	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000
	(-1.16)	(-1.41)	(-1.98)	(0.10)	(-1.65)	(-0.88)	(1.21)	(-2.08)
Dividend yield	0.11	0.28	-0.004	-0.18	0.12	-0.14	-0.22	-0.07
	(0.42)	(0.41)	(-0.01)	(-0.28)	(0.40)	(-0.18)	(-0.36)	(-0.18)
Average R^2	0.07	0.10	0.06	0.06	0.07	0.07	0.08	0.08
Test-of-difference in coefficients between local and nonlocal (Δ local and Δ nonlocal) institutional ownership: p-value	0.00	0.62	0.41	0.01	0.86	0.07	0.02	0.73
	(0.00)	(0.02)	(0.00)	(0.00)	(0.14)	(0.00)	(0.00)	(0.00)

Table 6
Regression of Future Returns on Levels of and Changes in Local Investment Advisor and Other Local Institutional Ownership

This table reports estimates from the time-series cross-sectional regressions of one-quarter-ahead returns on local investment advisor (other local institutional and nonlocal institutional) ownership and other firm characteristics. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local institutional investors are institutional investors whose headquarters are located within the same state as the firms' headquarters. Local investment advisor (other local institutional investor) ownership is computed as the number of shares held by local investment advisors (other local institutional investors) divided by total shares outstanding. Local (nonlocal) institutional ownership$_t$ is the current quarter local (nonlocal) institutional ownership. Local (nonlocal) institutional ownership$_{t-1}$ is the two-quarter lagged local (nonlocal) institutional ownership. Δ Local (nonlocal) institutional ownership is the change in local (nonlocal) institutional ownership over the previous two quarters. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. Turnover$_{t-6,\,t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. MRET$_{t-6,\,t}$ is the preceding 6-month cumulative market-adjusted return and MRET$_{t-12,\,t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise. Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution.

	Local investment advisors: ownership level (1)	Other local institutional investors: ownership level (2)	Local investment advisors and other local institutional investors: ownership level (3)	Local investment advisors: ownership change (4)	Other local institutional investors: ownership change (5)	Local investment advisors and other local institutional investors: ownership change (6)
Intercept	0.064 (4.15)	0.064 (4.18)	0.063 (4.16)	0.064 (4.19)	0.064 (4.22)	0.063 (4.19)
Local investment advisor ownership$_t$	0.035 (2.53)		0.035 (2.61)			
Local investment advisor ownership$_{t-1}$				0.034 (2.66)		0.035 (2.72)
Δ Local investment advisor ownership				0.037 (1.65)		0.044 (1.65)
Other local institutional ownership$_t$		0.001 (0.08)	-0.007 (-0.70)			
Other local institutional ownership$_{t-1}$					0.001 (0.12)	-0.008 (-0.77)
Δ Other local institutional ownership					-0.021 (-0.59)	-0.046 (-1.07)
Nonlocal institutional ownership$_t$	0.014 (1.54)	0.014 (1.54)	0.014 (1.53)			
Nonlocal institutional ownership$_{t-1}$				0.017 (1.75)	0.017 (1.74)	0.017 (1.74)
Δ Nonlocal institutional ownership				-0.017 (-1.15)	-0.017 (-1.13)	-0.017 (-1.16)
Market-to-book	-0.001 (-2.58)	-0.001 (-2.59)	-0.001 (-2.58)	-0.001 (-2.27)	-0.001 (-2.29)	-0.001 (-2.25)
Size	-0.004 (-2.19)	-0.003 (-2.13)	-0.004 (-2.21)	-0.004 (-2.23)	-0.004 (-2.17)	-0.004 (-2.24)
Return volatility	-0.041 (-0.99)	-0.042 (-1.01)	-0.041 (-0.98)	-0.047 (-1.11)	-0.048 (-1.14)	-0.047 (-1.12)

Turnover$_{t-6,\ t}$	-0.000 (-1.29)	-0.000 (-1.19)	-0.000 (-1.28)	-0.000 (-1.57)	-0.000 (-1.47)	-0.000 (-1.57)
Price	-0.000 (-0.47)	-0.000 (-0.49)	-0.000 (-0.46)	-0.000 (-0.47)	-0.000 (-0.49)	-0.000 (-0.47)
SP500	0.022 (4.62)	0.021 (4.49)	0.022 (4.61)	0.021 (4.59)	0.020 (4.43)	0.021 (4.55)
MRET$_{t-6,\ t}$	0.019 (2.73)	0.020 (2.73)	0.019 (2.71)	0.021 (2.92)	0.021 (2.92)	0.021 (2.92)
MRET$_{t-12,\ t-7}$	-0.001 (-0.18)	-0.001 (-0.20)	-0.001 (-0.19)	0.000 (0.00)	-0.000 (-0.01)	-0.000 (-0.01)
Age	-0.000 (-1.16)	-0.000 (-1.18)	-0.000 (-1.15)	-0.000 (-1.17)	-0.000 (-1.19)	-0.000 (-1.16)
Dividend yield	0.067 (0.19)	0.026 (0.07)	0.065 (0.18)	0.060 (0.17)	0.014 (0.04)	0.056 (0.15)
Average R^2	0.076	0.075	0.076	0.078	0.077	0.078
Test-of-difference in coefficients between local investment advisor and other local (Δ local investment advisor and Δ other local) institutional ownership: p-value	-	-	0.00 (-)	-	-	0.00 (0.08)

Table 7
Returns to Local and Nonlocal Institutional Ownership Portfolios

This table presents the time-series average of annualized quarterly value-weighted returns on the portfolios sorted according to the levels of local and nonlocal institutional ownership (Panel A), the changes in local and nonlocal institutional ownership (Panel B), and the levels of and changes in local investment advisor and other local institutional ownership. Each quarter, stocks are sorted into quintiles on the basis of the level of local and nonlocal ownership in quarter *t* and the change in local and nonlocal ownership from quarter *t*-2 to quarter *t*, respectively, and annualized one-quarter-ahead value-weighted returns are computed on the quintile portfolios. High-Low is a zero-cost investment (hedge portfolio) strategy that is long in portfolio Q5 (quintile portfolio with the largest ownership holding (the largest ownership increase)) and short in portfolio Q1 (quintile portfolio with the smallest ownership holding (the largest ownership decrease)), Q5 - Q1. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available from January 1, 1995 to June 30, 2007. Local institutional investors are institutional investors whose headquarters are located within the same state as the firms' headquarters. Nonlocal institutional ownership is equity holdings by institutional investors whose headquarters are located within the different state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Local investment advisor (other local institutional investor) ownership is computed as the number of shares held by local investment advisors (other local institutional investors) divided by total shares outstanding. Risk-adjusted returns are benchmark-adjusted returns based on Daniel, Grinblatt, Titman, and Wermers (1997).

Panel A: Returns (%) on the portfolios sorted according to the levels of local and nonlocal institutional ownership

	Local institutional ownership (*p*-value)	Nonlocal institutional ownership (*p*-value)
Low(Q1)	13.69	15.15
High(Q5)	15.91	14.92
High-Low (Raw)	2.22 (<0.01)	-0.23 (0.81)
High-Low (Risk adjusted)	6.60 (<0.01)	6.13 (<0.01)

Panel B: Returns (%) on the portfolios sorted according to the changes in local and nonlocal institutional ownership

	Change in local Institutiona ownership (*p*-value)	Change in nonlocal institutional ownership (*p*-value)
Low(Q1)	13.55	16.31
High(Q5)	15.82	14.26
High-Low (Raw)	2.27 (0.01)	-2.05 (0.03)
High-Low (Risk adjusted)	1.61 (0.02)	-0.87 (0.24)

Panel C: Returns (%) on the portfolios sorted according to the levels of and changes in local investment advisors and other local institutional ownership

	Level in local investment advisor ownership (*p*-value)	Level in other local institutional ownership (*p*-value)	Change in local investment advisor ownership (*p*-value)	Change in other local institutional ownership (*p*-value)
Low(Q1)	10.96	10.76	12.50	13.82
High(Q5)	16.01	15.92	14.30	12.48
High-Low (Raw)	5.05 (<0.01)	5.16 (<0.01)	1.80 (0.02)	-1.34 (0.09)
High-Low (Risk adjusted)	3.63 (<0.01)	3.58 (<0.01)	1.14 (0.10)	-0.00 (0.27)

Table 8
Change in Local and Nonlocal Institutional Ownership Prior to Earnings Surprises at the Earnings Announcement Date

This table reports changes (percentage changes relative to the previous period) in local and nonlocal institutional ownership prior to the earnings announcement surprise over the past four quarters for two subsamples of firms that experience the most negative earnings surprise and the most positive earnings surprise (Panel A), cumulative changes (from quarter -3 to quarter -1) in local and nonlocal institutional ownership prior to the earnings announcement surprise across accounting quality for a subsample of firms that experience the most negative earnings surprises (Panel B), and cumulative changes (from quarter -3 to quarter -1) in local investment advisor ownership and other local institutional ownership prior to the earnings announcement surprise for a subsample of firms that experience the most negative earnings surprises (Panel C). Each quarter, we sort stocks into quintiles on the basis of the EPS surprise, and we then compute the change in local and nonlocal institutional ownership on portfolio Q1 (the bottom quintile) and portfolio Q5 (the top quintile) over the past four quarters. We measure the EPS surprise as the difference between the actual and consensus earnings per share, scaled by the per-share price at the beginning of the forecast period. The consensus EPS is the beginning-of-quarter mean forecast from I/B/E/S. AQ (accounting quality) is defined as the absolute value of abnormal accruals derived from a modified Jones model (1991) adjusted for ROA (Kothari, Leone, and Wasley, 2005). The initial sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available from January 1, 1995 to June 30, 2007. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Local investment advisor (other local institutional investor) ownership is computed as the number of shares held by local investment advisors (other local institutional investors) divided by total shares outstanding. ***, **, and * denote that the test statistics are significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Panel A: Changes in local and nonlocal institutional ownership prior to earnings surprises at the earnings announcement date

Quintile portfolio with the most negative earnings surprise (Q1): (N=21,747)

	Mean change (%)		Median change (%)		Test-of-difference (*p*-value)	
Quarter	Local institutional ownership	Nonlocal institutional ownership	Local institutional ownership	Nonlocal institutional ownership	*t*-test	Wilcoxon *z*-test
-4	0.19	0.17	1.44	-0.26	0.14	0.24
-3	-0.17*	0.28	-3.65**	0.35	0.05	<0.01
-2	-0.68***	-0.11**	-1.82***	-0.45**	0.04	<0.01
-1	-1.00*	-0.30**	-1.96***	-0.74***	0.18	<0.01
0	0.09	-0.40*	-2.08***	-0.23***	<0.01	0.30
-3 to -1	-1.69*	-0.48**	-3.74***	-0.11***	0.07	<0.01

Quintile portfolio with the most positive earnings surprise (Q5): (N=21,754)

	Mean change (%)		Median change (%)		Test-of-difference (*p*-value)	
Quarter	Local institutional ownership	Nonlocal institutional ownership	Local institutional ownership	Nonlocal institutional ownership	*t*-test	Wilcoxon *z*-test
-4	-0.09	0.32	-1.86	0.18**	0.18	<0.01
-3	-0.42	0.29	-0.96	0.06*	0.13	<0.01
-2	-0.10	0.50*	-0.09	0.31**	0.20	<0.01
-1	1.03*	1.78**	1.90***	2.06***	0.16	0.31
0	1.74***	3.12***	6.53***	4.44***	0.09	0.25
-3 to -1	0.93***	2.29***	1.81***	2.38***	0.12	0.28

Panel B: Cumulative changes (from quarter-3 to quarter-1) in local and nonlocal institutional ownership prior to earnings surprises at the earnings announcement date by accounting quality

Quintile portfolio with the most negative earnings surprise (Q1): (N=21,747)

	Mean change (%)		Median change (%)		Test-of-difference (*p*-value)	
Quarter	Local institutional ownership	Nonlocal institutional ownership	Local institutional ownership	Nonlocal institutional ownership	*t*-test	Wilcoxon *z*-test
-3 to -1 for transparent firms (AQ < median)	-1.94***	0.16	-6.93***	-0.49***	0.20	<0.01
-3 to -1 for opaque firms (AQ > median)	-0.87***	-0.26***	-3.47***	-1.10***	0.06	<0.01

Panel C: Cumulative changes (from quarter-3 to quarter-1) in local investment advisors and other local institutional ownership prior to earnings surprises at the earnings announcement date

Quintile portfolio with the most negative earnings surprise (Q1): (N=21,747)

	Mean change (%)		Median change (%)		Test-of-difference (*p*-value)	
Quarter	Local investment advisor ownership	Other local institutional ownership	Local investment advisor ownership	Other local institutional ownership	*t*-test	Wilcoxon *z*-test
-3 to -1	-1.15***	-0.01***	-4.53***	0.04	<0.01	<0.01

Table 9

Regression of Future Residual Returns on Levels of and Changes in Local and Nonlocal Institutional Ownership

This table reports estimates from the time-series cross-sectional regressions of one-quarter-ahead residual returns on local (nonlocal) institutional ownership and other firm characteristics. One-quarter-ahead residual returns are estimated by subtracting out the equally-weighted portfolio returns of distant (out-of-state) firms operating in the same Fama and French (1997) industry as the local firm from one-quarter-ahead returns. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Local (nonlocal) institutional ownership$_t$ is the current quarter local (nonlocal) institutional ownership. Local (nonlocal) institutional ownership$_{t-1}$ is the two-quarter lagged local (nonlocal) institutional ownership. Δ Local (nonlocal) institutional ownership is the change in local (nonlocal) institutional ownership over the previous two quarters. Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. Turnover$_{t-6,\ t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. MRET$_{t-6,\ t}$ is the preceding 6-month cumulative market-adjusted return and MRET$_{t-12,\ t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise. Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution.

	Total institutional ownership	Local institutional ownership	Nonlocal institutional ownership	Local and nonlocal institutional ownership
Intercept	0.03	0.03	0.02	0.02
	(1.76)	(1.60)	(1.83)	(2.79)
Institutional ownership$_{t-1}$	0.02			
	(2.26)			
Δ Institutional ownership	-0.01			
	(-0.61)			
Local institutional ownership$_{t-1}$		0.03		0.03
		(2.40)		(2.60)
Δ Local institutional ownership		0.04		0.04
		(1.64)		(1.69)
Nonlocal institutional ownership$_{t-1}$			0.01	0.01
			(2.00)	(2.05)
Δ Nonlocal institutional ownership			-0.01	-0.01
			(-0.87)	(-0.87)
Market-to-book	-0.00	-0.00	-0.00	-0.01
	(-3.03)	(-3.40)	(-3.08)	(-3.05)
Size	-0.00	-0.00	-0.00	-0.00
	(-2.19)	(-1.01)	(-1.98)	(-2.19)
Return volatility	-0.03	-0.05	-0.05	-0.03
	(-2.73)	(-1.08)	(-1.06)	(-0.89)
Turnover$_{t-6,\ t}$	-0.00	-0.00	-0.00	-0.00
	(-2.73)	(-2.28)	(-2.68)	(-2.74)
Price	-0.00	-0.00	-0.00	-0.00
	(-0.36)	(-0.73)	(-0.42)	(-0.35)
SP500	0.02	0.02	0.02	0.02
	(4.24)	(3.73)	(4.19)	(4.27)
MRET$_{t-6,\ t}$	0.02	0.01	0.02	0.02
	(2.91)	(2.66)	(2.90)	(2.88)
MRET$_{t-12,\ t-7}$	-0.00	-0.00	-0.00	-0.00
	(-0.01)	(-0.06)	(-0.01)	(-0.02)
Age	-0.00	-0.00	-0.00	-0.00
	(-1.32)	(-1.15)	(-1.31)	(-1.34)
Dividend yield	-1.38	-0.25	-0.16	-0.14
	(-0.56)	(-1.03)	(-0.66)	(-0.59)
Average R^2	0.05	0.05	0.05	0.05
Test-of-difference in coefficients between local and nonlocal (Δ local and Δ nonlocal) institutional ownership: p-value				0.10 (0.01)

Table 10
Annualized Three-Day Average Raw and Benchmark-Adjusted Returns (BAR) of Institutional Holdings around Earnings Announcement Dates

This table computes the annualized average subsequent three-day (centered on the earnings announcement date) quarterly earnings announcement returns by institution types. The benchmark-adjusted return is estimated as the difference between the raw return and the value-weighted average earnings announcement return on the corresponding benchmark portfolio (i.e., one of 5*5*5 sorts on book-to-market, size, and momentum) in the matched quarter. The returns are annualized by multiplying three-day quarterly earnings announcement returns by four. Low (high) local ownership concentration portfolio funds are in the bottom (top) tercile of local holdings, where local holdings is measured as the total market value of local stocks held by each manager divided by the total market value of stocks held by each manager. Low (high) local ownership turnover portfolio funds are in the bottom (top) tercile of churn rate, where churn rate is measured following Gasper, Massa, and Matos (2005). The initial sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available from January 1, 1995 to June 30, 2007. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters.

Panel A: Earnings announcement returns across funds

	Local institutional Investors								Nonlocal institutional investors			
	Total (A)		Local investment advisors (B)		Other local institutional investors (C)		Test-of-difference (B) - (C)		Total (D)		Test-of-difference (A) – (D)	
	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR
Mean (%)	2.74	0.70	2.86	0.80	2.44	0.44	0.42	0.36	2.17	0.14	0.57	0.56
t-statistics	3.71	2.06	3.69	2.19	3.48	1.56	2.36	2.39	3.04	0.64	1.74	2.19

Panel B: Earnings announcement returns across local funds

	Local institutional investors											
	Low local ownership concentration portfolio (Q1) (A)		High local ownership concentration portfolio (Q3) (B)		Test-of-difference (B) – (A)		Low local ownership turnover portfolio (Q1) (C)		High local ownership turnover portfolio (Q3) (D)		Test-of-difference (D) – (C)	
	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR
Mean (%)	2.09	0.65	3.13	1.06	1.04	0.41	2.34	0.32	2.83	0.84	0.49	0.52
t-statistics	2.77	2.08	3.64	2.45	0.37	1.13	3.18	1.17	3.61	2.33	1.38	2.06

Table 11
Annualized Three-Day Average Raw and Benchmark-Adjusted Returns (BAR) around Earnings Announcement Dates: Fund Trades

This table computes the annualized average subsequent three-day (centered on the earnings announcement date) quarterly earnings announcement returns for weight increases and weight decreases by institution types. Stocks are sorted into quintiles on the basis of the change in local and nonlocal holdings from the previous report date to the current report date, and the annualized earnings announcement returns are computed on the quintile portfolios. Increase-Decrease is a hedge portfolio strategy that is long in portfolio Q5 (quintile portfolio with the largest ownership increase)) and short in portfolio Q1 (quintile portfolio with the largest ownership decrease), Q5 - Q1. The benchmark-adjusted return is estimated as the difference between the raw return and the value-weighted average earnings announcement return on the corresponding benchmark portfolio (i.e., one of 5*5*5 sorts on book-to-market, size, and momentum) in the matched quarter. The returns are annualized by multiplying three-day quarterly earnings announcement returns by four. Low (high) local ownership concentration portfolio funds are in the bottom (top) tercile of local holdings, where local holdings is measured as the total market value of local stocks held by each manager divided by the total market value of stocks held by each manager. Low (high) local ownership turnover portfolio funds are in the bottom (top) tercile of churn rate, where churn rate is measured following Gasper, Massa, and Matos (2005). The initial sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available from January 1, 1995 to June 30, 2007. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters.

Panel A: Earnings announcement returns on the hedge portfolio (Q5-Q1) following trades

	Local institutional investors						Nonlocal institutional investors					
	Weight increases (Q5)		Weight decreases (Q1)		Increases – Decreases (Q5 - Q1)		Weight increases (Q5)		Weight decreases (Q1)		Increases – Decreases (Q5 - Q1)	
	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR
Mean (%)	2.87	0.96	2.39	0.40	0.48	0.56	1.95	0.21	1.97	-0.04	-0.02	0.25
t-statistics	4.02	3.20	3.41	0.22	1.13	1.71	3.32	1.29	2.57	-0.17	0.02	0.87

Panel B: Earnings announcement returns on the hedge portfolio (Q5-Q1) following trades: by local ownership concentration and local ownership turnover

		Local institutional Investors' local ownership concentration						Local institutional investors' local ownership turnover					
		Weight increases (Q5)		Weight decreases (Q1)		Increases – Decreases (Q5 - Q1)		Weight increases (Q5)		Weight decreases (Q1)		Increases – Decreases (Q5 - Q1)	
		Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR	Return	BAR
Low: (Q1)	Mean (%)	2.12	0.72	2.02	0.60	0.10	0.12	1.45	-0.32	2.62	0.61	-1.17	-0.93
	t-statistics	2.86	1.21	2.19	1.04	0.08	0.14	2.23	-0.64	3.45	1.64	1.17	1.50
High: (Q3)	Mean (%)	3.16	1.17	2.77	0.72	0.39	0.45	2.89	0.98	2.21	0.40	0.68	0.58
	t-statistics	3.96	2.76	3.74	1.69	0.36	0.74	3.93	2.69	3.16	0.97	0.68	1.05
High-Low:	Mean (%)	1.04	0.45	0.75	0.12			1.44	1.30	-0.41	-0.21		
	t-statistics	1.31	0.59	0.73	0.16			1.94	2.03	0.90	0.54		

Table 12
Types of Local Institutional Investors and Future Returns

This table reports estimates from the time-series cross-sectional regressions of one-quarter-ahead returns on ownership by different types of local and nonlocal institutional investors and other firm characteristics. The coefficients are the time-series average of coefficients estimated from quarterly cross-sectional regressions from January 1, 1995 to June 30, 2007. The sample consists of firm-quarters with institutional ownership from CDA/Spectrum Institutional (13f) Holdings for which the locations of firm and institution headquarters are available. Local (nonlocal) institutional investors are institutional investors whose headquarters are located within the same (different) state as the firms' headquarters. Local (nonlocal) institutional ownership is computed as the number of shares held by local (nonlocal) institutional investors divided by total shares outstanding. Other institutional ownership includes ownership by pension funds, university endowments, and foundations. Low (high) local ownership holding is local ownership held by funds whose local holding is below (above) the sample median. Local holding is measured as the total market value of local stocks held by each manager divided by the total market value of stocks held by each manager. Low (high) local ownership turnover is local ownership held by funds whose churn rate is below (above) the sample median. Churn rate is measured following Gasper, Massa, and Matos (2005). Market-to-book is calculated as the ratio of the market capitalization to the book value of equity and is winsorized at the 1st and 99th percentiles. Size is the log of market capitalization. Return volatility is estimated as the standard deviation of monthly returns over the past 6 months. $Turnover_{t-6,\,t}$ is defined as the average monthly volume to number of shares outstanding over the past 6 months, and stock price is share price from CRSP. SP500 is a dummy variable that equals one if the firm is included in the S&P 500 index. $MRET_{t-6,\,t}$ is the preceding 6-month cumulative market-adjusted return and $MRET_{t-12,\,t-7}$ is the penultimate 6-month cumulative market-adjusted return. Age is calculated as the number of months since a firm's first stock return appears in CRSP. Dividend yield is cash dividend divided by share price. All variables are estimated at the same quarter-end unless noted otherwise. Institutions are decomposed into short- and long-term institutions according to Yan and Zhang (2009). Numbers in parentheses are *t*-statistics, which are computed as the ratio of the mean of the coefficients from quarterly cross-sectional regressions to the standard error of the coefficients' distribution.

	Short-term/ long-term	Short-term local/ long-term local	Institution type	Local institution type	Local ownership holding	Local ownership turnover
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.06	0.05	0.06	0.06	0.06	0.06
	(4.10)	(4.01)	(4.19)	(4.37)	(4.19)	(4.17)
Short-term institutional ownership	0.03					
	(2.08)					
Long-term institutional ownership	-0.001					
	(-0.05)					
Bank ownership			-0.02			
			(-0.78)			
Insurance company ownership			-0.004			
			(-0.71)			
Mutual fund company ownership			0.04			
			(2.28)			
Investment advisor ownership			0.01			
			(1.91)			
Other institutional ownership			0.04			
			(2.10)			
Short-term local institutional ownership		0.05				
		(1.68)				
Long-term local institutional ownership		0.04				
		(2.02)				
Short-term non-local institutional ownership		0.03				
		(1.95)				
Long-term non-local institutional ownership		-0.01				
		(-0.51)				

Local bank ownership				-0.01 (-0.54)		
Local insurance company ownership				-0.008 (-0.70)		
Local Mutual fund company ownership				0.08 (1.14)		
Local investment advisor ownership				0.04 (2.68)		
Local other institutional ownership				0.13 (1.46)		
Nonlocal institutional ownership				0.01 (1.31)	0.01 (1.60)	0.02 (1.60)
High local ownership holding (above the sample median)					0.04 (2.19)	
Low local ownership holding (below the sample median)					0.01 (0.75)	
High local ownership turnover (above the sample median)						0.05 (1.99)
Low local ownership turnover (below the sample median)						0.005 (0.33)
Market-to-book	-0.001 (-2.62)	-0.001 (-2.65)	-0.001 (-2.57)	-0.001 (-2.69)	-0.001 (-2.50)	-0.001 (-2.52)
Size	-0.003 (-1.75)	-0.003 (-1.72)	-0.003 (-2.13)	-0.005 (-2.80)	-0.004 (-2.30)	-0.004 (-2.27)
Return volatility	-0.04 (-0.99)	-0.04 (-0.99)	-0.04 (-0.98)	-0.05 (-0.98)	-0.04 (-0.99)	-0.04 (-0.94)
$Turnover_{t-6,\ t}$	-0.0003 (-1.17)	-0.0003 (-1.16)	-0.0003 (-1.15)	-0.0001 (-0.65)	-0.0003 (-1.16)	-0.0003 (-1.29)
Price	-0.000 (-0.51)	-0.000 (-0.50)	-0.000 (-0.45)	0.000 (2.35)	-0.0000 (-0.44)	-0.0000 (-0.46)
SP500	0.02 (4.38)	0.02 (4.38)	0.02 (4.75)	0.02 (5.79)	0.02 (4.56)	0.02 (4.60)
$MRET_{t-6,\ t}$	0.02 (2.68)	0.01 (2.67)	0.02 (2.74)	0.01 (2.27)	0.02 (2.76)	0.02 (2.76)
$MRET_{t-12,\ t-7}$	-0.001 (-0.29)	-0.002 (-0.33)	-0.001 (-0.20)	0.001 (-0.23)	-0.001 (-0.21)	-0.001 (-0.20)
Age	-0.000 (-0.97)	-0.000 (-0.89)	-0.000 (-1.03)	-0.000 (-1.40)	-0.000 (-1.17)	-0.000 (-1.10)
Dividend yield	0.05 (0.17)	0.05 (0.15)	0.76 (0.21)	0.15 (0.35)	0.04 (0.12)	0.05 (0.14)
Average R^2	0.07	0.08	0.08	0.09	0.08	0.08