

Geographic Location, Media Coverage and Investor Reactions^{*}

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Abstract

This paper examines a previously unexplored dimension of press coverage: geography. We ask whether regional newspapers, located near firms, provide greater coverage relative to national newspapers, whether local investors, located near firms, disproportionately respond to this regional coverage, and whether there are resulting differences in returns. Our results show that regional newspapers do provide greater coverage: They cover nearby firms more often and with longer articles than national newspapers. They also issue a higher number of isolated articles, which are not clearly prompted by a management announcement or other news event, and issue longer articles following earnings announcements. We then compare the use of regional press information by local and non-local investors. We find that local investors react significantly more strongly than non-local investors to articles published in regional newspapers, even when restricting to investors who already hold the stock and thus have strong incentives to pay attention to firm-specific news. We find that the reaction of local investors to regional newspapers is significantly stronger among investors in more literate cities, suggesting that the choice to “read the paper” contributes to the stronger reaction of local investors, even controlling for costs to access the newspaper. Finally, we find that local investor trading predicts higher returns than non-local investor trading only on news article days, with the strongest difference for regional newspaper articles. We also find little difference in local and non-local investor trading before news, and little difference in returns following non-news days, suggesting that a large part of the local advantage documented in prior literature is related to coverage by the press.

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1. Introduction

A growing body of literature shows that the breadth of media coverage impacts the markets' processing of business news (Bushee, Core, Guay and Hamm 2009, Soltes 2009). The same studies indicate that depth of coverage and competition for investor attention further impact the way the media and market treat the news, indicating that not all coverage is equivalent. While the recent literature has shown the potential importance of coverage, we still do not understand the important characteristics of that coverage. In this paper we expand this literature by investigating the relationship between geographic location and the press. We argue that geography is likely to be an important differentiator for press coverage for two specific reasons. First, geographic proximity is likely to change coverage itself, given a potentially higher demand for information about local companies and lower costs to coverage, both in terms of print space and journalist time and energy. Second, geography is likely to affect the impact that coverage can have on investors' informedness; investors located near to a firm and a given publication will have easier access to that publication, and thus a higher likelihood of reading the information.

We first examine whether newspapers located in the same geographic region as a company provide coverage that differs from non-regional and national papers. Next, we tie those differences in coverage to the trading patterns of local investors vs. non-local investors. By combining the geographic location of the company, media and investors we are able to provide a much more complete understanding of the interaction between media coverage and capital market processing of information.

We draw on the large literature on investor location to help provide insights into press coverage. That literature shows that local investors are both more likely to own a local company

and to earn positive returns, suggesting that local investors have both greater familiarity (also referred to as visibility) with a local firm and an informational advantage (Ivkovic and Weisbenner 2005). We use these prior findings and their related methodologies to help understand the press' role in providing information to the markets. For example, this literature has found that local bias is most prevalent in smaller firms, thus we develop a sample of 1000 relatively small firms. We also draw on this literature for methods to define geographic locations (based on zip codes) to classify both investors and press coverage.

While a national newspaper must cover the major news stories of all relevant firms, regional publications may be able to devote proportionally more space, and investigative energy, to firms headquartered within the region. We show that regional newspapers, those located within 50 miles or 250 miles of a firm's headquarters, provide more intense coverage of nearby firms than do national newspapers. In particular, regional newspapers publish more articles on our sample firms than national newspapers, with newspapers within 250 miles publishing over 40% more articles than the three national newspapers. Regional newspapers also publish longer articles, publishing over twice as many words in these firm-specific articles as national newspapers. We also examine two specific sub-types of coverage for which we expect geography to have differing impacts; isolated articles, which occur in isolation of other newspaper articles or management announcements, and coverage around earnings announcements. Isolated articles do not follow automatically from management announcements and are less likely to follow from a major news event. Thus they may require more investigative journalism, attention to the firm or firm-related events, or original analysis than other types of coverage. We find that regional newspapers publish a larger number of isolated articles than national newspapers. Twenty-five percent of national newspaper articles fall into the isolated

category, while thirty-four percent of regional articles do. In contrast, articles around earnings announcements are supported by company press releases, at the least. We find that regional and national newspapers publish a similar number of articles around earnings announcements, however regional newspapers publish much longer earnings-announcement articles than national papers. Conditional on coverage, the average national newspaper article is roughly 150 words, while the average regional newspaper article is over 400 words.

Local investors, located within 50 miles of the firm headquarters are more likely to have access to, and regularly read, the firm's regional newspapers. We find that local investors trade significantly more strongly around regional newspaper articles than do non-local investors. While both groups react significantly, the difference between the two is large and statistically significant: Local investors trade over 220% more than average on days with regional newspaper articles, while non-local investor trading increases by only 55%. The differences are equally strong when restricting the sample to investors with prior holdings in a stock, to control for potential attention effects: local investors with holdings increase trade by over 230% while non-local investors with holdings increase trade by a statistically insignificant 52%.

Just as we expect geography to have more of an impact on the production of isolated articles than articles around earnings announcements, we expect the importance of investor location to vary. We find significant differences between local and non-local investor responses to isolated regional newspaper articles. However, as expected, the difference between the two groups is attenuated around earnings announcements, a scheduled and highly visible event.

We examine whether the difference in local and non-local investor use of regional newspapers is truly due to "reading" by testing for differences between investors who live in the

ten most literate cities in the US and investors who live in the ten least literate cities, as ranked by “America’s Most Literate Cities” (J. W. Miller 2007). Local investors in every city should have fairly easy access to regional newspapers should they choose to read them. However the choice to read will still vary. We find that local investors in the most literate cities trade almost six times more on days with a regional newspaper article, while local investors in the least literate cities do not increase trade.

Finally, based on their trade reactions it appears that investors consider newspaper-published articles to be informative. We examine returns that follow these investors’ trades and find that local investors’ buy/sell decisions predict higher returns than non-local investors following their trades on newspaper-article days, and particularly on regional-article days. In contrast, on non-news days, local and non-local trading have similar predictive ability for future returns. Thus it appears that regional newspaper articles may provide local investors with an advantage. Investors within 250 miles also appear to react more profitably to national newspaper articles, suggesting an ability to interpret news that may come from a better general understanding of the firm.

Thus, we find evidence that geography plays an important role in press coverage, and the impact that coverage has on investors. Regional press provides more intense coverage of nearby firms than national press. Non-local investors, even with specific interests in the given firms, fail to respond as strongly to the information published in regional newspapers.

This paper contributes to the literature on the role of the press as an information intermediary by helping to provide a greater understanding of coverage decisions made by the press, and a greater understanding of how the press is used by investors. First, by demonstrating

the fuller and more intense coverage of regional papers we show that the importance of a given media outlet to a specific firm is at least partially driven by their geographic proximity. Second, by showing that local investors react more strongly to regional newspapers, we show that the impact the press will have varies depending on geography. Further, our results show that access to coverage is crucial if the press is to fully play its role as an information intermediary, but mere access is not enough: Investors need to actively read the information for it to have its full impact. By examining two extremes of coverage, isolated articles and articles around earnings announcements, we also show that the importance of geography is attenuated around earnings announcements, suggesting that the management support and higher levels of investor and press attention around these times help to level the playing field.

This paper also contributes to the literature on local bias. A large literature has found that investors tend to invest in local firms and that such investments generally earn above average returns (Coval and Moskowitz 1999, 2001, Hau 2001, Kumar 2004, Ivkovic and Weisbenner 2005). Some papers have argued the information advantage may be driven by a “knowledge spillover” between professionals in urban areas or due to general information asymmetry, but these papers have only been able to provide indirect evidence (Kumar 2004, Goetzmann, Massa and Simonov 2004). In this paper we contribute to the local bias literature by examining one potential source of this information advantage: local print news coverage. First, we show that local investors do not trade more than non-local investors before management announcements or newspaper articles, suggesting that local investors’ advantage is not coming from the leakage of information before specific announcements. Instead, we find that local investors react more strongly and more profitably to regional newspapers, and more profitably to national newspapers, suggesting two sources of local investors’ advantage. First, local investors appear to

profit from information that is disseminated locally (though publicly), as revealed through their stronger trading for regional newspaper articles. Second, local investors appear to have a better overall understanding of the firm, as revealed by their ability to translate both regional and national news into more profitable trading decisions than non-local investors.

The remainder of the paper is organized as follows. Section 2 develops hypotheses. We describe the data in Section 3. Section 4 reports results, and Section 5 concludes.

2. Hypotheses

Our first hypothesis addresses the press coverage provided by regional and national newspapers. Every newspaper has finite space in which to publish, and finite resources to research and write articles. A national newspaper, such as the New York Times or Wall Street Journal, which is read across the country, must cover news that is of interest to a broad audience. This may lead them to cover larger firms disproportionately, or to cover a wide array of small firms around the country. Either way, the newspaper will have limited space and few resources to cover any given small firm. A regional newspaper such as the San Francisco Chronicle, Boston Globe or Dallas Morning News, by definition has a more local audience, who will be affected more strongly by news related to local firms. As news media often cater to their readers' interests, these regional papers are more likely to provide coverage of local firms (Miller 2006). Further, the cost of coverage is decreased due to reduced travel costs and likely greater access to entities (such as employees or customers) of the firm. Combined, these greater benefits and lower cost of coverage suggest a geographic impact on press coverage. Thus we propose:

- H1. Regional newspapers will provide more coverage of nearby firms than national newspapers.**

In addition to examining overall coverage, we compare two specific types of coverage: “isolated” articles, which occur in isolation of other newspaper articles or management announcements, and coverage around earnings announcements. These two capture the extremes for the potential importance of geography. Isolated articles are not prompted by management announcements or an event of national importance. Nearby newspapers may be better able to generate the type of additional information needed to publish a meaningful isolated article, and thus coverage may differ more dramatically. At the other extreme, earnings announcements are a regular event which both journalists and investors can anticipate. Management provides press releases, and potentially conference calls, that should make it easier for a journalist to cover the event, regardless of his or her location.

Geography will also impact investor access to newspaper information. If local investors are reading their regional newspapers, they are likely to trade in response to the news those papers contain. Investors located in other regions may also be interested in the given firms, for example if they already hold stock in the firm being covered, however, if non-local investors do not subscribe to the given regional newspaper, or regularly read it, they are less likely to see and respond to an article published in the regional paper. This is consistent with evidence that wider dissemination of public information reduces information asymmetry (Bushee, et al. 2009, Soltes 2009), which suggests that some market participants receive information only from a subset of public sources. If information appears in a wider array of outlets, that information is visible to a wider audience. Thus we propose our second hypothesis:

H2. Local investors will respond more strongly to regional newspaper coverage than non-local investors. This will be true even for investors with an “interest” in the covered firm, specifically with prior holdings.

We again examine isolated articles and articles around earnings announcements as two important subsets of newspaper coverage. Non-local investors may not be aware that there is potentially valuable news being published when there is an isolated article in a distant regional newspaper and no other news to draw the non-local investors' attention. In contrast, because of the regularity of the event, investors can anticipate that there is important information around an earnings announcement, and may follow the firm more closely during the period, making the effort necessary to obtain and read regional newspaper articles.

Hypothesis H2 derives from our expectation that local investors will read the regional newspaper, which will cover companies headquartered in the region. There are two reasons they will have a higher likelihood of reading that nearby regional newspaper. First, they are likely to have easier and lower-cost access to the paper. Second, they are more likely to choose to read that given paper than an investor located elsewhere. To establish a direct link between *reading* specifically and investor response to regional newspaper articles, we examine investors in more and less literate cities. Beginning in 2005, Central Connecticut State University has published an annual ranking of "America's Most Literate Cities." The study ranks all U.S. cities, with population of 250,000 or higher, based on a set of six indicators of literacy: educational attainment, newspaper circulation, number of bookstores, library resources, periodical publishing resources, and Internet access (J. W. Miller 2007). The first ranking was issued in 2003. While the period for these rankings does not overlap with our sample, the rankings have been extremely stable. We use the 2007 rankings, and identify the 10 most literate cities and the 10 least literate cities. If the difference between local and non-local investors' use of regional press is truly driven by "reading the paper," we posit that investors in the most literate cities will react more strongly to newspaper articles. Even though both will have similar low-cost access to their

respective regional newspapers, they will make different choices when it comes to reading those papers. In particular, we propose the following hypothesis:

H3. Investors in the most literate cities will react more strongly to regional newspaper articles for firms located near them while investors in the least literate cities will react comparatively more weakly to their regional newspapers.

Finally, prior research indicates that press coverage is informative to market participants (Dyck and Zingales 2003, Miller 2006, Bushee et al. 2009). This would suggest that increased regional press coverage may provide an informational advantage to local investors who are able to access this coverage at relatively low cost. This prediction is further supported by studies showing abnormal returns for local traders (Coval and Moskowitz 2001, Ivkovic and Weisbenner 2005, Massa and Simonov 2006). Thus we propose:

H4. Local traders earn higher abnormal returns when trading on days of regional news coverage than non-local traders.

3. Data

The primary data for this study include newspaper articles, management announcements and household brokerage account trading data. We also use CRSP for security returns.

3.1. Newspaper Data

We focus our analysis on relatively small firms, those which are less likely to receive national news coverage, and for which geography is more likely to play a role. The press biases coverage towards larger firms, suggesting small firms are less likely to receive coverage in general, and suggesting that regional coverage will be more important for these firms (Miller

2006 and Core, Guay and Larcker 2008). Further, Coval and Moskowitz (1999) show that local investing of mutual fund managers is strongest in small, highly levered, stocks. Ivkovic and Weisbenner (2005) show that local investor advantage is strongest in stocks not in the S&P 500. Both papers argue that local informational advantages will be strongest in smaller firms because these firms and their information will be less visible to non-local investors. Drawing on these prior findings, we develop a sample of firms from the lowest quintile of size using NYSE size breakpoints from November of the preceding year¹. This sample will allow us to focus on firms for which local press coverage will play an important role in the information environment.

We obtain firm locations from Compact Disclosure, which provides the location of company headquarters on an annual basis. Using this data, we further restrict our set of firms to those headquartered in the continental United States, so that distance measures, between the firm and newspaper and between the firm and investor, are not affected by outliers in Hawaii and Alaska. Finally, we require at least 5 trades per firm-year in our retail investor dataset, which we describe in more detail below. The trade data is limited to the six years from 1991 through 1996, determining our sample period.

From this set of continental-U.S. small firms with at least 5 trades in the year, we randomly select 1000 firm-years. While smaller than the average firm, the sample firms are still of a significant size. Sample firms report average (median) total assets of 164 million dollars (44 million) and an average (median) of 1085 (302) employees. This compares to median (25th percentile) total assets of 193 million dollars (47 million) and a median (25th percentile) of 1015

¹ NYSE size cutoffs were obtained from Ken French's data library:
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

(220) employees for the full sample of firms with common stock traded on NYSE, AMEX or Nasdaq during the same period.

We collect newspaper articles and management announcements for the 1000 firm-years from Factiva, searching through all US Newspapers for news articles and all press release wires for management announcements (press releases). We purchased newspaper location data from Media Contacts Pro, and hand-checked the locations against newspaper corporate website information. Combining these two datasets, we find articles and locations for 128 newspapers, as measured by Factiva's "serialcode" variable, covering our 1000 firms. These newspapers range from large regional newspapers, such as the LA Times in California with circulation of over 1 million copies to smaller publications such as the Spokesman Review in Spokane, Washington, with circulation of just over 120,000 copies (Top 100 Newspapers by Circulation 1994).

Following the methodology of Ivkovic and Weisbenner (2005), for all locations (i.e. for firm, newspaper and investor locations) we obtain latitudes and longitudes from the U.S. Census Bureau's Gazetteer Place and Zip code Database.² We then calculate distance between points a and b using a standard formula based on latitude and longitude, as

$$d_{a,b} = r * \cos^{-1}\{\cos(lat_a) \cos(lon_a) \cos(lat_b) \cos(lon_b) + \cos(lat_a) \sin(lon_a) \cos(lat_b) \sin(lon_b) + \sin(lat_a) \sin(lat_b)\}, \quad (1)$$

where latitude and longitude of points a and b are in radians and r is the radius of the earth, approximately 3950 miles. We define The Wall Street Journal, New York Times and USA

² US Census Beureau Gazateer Place and Zip Code database was accessed at: www.census.gov/geo/www/gazetteer/places.html.

Today as “national” newspapers. We define newspapers as “regional” to a particular company if the newspaper is not a national paper and is headquartered within 50 miles of the company’s headquarters. Thus the San Francisco Chronicle is a regional newspaper for San Francisco Bay Area companies, and the Boston Globe is a regional paper for Boston area companies. Alternatively, we define a newspaper as regional if it is within 250 miles, using the more conservative distance measure used in Ivkovik and Weisbenner (2005). However a measure of 250 miles defines large areas as single regions. A few examples: using 250 miles, Portland, OR and Seattle, WA are regional to one another, New York, NY and Boston, MA are regional to one another, San Diego, CA and Los Angeles, CA are regional to one another, Miami and Tampa, FL are regional to one another and Detroit, MI is regional to Cincinnati, OH. The 250 mile measure works well in areas like Texas and the midwest, however.

Figure 1 plots the locations for the 1000 firm-years in our sample, by longitude and latitude, and for the newspapers in our sample. Figure 1 indicates a wide geographical distribution of sample firms and newspapers throughout the United States. You can see from the figure that almost all firms have a nearby regional newspaper. Using the 250 mile measure, we find only two companies without a nearby newspaper included in our sample, both located in Midland Texas, for which the local newspapers are likely too small to be captured by Factiva and cities are far enough apart that no other paper falls within the 250 mile area.³ One hundred fifty four firms lack a paper within 50 miles, however. While scattered across the country, these firms are concentrated in Florida (between Miami and Tampa), California (east of Los Angeles), Texas, and the midwest.

³ The Midland Reporter Telegram, local Midland Texas newspaper, reports a circulation of less than 25,000 copies: Website, <http://host.mywesttexas.com/~mywestte/media/circulation.shtm>, accessed 2009.

Table 1 provides sample statistics for newspaper articles and management announcements. We find news for 972 of the 1000 firm-years for which we search. On average, we find 11.63 newspaper articles per firm and 10.33 management announcements. The distribution of newspaper articles across firms is highly skewed and the median firm-year has only 5 newspaper articles. Firms tend to have coverage in both national and regional newspapers, with an average of roughly 3 articles in national newspapers, 3 in newspapers within 50 miles and 4 in newspapers within 250 miles. We further analyze newspaper coverage in Section 4.1.

3.2. Investor Trading Data

Prior literature has established that geographic proximity provides an advantage to mutual fund managers (Coval and Moskowitz 2001), sell-side analysts (Malloy 2005), and retail investors (Ivkvovic and Weisbenner 2005). However we argue that the impact of location on usage of press information is likely to be the largest for retail investors, i.e. individuals trading on their own accounts. In a study examining both institutions and individuals, Grinblatt and Keloharju (2001) show that Finish investors' preference for nearby companies is weaker among more sophisticated institutions relative to less sophisticated institutions and individuals. In general, professional investors and money managers have more time and resources at their disposal for collecting and analyzing information. Since the fixed cost of information acquisition and analysis is employed to make larger dollar trades on average, institutions will find it more economical to do the additional research. Prior literature has also shown empirically that small traders (usually individuals) tend to use less complete information than large traders (usually institutions, Lee and Radhakrishna 2000). Small traders neglect analyst-based earnings surprises (Bhattacharya 2001, Battalio and Mendenhall 2005), GAAP-based earnings information when faced with a pro-forma number (Bhattacharya, et al. 2007) and analyst earnings forecasts and

information about biases in buy/sell recommendations (Malmendier and Shanthikumar 2007, 2009, Mikhail, Walther and Willis 2007). Considering the different resources that institutions and individuals have at their disposal, and given the empirical evidence, we expect geography to play a more significant role for retail investors' information acquisition than for institutional investors. Thus we choose to focus our analysis on retail investor trade.

In order to measure how local and non-local investors respond to newspaper coverage, we use trade information from a dataset of brokerage accounts for 78,000 households at a large discount brokerage firm, covering the six years from 1991 through 1996.⁴ Barber and Odean (2000, 2001 and 2002) provide additional information about the brokerage account data. The dataset contains month-end holdings for the period, and each trade made in the accounts. The dataset also provides the zipcode for the location of each household. As with the set of firms, we restrict our investor sample to households within the continental United States. Households in our sample tend to hold a small number of securities; portfolios contain an average (median) of 5.4 (3) securities and an average (median) of 4.2 (3) common stocks. Forty-nine percent of households hold only one or two stocks, and fewer than four percent hold more than 15. There is a wider range in trading activity across households. Households make an average of 8.2 common stock trades per year, median of 3, and the 95th percentile makes 29 common stock trades per year. Monthly portfolio turnover, measured as one half the total value of buys and sells in a month normalized by start-of-month portfolio value, is 9.5% (3.0%) on average (at the median), however the portfolio turnover of households with trade for our 1000 firm-year sample is much higher, at 19.2% (7.6%) on average (at the median). Not surprisingly, the trades we observe are made by households of, on average, more active traders.

⁴ We thank Terrance Odean for providing this data.

Figure 2 plots the longitudes and latitudes corresponding to the locations of our sample households. The figure indicates a wide distribution of household locations, with higher sample household densities in areas with generally higher population densities. We define a “local” investor as one who lives within 250 miles of the company’s headquarters, and a “non-local” investor as one who lives more than 250 miles from the company’s headquarters.

As with newspaper articles, we use both 50 miles and 250 miles to define “local” and “non-local” investors. Table 2 presents sample statistics for trade for the 1000 firm-years in our sample, for all trading days in Panel A and for the subset of days with newspaper articles or management announcements in Panel B. Our data includes an average of 0.09 trades per stock-day, with a median of 0. Trades are slightly more likely to be purchases than sales. Non-local investors make a larger percentage of trades, with an average of 0.06 trades per day compared to 0.02 for investors within 250 miles and 0.01 for investors within 50 miles. This is not surprising considering that many more investors are classified as non-local for any given firm.

In the final three lines of Panel A we limit the sample of investors to those who have a previous holding of the firm’s stock, as of the prior monthly holding report. As described in Section 2, we examine investors with prior holdings as these investors have an incentive to follow news on the firm. This restriction reduces the number of trades captured by roughly one half, but we still find a non-trivial number of trades for both local and non-local investors, 0.01 and 0.03 on average, respectively.

Table 2 Panel B shows the number of buys, sells and total trades when restricting the sample to days on which there is a news event of some type. In all four news-event samples, trading appears to be concentrated more heavily on the news-event days. In addition, buy trades

are more common on news-event days than sell trades, and a larger percentage of buy trades occurs on the news event days than sell trades. While days with a newspaper article make up 2.42% of the days in our 1000 firm-years, 6.66% of all trades occur on these days. Buys are more heavily concentrated on newspaper article days than sells, at 7.34% and 5.84% respectively. Similarly, days with management announcements, which make up 3.69% of the days in the sample, contain a disproportionate number of trades: 6.62%. Finally, national newspaper article days seem to be associated with a slightly higher level of trade than regional newspaper article days, but both are associated with more trading than non-news days: 1.76% of trades occur on national newspaper article days, which make up 0.64% of the days in the sample, a ratio of roughly 2.8, while 3.38% of trades occur on regional newspaper article days, which make up 1.51% of the days in our sample, a ratio of roughly 2.2. These statistics suggest that newspaper coverage, both from national and regional sources, plays an important role in prompting retail investors to trade. We will focus more on trading on and around these news event days, relative to non-news days, in Section 4.2.

4. Results

4.1. Newspaper Coverage

In this section we report results for tests of H1, the hypothesis that regional newspapers provide more coverage of nearby firms than national newspapers. We first examine the overall level of coverage, both in terms of number of articles and total wordcount. We then examine different types of coverage; in particular “isolated” articles, which occur in the absence of recent management announcements or news, and, at the other extreme, articles around earnings announcements.

4.1.1 General Newspaper Coverage

We first examine general coverage of news articles. That is, those that do not cover a specific event. The goal here is to understand overall patterns of differences in coverage.

Table 1 Panel A displays summary statistics for the number of articles, and wordcount, for our full sample of 1000 firm-years. As indicated in the table, regional newspapers publish more articles on our sample firms than national newspapers, 3,990 and 3,017 versus 2,836. We test for the significance of this difference in coverage using both a t-test for difference in means and a Wilcoxon signed rank test to examine the consistency of the difference. The higher number of average articles in regional papers is statistically significant, at the 1% level when comparing national coverage with regional coverage within 250 miles, and at the 1% level on a firm-day basis and 10% level on a firm-year basis when comparing national with regional within 50 miles. The Wilcoxon signed rank test however yields mixed results, driven by a sub-set of firms for which we find zero regional news articles. Even including these firms, the difference in firm-day coverage is significant at the 1% level, but the difference in firm-year coverage is insignificant. Excluding these firms, for which we may have failed to capture the relevant regional newspaper (for example if it is too small to be included in Factiva), we find significantly higher coverage in regional papers using the Wilcoxon signed rank test as well.

The difference between regional and national newspaper wordcounts, i.e. total number of words published in articles on our sample firms, is even stronger. While regional newspapers publish 6% and 40% more articles than national newspapers, they publish 50% and 90% more words, for papers within 50 and 250 miles respectively. The differences are statistically significant at the 1% level, looking either at firm-days or at firm-year totals, and using both the t-test for difference in means and the Wilcoxon signed rank test to capture the consistency of the

difference. The decision of a newspaper to include an article about a firm on a given day is a yes/no decision, but the decision of how much space to allocate is much more continuous. Two newspapers may both cover a recent management announcement, for example, but one newspaper may choose to provide much more information about that announcement. Thus wordcount may serve as a better proxy for the depth of coverage.

Overall we find strong evidence that regional newspapers cover nearby firms more completely. They publish more articles and longer articles on nearby firms than national newspapers. In the next two sections, we examine coverage for “isolated” articles, which do not follow from a management announcement or another newspaper article, and coverage around earnings announcements. As discussed in Section 2 and below, we expect these to have very different characteristics.

4.1.2 Press Initiated Coverage

While much business press coverage is provided to react to a management announcement or coverage by other news organizations, some articles are written in isolation and represent some form of analysis by the news organization. Such stand alone, or isolated, articles have the unique characteristics of being an attempt by the press to provide unique insights into the firm while also lacking a visible/predictable underlying event to attract the attention of investors who would not otherwise be reading the paper in which the article was published. Thus, they are likely to provide new news, but be overlooked by non-local investors. Given these unique aspects, it is interesting to examine such articles independent of other media coverage.

Soltes (2009) uses a sophisticated number, text and subject matching algorithm to identify articles that “disseminate” management announcements and finds that articles

disseminating management announcements generally appear within two days of the initial announcement. Thus “isolated” articles, which occur when there has not been any other recent news, are unlikely to be merely “disseminating” a prior management announcement. As such, they are more likely to contain original analysis or content. Panel B of Table 1 shows statistics for articles which occur when no other newspaper articles or management announcements have appeared in the prior three days, or on the same day as the given article. Regional newspapers publish far more of these isolated articles than national newspapers; 1,103 and 1,343 versus 707. Over 33% of regional articles, using either measure, are isolated, while only 25% of national articles are. While the per-article length is somewhat shorter for isolated regional articles than national articles, the total wordcount is still significantly higher for isolated regional articles. Both the number of isolated articles and total wordcount are statistically significantly higher for regional newspapers within 250 miles at the 1% level, comparing either all firm-days or comparing firm-year totals, at the 1% level for regional newspapers within 50 miles using all firm-days, and at the 10% level comparing firm-year totals.

Thus it appears that regional newspapers do publish more “isolated” articles about our sample firms than do national newspapers. This is consistent with both a higher demand for information about local firms from regional newspaper audiences and a lower cost to generating unique analysis and information about a nearby firm for journalists at regional newspapers.

4.1.3 Newspaper Coverage Around Earnings Announcements

In contrast to isolated articles written without any firm created news trigger, earnings announcements are an important and regularly scheduled news event. Combined, these characteristics both increase the benefits (that is, many readers are likely to be interested in earnings news) and decreases the costs of coverage (as it is known when they will occur and the

firm provides a large amount of disclosure to support them). This shift in benefits and costs may make coverage of earnings news more attractive to non-regional media than coverage of other firm news. Additionally, prior research has found that extent of press coverage around earnings releases directly impacts the market response to these releases (Bushee, et al. 2009). Given the unique features of earnings releases, we provide analysis that focuses only on coverage around earnings releases.

Table 3 shows statistics for the number of articles and wordcount in national and regional newspapers around earnings announcements, as well as p-values for a test in the difference between regional and national coverage.⁵ We collect earnings announcement dates from both Compustat and I/B/E/S. When the two dates differ, we take the earlier of the two as the earnings announcement date. Panel A displays the average number of articles appearing in national and regional newspapers. Both types of newspapers increase average coverage dramatically on the earnings announcement date (day 0) and continuing for four days afterwards, relative to pre-announcement coverage. The highest number of articles is printed on day +1, the day after the company releases their press release. The number of regional newspaper articles is higher than the number of national newspaper articles on days 0, +1 and +2. However national newspapers exhibit higher coverage than regional newspapers on day +3. In untabulated analysis we find that national coverage remains higher than normal through day +7, possibly due to a delayed reaction or to follow-up articles, though differences between national and regional papers become insignificant beginning on day +4.

⁵ Results are similar using a regression framework, seemingly unrelated estimation to allow for cross-correlation, and clustering standard errors by date. Although it is difficult to think of “coverage” as a censored variable, it has empirical properties of one: only positive values, with many values of 0. There may be, for example, a range of how strongly a newspaper wants to cover a particular firm, that all result in no coverage. Because of this we also estimate tobit models with censoring at zero, and find similar results.

The statistics in Panel A show that regional newspapers publish significantly more articles immediately surrounding an earnings announcement than national newspapers. However this does not adjust for the normally higher level of coverage in regional newspapers. In Panel B we normalize the number of articles in each outlet by the average number of articles in that outlet, to get a sense of how strongly the newspapers are responding, proportional to their normal coverage. As Panel B shows, both regional and national newspapers increase their coverage by similar proportions on days -5 through +2, with statistically insignificant differences between the two in most cases. The highest increase is for the nearest newspapers, regional papers within 50 miles, on day +1, and this differs significantly from the increase in national coverage. The increase in national coverage is higher on day +3 than the increase in regional coverage. Thus, proportional to their normal coverage, both newspapers appear to react similarly, with nearby regional papers reacting the most on day +1 and national newspapers maintaining higher coverage for a longer window after the earnings announcement.

Panels C and D show statistics for total wordcounts in each type of publication, and the normalized total wordcount. The difference between the regional and national newspaper response, in terms of wordcount, is statistically significant at the 1% level for days 0 through +2. However regional newspapers have normally higher wordcount than national newspapers. Panel D shows statistics for the proportional increase in wordcount and reveals that regional newspapers increase wordcount by more, proportionally, than national newspapers.

The magnitudes are particularly striking. Regional newspapers publish an additional 40 to 50 words on the day after an earnings announcement, on average, while national newspapers publish an additional 10. Conditional on coverage, regional newspaper articles average over 400

words each, while national newspaper articles average roughly 150 words.⁶ Overall, the results displayed in Table 3 suggest that both regional and national newspapers respond similarly to earnings announcements in terms of number of articles. However space constraints in national newspapers are still more binding and do not allow for particularly long earnings announcement articles. The clustering of earnings announcements in time (Hirshleifer, Lim and Teoh 2009) may further exacerbate the space constraint problem of a national newspaper. Finally, national newspaper coverage remains high for longer than regional newspaper coverage, however this could be due to either ongoing coverage, or a delayed reaction (such as publishing a story only if there is a large return response, or publishing a story as part of a weekly summary).⁷

In summary, we find that regional newspapers publish more articles in general, and more words, than national newspapers. Regional newspapers publish more isolated articles, which are less likely to be “disseminating” management announcements and thus may contain more original content. And regional newspapers publish longer articles around earnings announcements. Thus we find support for Hypothesis H1; regional newspapers appear to provide systematically more coverage of nearby firms than the national newspapers.

4.2. Investor Responses to Newspaper Coverage

In the prior section we reported evidence that regional newspapers cover nearby firms more intensely than national newspapers. In this section we test hypothesis H2, local investors will respond more strongly to regional newspaper coverage than non-local investors. We argue

⁶ In comparison, the average earnings announcement press release is 664 words. Regional article wordcounts, national article wordcounts and press release wordcounts differ from each other with statistical significance at the 1% level.

⁷ In untabulated analyses we examine coverage subsequent to non-earnings-announcement management announcements. National and regional newspapers both increase coverage with a similar number of articles immediately following a non-earnings-announcement press release. However, as with coverage after an earnings announcement, regional newspaper articles are significantly longer, with an average of 44 words published in regional newspapers within 250 miles compared to 17 words for national newspapers.

that because local investors are more likely to subscribe to and read regional newspapers, this difference in trade response will hold even controlling for investors' potential interest in the firm by focusing on investors who already hold stock in the given firm. Recall that the investors in our sample tend to hold stock in a small number of stocks, 4.2 on average and 3 at the median. Thus an investor with a prior holding of the company's stock should be able to follow the company, and has a financial incentive to do so. In addition, we examine trading for isolated news articles, which are more likely to contain original content, and around earnings announcements, around which we expect geography to have less of an impact.

To measure local and non-local investor's differential trading around newspaper articles, we estimate ordinary least squares regressions of the following form:

$$\begin{aligned}
& \textit{NormalizedTrade}_{i,d}^L \\
&= \alpha^L + \beta_1^L I(\textit{management announcements})_{i,d} \\
&+ \beta_2^L I(\textit{regional newspaper articles})_{i,d} \\
&+ \beta_3^L I(\textit{national newspaper articles})_{i,d} \\
&+ \beta_4^L I(\textit{nonregional nonnational newspaper articles})_{i,d} \\
&+ \sum_c \beta_c^L \textit{Control}_{c,i,d} + \varepsilon_{i,d}^L,
\end{aligned} \tag{2}$$

where $\textit{NormalizedTrade}_{i,d}^L$ is the total number of trades made by the set of investors L for firm i on day d , normalized by the average number of trades made by the set of investors L across all firm-days in the main sample. $I(\textit{management announcements})_{i,d}$ is an indicator for whether a management announcement is made by firm i on day d , appearing on a press release wire.

$I(\textit{regional newspaper articles})_{i,d}$ is an indicator for whether an article pertaining to firm i is published in firm i 's regional newspaper on day d . $I(\textit{national newspaper articles})_{i,d}$ is an indicator for whether an article pertaining to firm i is published in a national newspaper on day d . And $I(\textit{nonregional nonnational newspaper articles})_{i,d}$ is an indicator for other articles, i.e. those published in newspapers which are neither regional to the firm nor national. The regression is run separately for local and non-local investors. To estimate differences between local and non-local investors we use seemingly unrelated estimation, to allow for cross-correlations between the two. We also augment Equation 2 with a collection of control variables. First, to control for potential trading volume response to prior-day returns, we include controls for the prior trading day's return for firm i and the absolute value of prior-day return. To control for prior-day abnormal volume, we include prior trading-day volume scaled by prior-month volume for firm i . Finally, to capture any firm-specific scale effects, we include prior-month trading volume for firm i .⁸ In alternate specifications, we also include indicators for the days preceding management announcements and newspaper articles. Including indicators for the three days prior to a management announcement or newspaper article allows us to estimate whether investors trade in advance of news events and helps to control for specific information leakage that may occur before management announcements or newspaper articles.

We estimate Equation 2 for regional newspapers and local and non-local investors defined using a 50-mile radius around firm i . However many firms have more than one regional paper within a 250-mile radius. To account for the difference between an article appearing in just one of these regional papers vs. in multiple papers, we use count variables instead of indicator variables when estimating Equation 2 using 250-mile definitions of regional and local. For

⁸ In untabulated analyses we replicate all regression excluding these control variables to ensure that non-linearities in the relation between trade and the control variables do not affect the results. Results are qualitatively similar.

example, instead of $I(\text{regional newspaper articles})_{i,d}$ we use the number of regional newspaper articles pertaining to firm i appearing in regional newspapers on day d : $\text{Count}(\text{regional newspaper articles})_{i,d}$. For consistency, we replace the other article indicator variables, for management announcements, national newspaper articles and nonregional nonnational newspaper articles, with their corresponding count variables.

4.2.1. Local and Non-local Investor Trading Around Newspaper Coverage

Looking first to all news days, Table 4 displays results for local and non-local investors trading response to news, as well as for the difference between the two investor groups' reactions. Panel A shows results for all local and non-local investors, using the 50-mile definition of regional and local. As can be seen in the Table, both local and non-local investors trade significantly more on days with management announcements and newspaper articles than on non-news days. The local and non-local investor trade volumes related to regional newspaper articles differ significantly. Local investor trading increases by a factor of 2.20 while non-local investor trading increases by 0.55, relative to the average values of 1, with a p-value of 0.01 for the difference between the two, using a 1-tailed test. Columns 4-6 add indicator variables for the days prior to management announcements and newspaper articles, to control for possible information leakage prior to news, particularly among local investors. We find that the local and non-local investors anticipation of news is similar, and the difference in trading around regional newspaper articles remains significant, with $p=0.01$.

Panel B presents results for 250 miles. Local investor trading increases by a factor of 1.28 for each regional newspaper article within 250 miles while non-local investor trading increases by 0.66, with a p-value of 0.04 for the difference between the two. Examining, instead, the

relation between local and non-local investors' trading and indicators for articles published in each type of outlet, as in Panel A, yields even stronger results.⁹

The results in Panels A and B indicate that local investors react more strongly to regional newspaper articles than non-local investors. However this effect could still be related to investor attention; if local investors pay more attention to local firms, then we may find the result we document. To better isolate the effects of access to news we control for possible attention effects by comparing the responses of investors who have a specific reason to be paying attention to the stock; those with a prior holding. Panels C and D show results for the trading of local and non-local investors who had a holding of the given company's stock as of their prior monthly holdings report. We find a similar difference between local and non-local investors' trading for regional news articles, significant at the 5% level for 50 miles and at the 1% level for 250 miles. Local investors with holdings trade strongly for higher regional coverage, however non-local investors with prior holdings react insignificantly more on days with more regional coverage.¹⁰

Overall we find support for hypothesis H2. Not only do regional newspapers cover nearby firms more heavily than national newspapers, as indicated by the results in Section 4.1,

⁹ In untabulated analyses, we examine the relation between trade and indicators for news, i.e. indicator for management announcement, indicator for regional newspaper, etc., and find qualitatively similar results, however the difference between local and non-local investor trading related to regional news is larger and more highly significant, with $p=0.01$ in both the specifications with and without controls for pre-news days.

¹⁰ It is somewhat surprising to find that non-local investors with prior holdings respond insignificantly to regional news articles given that non-local investors without these holdings respond significantly to them (though not as strongly as local investors). This may be due to a reduction in power when restricting to investors with prior holdings, particularly given the similarity in coefficients between Panels A and B and Panels C and D. However we explore alternate explanations. The difference between non-local investors with and without prior holdings may be due to larger portfolios held by those with prior holdings. On average (median), non-local investors without prior holdings making trades have portfolios of 5.3 (1) securities as of the prior month, and 3.6 (0) common stocks. In contrast, non-local investors with prior holdings have portfolios with 12.4 (7) securities and 9.1 (5) stocks. The difference between the two groups is statistically significant. However larger portfolios do not fully explain the difference in trade for regional newspaper articles, as we find qualitatively similar results when restricting to investors with fewer than 5 or fewer than 3 securities in their portfolio as of the prior month-end. It may simply be that investors without holdings are slightly more likely to make news-related trade, as some news is drawing their attention to the firm, leading to our finding a statistically significant response from these non-local investors to regional news.

but local investors' trade is more strongly related to regional newspaper articles than non-local investors' trade. The difference between local and non-local investors' increase in trade volume around regional articles holds even when limiting to investors with prior holdings in the given stock, supporting the argument that local investors respond more strongly to regional newspapers because of their higher likelihood to subscribe to and regularly read these papers. Even when investors have incentives to pay attention to news regarding a firm, it may be more difficult to respond to news appearing in another region's newspaper.

Figure 3 depicts local and non-local investor trading for regional and national news over the days surrounding newspaper articles. We estimate equation 2, substituting normalized trade for each day from day $d-10$ through $d+10$ for the dependent variable. Figure 3 plots the resulting regression coefficients, and shows that trade for news coverage spikes on day 0, for local trade reactions to regional and national news, and nonlocal trade reactions to national news, as we would expect if our results are in fact driven by a reaction to newspaper articles.

4.2.2. Isolated News

In Section 4.1.2 we documented that regional newspapers publish more "isolated" news articles than national newspapers, where we define an "isolated" article to be one that occurs when no other news has appeared in the prior three days or on the same day as the given news article. We have already seen that local investors respond more strongly to regional news coverage in general. In this section we examine whether this holds for isolated articles as well. We would expect non-local investors to be less likely to identify and respond to information in a firm's regional newspaper for these isolated articles, when there is no national newspaper article or management announcement to draw the non-local investors' attention to possible news coverage. Isolated articles provide an additional advantage in testing whether investors are truly

“responding to” a given article. In particular, if several announcements or articles appear on the same day, it may be difficult to disentangle which news article investors are responding to. In addition, if a company releases a press release on the day before an article, investors and newspapers may both respond to that prior press release, with newspapers publishing articles and investors trading. This would create a correlation between the newspaper articles and same-day investor trading. Thus isolated articles provide both a setting in which we expect geography to be a significant factor for investors, and a clean setting to examine investor response to the press.

Table 5 presents results from regressions of normalized trade volume on indicators for news type; management announcement, regional newspaper article, national newspaper article, or other newspaper article. Because we limit the sample to days on which there is at most one news story, we use indicator variables with both the 50 and 250 mile radius definitions of regional and local. Columns 1-6 display results for 50 miles and columns 7-12 display results for 250 miles. In all four specifications, non-local investors react insignificantly to regional newspaper articles. In three of the four specifications local investors react significantly to regional newspaper articles, and in all three the difference between local and non-local investors is statistically significant. The magnitudes of the reactions are dramatic; investors within 50 miles of a newspaper within 50 miles trade almost three times as much when there is a regional newspaper article. In contrast, coefficients for non-local investors are small, 0.15 at the most.

Columns 4-6 show results for investors with prior holdings of the given stock, thus controlling for incentives to follow firm news. For this set of investors we also find that for isolated articles, non-local trading on non-national non-regional news article days is significantly higher than local trading. Recall that “regional” is defined with respect to the location of the firm; i.e. a “regional” newspaper is one that is located near the firm. Given that the non-national

non-regional newspapers, located more than 50 or 250 miles from the firm, are likely to be the “local” paper for some of the non-local investors, who are located more than 50 or 250 miles from the firm, respectively, this result is not surprising.

Thus we find a strong and statistically significant difference in local and non-local trading for isolated regional newspaper articles, even when controlling for incentives to follow the firm by limiting to investors with prior holdings.

4.2.3. Earnings Announcements

We have seen that local investors trade more strongly than non-local investors when regional news coverage is strongest, both overall and for isolated news articles. However results may be very different for earnings announcements, a regular and anticipated event. Table 6 displays results for the relation between local and non-local trading and press coverage in the [0, 1] day window around an earnings announcement. We exclude the management announcement variable to avoid multicollinearity.

We find some attenuation of the difference between local and non-local investor reactions to regional news coverage when “local” and “regional” are defined using a 250 mile radius. The statistically insignificant difference of 0.41 around earnings announcements compares to the significant difference of 0.62 for the full sample of news articles. We find no attenuation for the 50 mile definition, and the difference is in fact stronger for investors with prior holdings. However we find a smaller and statistically insignificant difference for local and non-local reaction to regional news and a statistically significant difference for investors with prior holdings in alternate specifications: using 50-mile definitions and count variables, 250-mile definitions and indicator variables, or for any of the four combinations (50 and 250-miles, count

and indicator variables), including additional controls for the sign and magnitude of the earnings surprise. In fact, defining regional and local by 50 miles, the relation between trade and the *number* of regional articles switches; non-local investors trade more strongly for a higher number of regional articles. Recall that when examining all newspaper articles the difference between local and non-local trade for regional articles was consistent and statistically significant in every one of these alternate specifications.

Overall we find evidence of an attenuation of the difference between local and non-local trading response to regional newspaper articles around earnings announcements, consistent with our expectations that earnings announcements cue non-regional investors to look for press coverage. However some difference still remains, and is particularly strong for investors with prior holdings. Among investors with prior holdings, only local investors react significantly to regional articles, and only non-local investors react significantly to national articles, suggesting that even around earnings announcements geography plays an important role in investors' response to news.¹¹

4.3. Most and Least Literate Cities

If the difference between local and non-local investors' use of regional press is truly driven by "reading the paper," we posit that investors in the most literate cities will react more

¹¹ Using the 250 mile definition, it appears that local investors trade more strongly for a higher number of non-national non-regional articles than non-local investors do. However this difference is not robust and is driven by a small number of observations. We find that in general coverage by non-regional non-national press around earnings announcements is related to the earnings surprise magnitude. However three specific observations drive the stronger local trading for non-national non-regional news: Sears Roebuck and Company announced its intention to buy Orchard Supply Hardware, including some details of the deal, at the same time that Orchard announced earnings, Wang Laboratories announced that it was filing for Chapter 11 bankruptcy protection on the same day that it announced a larger-than-expected loss. Finally, Homefed Corp., a thrift, announced a larger than expected loss, and missed a deadline set by federal regulators to raise needed capital. Thus local investors may be reacting more to the large negative earnings surprises and other related news in these few cases, rather than to the non-regional non-national coverage itself.

strongly to their regional newspapers than investors in the least literate cities will. The “America’s Most Literate Cities” study ranks all U.S. cities, with population of 250,000 or higher, based on a set of six indicators of literacy: educational attainment, newspaper circulation, number of bookstores, library resources, periodical publishing resources, and Internet access (J. W. Miller 2007). The ranking begins in 2003, although the methodology was revised in 2004 and 2005. While the period for these rankings does not overlap with our sample, the rankings have been extremely stable. For example, Seattle, WA and Minneapolis, MN have shared the top two spots in the ranking in each year since it began. We use the 2007 rankings to identify the 10 most literate cities and the 10 least literate cities.¹² While our data includes more households in the most literate cities than in the least literate cities, we have a large number of households in each: 2215 in the most literate cities and 736 in the least.

Table 7 displays the results for estimating our primary investor reaction regressions for the subsets of investors located in the 10 most and 10 least literate cities. As indicated in columns 1 and 4, local investors from the most literate cities trade significantly more heavily on days with more management announcements and regional newspaper articles. The coefficients on the two indicator variables are 1.98 and 5.97 respectively for investors within 50 miles, and the coefficients on the two count variables are 2.04 and 2.38 for investors within 250 miles; i.e. local investors in the most literate cities more than triple their trade from the base level if there is a single regional newspaper article. In contrast, we find a negative relation between local investor trading in the least literate cities and regional newspaper articles. Non-local investors in fact trade somewhat less on regional newspaper article days than would be expected given recent

¹² The ten most literate cities identified in the ranking are: Minneapolis, MN, Seattle, WA, St. Paul, MN, Denver, CO, Washington D.C., St. Louis, MO, San Francisco, CA, Atlanta, GA, Pittsburgh, PA and Boston, MA. The ten least literate cities identified in the study are: Long Beach, CA, Mesa, AZ, Arlington, TX, San Antonio, TX, Bakersfield, CA, Corpus Christi, TX, Aurora, CO, Anaheim, CA, El Paso, TX and Stockton, CA.

returns and volume. The difference between the most literate city investors and the least literate city investors' trading around regional newspaper articles is large and statistically significant. These results are robust to limiting to "isolated" news days, for which the difference between the two groups is significant at the 5% level ($p=0.04$ and 0.03 for 50-mile and 250-mile specifications, respectively). Overall, the results in Table 7 indicate that the stronger reaction of local investors to regional newspaper articles is strongest among investors from the most literate cities, supporting the conjecture that local investors respond more to regional news due to reading that news, as opposed to simple attention effects or costs of accessing the news.¹³

It is important to note that for local investors in any city, the costs of accessing the regional newspaper will be similar. While non-local investors, particularly during our sample period, may find it more costly to obtain a copy of the distant regional newspaper, local investors throughout the country have easy access to their regional papers through subscriptions, newsstands and newspaper boxes. Thus comparing local investors in the most literate cities with local investors in the least literate cities controls in large part for information acquisition costs, and instead focuses on the investors' decision to read that information.

4.4. Returns Following News-Day Trade

Prior literature on "local bias" in investing has shown that investors earn higher returns on their local holdings than on their non-local ones (Ivkovic and Weisbenner 2005) and has suggested that this is a sign of local information advantage. Our results suggest that regional newspapers may provide a specific source of local information advantage. In particular, local and

¹³ Due to the smaller number of trades in the least literate cities, we also compare trades from local investors in the 10 most literate cities with those in the 20 least literate cities. This expanded list of least literate cities includes the 10 listed earlier, as well as: Detroit, MI, Plano, TX, Riverside, CA, Los Angeles, CA, San Jose, CA, Houston, TX, Phoenix, AZ, Santa Ana, CA, Fresno, CA and Memphis, TN. Results are robust: the difference between the trading of the 10 most literate cities' local investors and the 20 most literate cities' local investors for regional newspaper articles is 6.32, $p=0.02$ and 2.30, $p=0.03$, for the 50-mile and 250-mile specifications respectively.

non-local investors do not appear to trade significantly differently before news appears publicly, suggesting that specific information leakage is not the source of local investors' advantage. A third possibility is that local investors simply have a better general understanding of the firms in question – leading to better decisions on whether to buy or sell. In this section, we test hypothesis H4, local traders earn higher abnormal returns when trading on days of regional news coverage than non-local traders. We examine whether local investors' trading is more predictive of future returns than non-local investors' trading, and how this difference varies with respect to news and no-news days.

In order to analyze return differences following the trading of local and non-local investors, we focus on whether a given investor group, local, non-local and local and non-local with prior holdings, is a net buyer of the stock on a given day: Do investors of the given group buy more shares than they sell? We define an indicator variable, “Net Buy Indicator,” for each investor group, which takes the value 1 if the given investor group was a net buyer for stock i on day d . Table 8, Panel A, provides sample statistics for the Net Buy Indicator variables. The correlation between local and non-local investors' net buying is in fact quite low, at 0.04 and 0.06 for 50- and 250-mile measures, allowing us to clearly measure differences in the returns predicted by local and non-local investors' trading.

We then estimate regressions of the form

$$\begin{aligned}
 R_{i,(d+1,d+21)} = & \alpha_{i,d} + \beta_{i,d}^{local} I(\text{local net buying})_{i,d} \\
 & + \beta_{i,d}^{nonlocal} I(\text{nonlocal net buying})_{i,d} + \varepsilon_{i,d}, \quad (3)
 \end{aligned}$$

where $R_{i,(d+1,d+21)}$ is the return for firm i over the one month covering trading days $d+1$ through $d+21$, $I(\text{local net buying})_{i,d}$ is the “Net Buy Indicator” for local investors for firm i , and day d , and $I(\text{nonlocal net buying})_{i,d}$ is the “Net Buy Indicator” for non-local investors. Equation 3 captures whether returns vary positively or negatively with the net buying of each type of investor group. We estimate Equation 3 separately for the event-days of interest: days with management announcements, regional newspaper articles and national newspaper articles. The advantage of a short window, such as one month, is that it focuses on returns immediately following the news article. However, it could be that abnormal returns are realized with a longer lag. For example, returns from post-earnings-announcement drift continue for up to a year and are strongest around subsequent earnings announcements (Bernard and Thomas 1989). Thus we also present results for 3- and 6-month returns. In untabulated regressions, we also estimate and discuss results for “isolated” news article days, and for a variation of Equation 3 in which we define the net buying indicators using the net buying of local and non-local investors with prior holdings, to evaluate the returns predicted by trades made by investors with prior holdings.

Panel B presents results from estimating Equation (3) for non-news days, management announcement days, days with regional newspaper articles and days with national newspaper articles. The first three columns show returns on days with no news, as a benchmark. Columns 4-6 show results for days with management announcements. In both cases we find a small and insignificant difference in the relation between future returns and net buying of local and non-local investors. However coefficients are consistently insignificant or negative. This implies that investors, both local and non-local, are purchasing stocks which subsequently do worse than the stocks they do not purchase, consistent with results from Odean (1999). In contrast, local investor buying predicts significantly higher returns than non-local investor buying on days with

regional articles: 9.6% higher, $p=0.04$, 18.5% higher, $p=0.002$ and 22.9% higher, $p=0.01$, for the 1- 3- and 6-month horizons, respectively. We find a positive difference in returns in the six month window following national newspaper articles, but not in the 1- or 3-month windows. It is interesting to note that the coefficients on local investor net buying for 1- and 3-month returns following regional newspaper articles are significantly positive. While on non-news days local (and non-local) investors buy stocks which subsequently earn lower returns, on regional newspaper article days local investors buy stocks which subsequently earn higher returns.

Panel C displays results using a 250-mile radius to define regional newspapers and local investors. As with 50-mile definitions, we find no significant differences in returns following local and non-local trading on non-news and management announcement days. However the magnitude and significance of difference in returns on regional newspaper days is lower than with the 50-mile definitions: local investor trading predicts higher returns over the 1- and 3-months following regional newspaper articles (by 5.4% and 9.6% respectively), but not over the 6-month horizon. We also find a stronger difference in returns following national newspaper articles, with a significant difference for both the 1- and 6-month windows, at 5.2% and 12.6% respectively. These results suggest that investors within 250 miles have a particular advantage in reacting to national news: they trade in a way that predicts higher future returns on national newspaper article days. For investors within 50 miles, in contrast, the local advantage appears primarily on regional newspaper article days.

In untabulated analyses we examine “isolated” news article days. We find significantly higher returns following local investor buying than non-local investor buying following regional news articles for the 1-month window ($p=0.05$ and 0.07 for 50- and 250-miles), but not over the 3- and 6-month windows. We find significantly higher returns following national newspaper

articles over the 6-month window for 50-mile definitions and the 3- and 6-month windows for 250-miles ($p=.002$, $p=0.001$ and $p=0.000$, respectively). We examine trading of investors with prior holdings. Local investors within 50 miles earn higher returns than non-local investors over the 3 months following regional newspaper articles ($p=0.02$), and local investors within 250 miles earn higher 3-month returns following national newspaper articles ($p=0.03$). Overall, the results displayed in Panels B and C, and the additional untabulated results, provide evidence that the “local advantage” is related to press coverage, both in regional and national newspapers.

5. Conclusion

In this paper we provide strong evidence that geography plays a role in press coverage; both in coverage itself and in the effect that coverage has on investors. We show that regional newspapers, located close to a firm, issue more articles and longer articles than national newspapers. Local investors, located near the firm and the regional newspaper, react more strongly to regional news articles than non-local investors. And this stronger reaction appears to provide them with some advantage; local investor buying predicts higher returns following both regional and national newspaper articles.

Regional newspapers not only publish more articles than other newspapers in general, but also issue more “isolated” articles, which are likely to contain more original content than articles which follow from management announcements or articles in other newspapers. Local investors react more strongly to these as well, and appear to earn higher returns due to their reactions. Regional newspapers have suffered from decreasing circulation and revenues in recent years, concurrent with increasing online access that fails to provide significant revenue. Many papers have dramatically reduced their staff, and some have stopped printing all-together, either shutting

down or going to a much smaller online product (Perez-Pena 2009). Our results, on differences in coverage, investor reactions, and returns, all suggest that these regional newspapers provide valuable information. “Isolated” articles in particular point towards original content, beyond merely the dissemination of management announcements or news that appears in other publications as well.

At the other extreme from “isolated” articles, we might expect geography to play less of a role in coverage around earnings announcements, given the high visibility of the event, and the supporting information that firms provide to the public, including journalists. However we find that regional newspapers provide more extensive coverage around earnings announcements. Regional newspapers devote more space to articles on their nearby firms than national newspapers. Earnings announcements do reduce differences between local and non-local investors. During these windows even non-local investors respond significantly to regional newspaper articles, and the difference between local and non-local investors becomes small and insignificant. This suggests that the greater visibility around an earnings announcement is sufficient to draw non-local investors’ attention. Geography may still play an important role around these events, however the impact appears to be reduced.

Finally, to examine the importance of “reading” we examine the trading responses of investors in the most and least literate cities. Investors in all cities should have relatively easy access to their regional newspapers should they choose to read them. However we find that local investors in the most literate cities react significantly more strongly to regional news, while local investors in the least literate cities do not. This result is particularly important if we consider today’s world of easy internet access: the costs to accessing information may have decreased, but the individual’s choice to read information is still important. Each individual will likely only

choose to read a sub-set of the vast amounts of information available online. For some it will be the regional newspaper, or regional newspaper's website. For others it may be "Google News." Regardless, different publications sources can still have significantly different impacts. As long as investors can only read a limited amount, and as long as individuals have more interest in local news than distant news, geography will play a role in press coverage and investor reactions.

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FIGURE 1. LOCATIONS OF SAMPLE FIRMS AND NEWSPAPERS

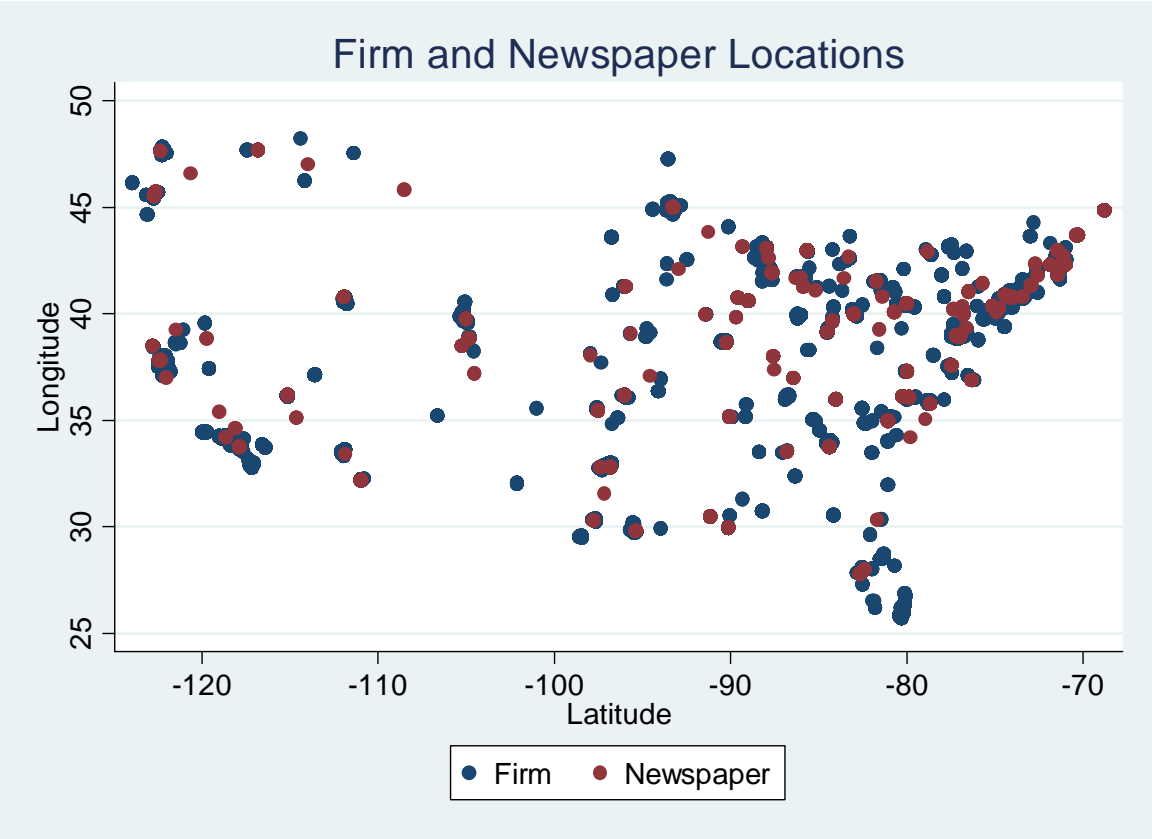


FIGURE 2. LOCATIONS OF SAMPLE HOUSEHOLDS

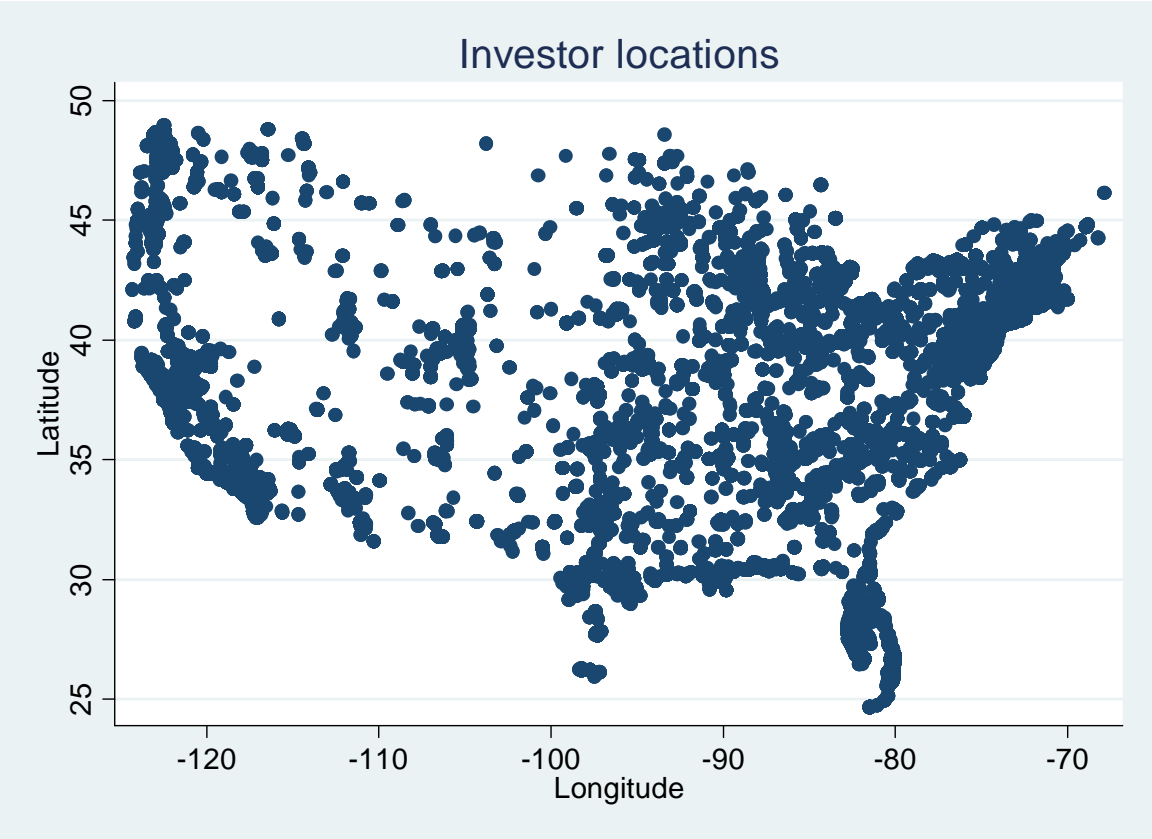


FIGURE 3. LOCAL AND NONLOCAL TRADING AROUND NEWSPAPER ARTICLES

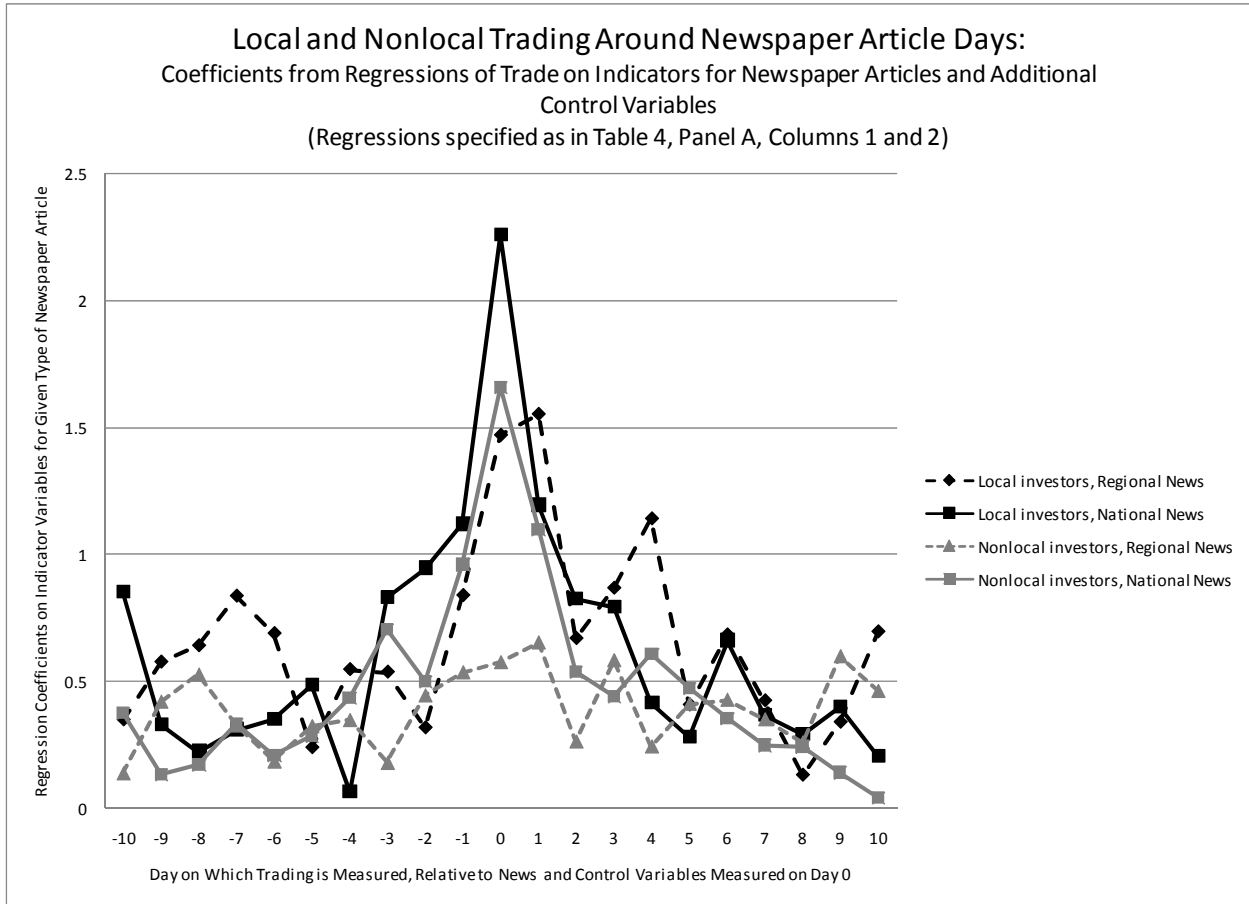


TABLE 1
Newspaper Articles and Management Announcements

Panel A. All news days

	Total, Full Sample	Firm- Years	Mean	Standard Deviation	Percentile				Max	Wordcount, Mean ^c
					25	50	75	95		
Newspaper articles	11,631	1000	11.63	48.81	2	5	11	33	1,381	6,993
Management Announcements	10,329	1000	10.33	9.04	5	9	14	26	91	4,860
Articles in National Newspapers ^a	2,836	1000	2.84	4.61	0	2	4	10	80	1,061
Articles in Regional Newspapers, 50 miles ^b	3,017	1000	3.02	6.50	0	0	3	14	71	1,592
Articles in Regional Newspapers, 250 miles ^b	3,990	1000	3.99	9.53	0	1	4	16	171	2,159

Panel B. News days with no other newspaper articles or management announcements in a (-3, 0) day window

	Total, Full Sample	Firm- Years	Mean	Standard Deviation	Percentile				Max	Wordcount, Mean ^c
					25	50	75	95		
Newspaper articles	3,130	1000	3.13	4.16	0	2	4	12	30	2,463
Management Announcements	6,923	1000	6.92	4.89	3	7	10	16	30	3,178
Articles in National Newspapers ^a	707	1000	0.71	1.20	0	0	1	3	9	585
Articles in Regional Newspapers, 50 miles ^b	1,103	1000	1.10	2.52	0	0	1	6	29	705
Articles in Regional Newspapers, 250 miles ^b	1,343	1000	1.34	2.73	0	0	2	7	29	865

a. National newspapers are defined as: New York Times, Wall Street Journal, and USA Today

b. Regional newspapers are defined as papers headquartered within 50 or 250 miles of the company's headquarters, exclusive of "National" newspapers. Thus the "Regional" papers for each firm differ based on the firm's location.

c. Wordcount is defined as the total number of words published in the given outlet type (i.e. Newspaper, Management Announcements, National Newspapers or Regional Newspapers) for the given firm-year.

TABLE 2
Trading Sample Statistics

This table presents sample statistics for the trading of all continental US investors in our brokerage house database, for all of their stock trades on firms with continental-US headquarters. Local and non-local investors are defined based on the distance between the investor's home and the headquarters of the firm. Investors who are within 50 or 250 miles of a firm are defined as local, and all others as non-local. Previous holdings indicates whether the given investor held shares of the company's stock as of the end of the prior calendar month.

Panel A. All trading days (for the 1000 firm-years in main sample)

	Mean	Standard Deviation	Median	95th Percentile	Max
N=245,712					
Buys	0.05	0.32	0	0	50
Sells	0.04	0.24	0	0	12
All trades	0.09	0.44	0	1	60
Trades by local investors, 50 miles	0.01	0.14	0	0	8
Trades by local investors, 250 miles	0.02	0.18	0	0	15
Trades by non-local investors, 250 miles	0.06	0.36	0	1	45
Trades by local investors, 50 miles, with previous holdings	0.01	0.09	0	0	6
Trades by local investors, 250 miles, with previous holdings	0.01	0.11	0	0	9
Trades by non-local investors with previous holdings, 250 miles	0.03	0.19	0	0	9

Panel B. Sub-sets of trading days with news events

	Percentage of trades ^a	Mean	Standard Deviation	Median	95th Percentile	Max
Trading days with a newspaper article						
N=5,953, 2.42% of days						
Buys	7.34%	0.14	0.96	0	1	50
Sells	5.84%	0.10	0.44	0	1	10
All trades	6.66%	0.24	1.22	0	1	60
Trading days with a management announcement						
N=9,071, 3.69% of days						
Buys	6.94%	0.09	0.79	0	1	50
Sells	6.25%	0.07	0.40	0	0	11
All trades	6.62%	0.16	1.05	0	1	60
Trading days with only National newspaper articles^b						
N=1,583, 0.64% of days						
Buys	2.01%	0.15	0.94	0	1	30
Sells	1.47%	0.09	0.44	0	1	8
All trades	1.76%	0.24	1.22	0	1	34
Trading days with only Regional newspaper articles^c						
N=3,709, 1.51% of days						
Buys	3.68%	0.11	0.69	0	1	30
Sells	3.03%	0.08	0.40	0	1	8
All trades	3.38%	0.19	0.92	0	1	34

- a. "Percentage of trades" shows the percentage of the number of the given type of trade (buy, sell, or any trade) that occurs on the given type of trading day, relative to the number that occurs during any of the trading days for the 1000
- b. Trading days on which there is at least one National newspaper article, but zero Regional newspaper articles and zero management announcements
- c. Trading days on which there is at least one Regional newspaper article, but zero National newspaper articles and zero management announcements

TABLE 3*Newspaper Coverage Around Earnings Announcements*

This table presents statistics for "national" and "regional" newspaper coverage around earnings announcement dated. Panel A displays the average across firm-day observations for a count of the total number of newspaper articles appearing in the given type of news outlet for the particular firm-day or days. Panel C displays the average across firm-day observations for the total number of words published in the given type of news outlet for the particular firm-day or days. Panels B and D display the averages of "normalized" variables. Normalized number of articles (total wordcount) is equal to the number of articles (total wordcount) divided by the average value of number of articles (total wordcount) for the given news outlet for all days in the 1000 firm-years in the sample. For example, national newspaper "normalized number of articles" is equal to national newspaper number of articles for the given firm-day, divided by the average value of national newspaper number of articles across the entire sample. Earnings announcement dates are taken from IBES and Compustat, with the earlier date taken as the earnings announcement date if the two dates differ. Day N is defined relative to the nearest earnings announcement date, defined as day 0. "P-value for difference in means" is the 2-tailed p-value from a test of the difference in average coverage between regional and national newspapers.

Panel A. Average number of articles published

	average over days [-5, -1]	announcement date	day +1	day +2	day +3
National newspapers	0.007	0.035	0.077	0.017	0.021
Regional newspapers, 50 miles	0.007	0.040	0.102	0.020	0.011
Regional newspapers, 250 miles	0.010	0.047	0.117	0.026	0.014
P-value for difference in means					
National vs. regional 50 miles	0.29	0.13	0.00	0.13	0.00
National vs. regional 250 miles	0.00	0.00	0.00	0.00	0.02

Panel B. Average normalized number of articles published

	average over days [-5, -1]	announcement date	day +1	day +2	day +3
National newspapers	0.88	4.50	9.93	2.17	2.73
Regional newspapers, 50 miles	0.89	4.80	12.34	2.48	1.39
Regional newspapers, 250 miles	0.93	4.28	10.73	2.42	1.31
P-value for difference in means					
National vs. regional 50 miles	0.47	0.28	0.00	0.22	0.00
National vs. regional 250 miles	0.32	0.32	0.15	0.26	0.00

Panel C. Average number of words published

	average over days [-5, -1]	announcement date	day +1	day +2	day +3
National newspapers	1.4	5.1	9.9	3.0	4.2
Regional newspapers, 50 miles	4.0	16.4	42.5	9.8	5.5
Regional newspapers, 250 miles	5.5	19.9	49.7	13.5	7.2
P-value for difference in means					
National vs. regional 50 miles	0.00	0.00	0.00	0.00	0.23
National vs. regional 250 miles	0.00	0.00	0.00	0.00	0.05

Panel D. Average normalized number of words published in relevant articles

	average over days [-5, -1]	announcement date	day +1	day +2	day +3
National newspapers	0.47	1.75	3.42	1.04	1.45
Regional newspapers, 50 miles	0.91	3.78	9.77	2.26	1.27
Regional newspapers, 250 miles	0.93	3.38	8.42	2.28	1.22
P-value for difference in means					
National vs. regional 50 miles	0.01	0.00	0.00	0.00	0.64
National vs. regional 250 miles	0.00	0.00	0.00	0.00	0.32

TABLE 4*Trading Response of Local and Non-local Investors to Management Announcements and Newspaper Articles*

This table presents results from estimating ordinary least square regressions, separately for "local" and "non-local" investors, on the number of articles appearing in the different newspaper types, as well as the number of management announcements, and indicators for days prior to management announcements or newspaper articles. The dependent variable is total trade for the given stock-day for the given investors, normalized by total trade across the entire sample of stock-days, for the given investors, to allow for direct comparability across investor groups. The following control variables are included: prior-day stock return, absolute value of prior-day stock return, prior-month average daily trading volume, prior-day trading volume normalized by prior-month average volume. T-statistics are given below coefficients. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors are robust to heteroskedasticity and arbitrary within-firm-year correlation.

The "Difference" column presents chi-square and p-value (1-tailed for regional newspaper articles, 2-tailed for other variables) on the difference between the estimates in the local and non-local columns (where the two regressions are estimated using seemingly unrelated estimation to control for cross-correlation).

Panels A and C present results in which "regional" newspaper and "local" and "non-local" investor are defined using a 50 mile radius. Panels B and D present results in which "regional" "local" and "non-local" are defined using a 250 mile radius.

Panel A: Trading for all local and non-local investors, 50 miles

	Difference, chi2 and p-			Difference, chi2 and p-		
	local	non-local	value	local	non-local	value
I(management announcement)	0.60	0.57	0.01	0.63	0.59	0.01
	2.44**	2.39**	0.92	2.49**	2.43**	0.90
I(regional newspaper article)	2.20	0.55	5.48	2.23	0.57	5.44
	3.13***	1.73*	0.01	3.15***	1.77*	0.01
I(national newspaper article)	1.59	1.85	0.13	1.62	1.87	0.12
	2.97***	2.32**	0.72	2.99***	2.33**	0.73
I(non-regional, non-national newspaper article)	2.09	1.39	0.57	2.12	1.41	0.57
	2.27**	2.22**	0.45	2.28**	2.23**	0.45
I(three days prior to a management announcement)				0.06	0.02	0.08
				0.51	0.41	0.78
I(three days prior to a newspaper article)				0.63	0.53	0.16
				2.86***	4.09***	0.69
Prior day return	1.14	1.36	0.10	1.14	1.36	0.10
	1.73*	2.30**	0.75	1.72*	2.29**	0.75
Prior day absolute return	4.88	4.79	0.01	4.88	4.79	0.00
	3.90***	3.50***	0.94	3.90***	3.50***	0.94
Prior day trading volume, scaled	0.23	0.28	1.28	0.23	0.28	1.31
	5.60***	10.06***	0.26	5.59***	10.07***	0.25
Prior month trading volume, unscaled	0.00	0.00	0.48	0.00	0.00	0.48
	5.34***	4.56***	0.49	5.31***	4.57***	0.49
Constant	0.02	-0.10	0.51	0.00	-0.12	0.46
	0.21	0.65	0.47	0.02	0.77	0.50
Observations	243,975	243,975		243,975	243,975	
R-squared	0.0121	0.0512		0.0123	0.0516	

Panel B: Trading for local and non-local investors, 250 miles

	Difference, chi2 and p-			Difference, chi2 and p-		
	local	non-local	value	local	non-local	value
Count(management announcements)	0.64	0.53	0.41	0.66	0.54	0.45
	2.42**	2.44**	0.52	2.46**	2.47**	0.50
Count(regional newspaper articles)	1.28	0.66	3.27	1.30	0.68	3.33
	3.32***	1.79*	0.04	3.35***	1.81*	0.03
Count(national newspaper articles)	1.89	1.42	1.25	1.91	1.43	1.29
	2.28**	2.63***	0.26	2.29**	2.64***	0.26
Count(non-regional, non-national newspaper articles)	2.28	0.82	1.95	2.28	0.82	1.96
	1.74*	1.27	0.16	1.74*	1.28	0.16
I(three days prior to a management announcement)				0.09	0.02	0.53
				0.85	0.28	0.47
I(three days prior to a newspaper article)				0.67	0.51	0.84
				3.90***	3.89***	0.36
Prior day return	1.08	1.50	0.61	1.07	1.50	0.61
	1.95*	2.47**	0.44	1.94*	2.47**	0.43
Prior day absolute return	4.84	4.61	0.06	4.84	4.61	0.06
	3.96***	3.43***	0.80	3.97***	3.43***	0.80
Prior day trading volume, scaled	0.25	0.27	1.05	0.24	0.27	1.08
	7.45***	10.07***	0.31	7.43***	10.07***	0.30
Prior month trading volume, unscaled	0.00	0.00	0.48	0.00	0.00	0.49
	5.51***	4.94***	0.49	5.52***	4.95***	0.48
Constant	-0.04	-0.08	0.21	-0.07	-0.10	0.13
	0.31	0.60	0.65	0.53	0.73	0.72
Observations	243,975	243,975		243,975	243,975	
R-squared	0.0264	0.049		0.0267	0.0493	

Panel C: Trading for local and non-local investors with holdings in the given stock as of the prior month-end, 50

	Difference, chi2 and p-			Difference, chi2 and p-		
	local	non-local	value	local	non-local	value
I(management announcement)	0.62	0.58	0.02	0.65	0.62	0.02
	2.75***	2.60***	0.87	2.84***	2.62***	0.90
I(regional newspaper article)	2.36	0.52	2.69	2.38	0.55	2.66
	2.30**	0.86	0.05	2.31**	0.90	0.05
I(national newspaper article)	1.55	1.87	0.19	1.57	1.90	0.19
	1.87*	2.08**	0.66	1.89*	2.09**	0.66
I(non-regional, non-national newspaper article)	1.14	1.49	0.37	1.16	1.53	0.38
	1.74*	1.97**	0.54	1.76*	1.99**	0.54
I(three days prior to a management announcement)				0.06	0.08	0.03
				0.38	0.82	0.86
I(three days prior to a newspaper article)				0.63	0.76	0.20
				2.47**	3.16***	0.65
Prior day return	1.57	-0.50	3.54	1.56	-0.51	3.54
	1.70*	0.64	0.06	1.69*	0.64	0.06
Prior day absolute return	3.80	4.37	0.17	3.80	4.37	0.17
	2.61***	2.68***	0.68	2.61***	2.68***	0.68
Prior day trading volume, scaled	0.18	0.16	0.19	0.18	0.16	0.20
	4.86***	7.06***	0.66	4.83***	7.06***	0.66
Prior month trading volume, unscaled	0.00	0.00	1.49	0.00	0.00	1.49
	3.91***	2.81***	0.22	3.90***	2.81***	0.22
Constant	0.27	0.12	1.01	0.25	0.08	1.05
	2.62***	0.58	0.31	2.30**	0.39	0.30
Observations	243,975	243,975		243,975	243,975	
R-squared	0.0029	0.0216		0.003	0.022	

Panel D: Trading for local and non-local investors with holdings in the given stock as of the prior month-end, 250 miles

	Difference, chi2 and p-			Difference, chi2 and p-		
	local	non-local	value	local	non-local	value
Count(management announcements)	0.69	0.51	1.35	0.72	0.53	1.43
	2.48**	2.45**	0.25	2.51**	2.47**	0.23
Count(regional newspaper articles)	1.99	0.58	6.40	2.01	0.60	6.40
	2.22**	1.00	0.01	2.23**	1.02	0.01
Count(national newspaper articles)	1.44	0.68	1.55	1.45	0.68	1.56
	1.24	1.02	0.21	1.24	1.02	0.21
Count(non-regional, non-national newspaper articles)	2.55	1.53	1.68	2.58	1.55	1.69
	1.85*	2.25**	0.19	1.86*	2.25**	0.19
I(three days prior to a management announcement)				0.13	0.07	0.20
				0.81	0.69	0.66
I(three days prior to a newspaper article)				0.82	0.72	0.23
				3.16***	2.99***	0.63
Prior day return	0.25	-0.23	0.40	0.24	-0.24	0.40
	0.29	0.34	0.53	0.28	0.34	0.53
Prior day absolute return	4.60	4.00	0.22	4.60	4.00	0.22
	2.86***	2.56**	0.64	2.86***	2.56**	0.64
Prior day trading volume, scaled	0.17	0.16	0.22	0.17	0.16	0.21
	6.04***	6.87***	0.64	5.99***	6.86***	0.65
Prior month trading volume, unscaled	0.00	0.00	2.15	0.00	0.00	2.16
	3.26***	2.95***	0.14	3.27***	2.95***	0.14
Constant	0.18	0.14	0.19	0.14	0.11	0.14
	1.18	0.74	0.66	0.87	0.55	0.71
Observations	243,975	243,975		243,975	243,975	
R-squared	0.0078	0.0199		0.008	0.0203	

TABLE 5

Trading Response of Local and Non-local Investors to Management Announcements and Newspaper Articles, For "Isolated" Events

This table presents results from estimating ordinary least square regressions, separately for "local" and "non-local" investors, on the investors' trade reactions to news. The sample is limited to firm-days on which there is at most one news event for the given firm, and there has been no news event for the given firm in the prior three days. The dependent variable is total trade for the given stock-day for the given investors, normalized by total trade across the entire sample of stock-days, for the given investors, to allow for direct comparability across investor groups. The following control variables are included: prior-day stock return, absolute value of prior-day stock return, prior-month average daily trading volume, prior-day trading volume normalized by prior-month average volume. T-statistics are given below coefficients. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors are robust to heteroskedasticity and arbitrary within-firm-year correlation.

The "Difference" column presents chi-square and p-value (1-tailed for regional newspaper articles, 2-tailed for other variables) on the difference between the estimates in the local and non-local columns (where the two regressions are estimated using seemingly unrelated estimation to control for cross-correlation).

Columns 1-6 present results in which "regional" newspaper and "local" and "non-local" investor are defined using a 50 mile radius. Columns 7-12 present results in which "regional" "local" and "non-local" are defined using a 250 mile radius.

	50 Miles						250 Miles					
	All local and non-local investors			Investors with holdings in the given stock as of the prior month-end			All local and non-local investors			Investors with holdings in the given stock as of the prior month-end		
	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value
I(management announcement)	0.31	0.34	0.04	0.24	0.43	0.81	0.30	0.36	0.25	0.33	0.42	0.29
	2.25**	4.05***	0.83	1.25	3.70***	0.37	2.74***	4.01***	0.62	2.01**	3.55***	0.59
I(regional newspaper article)	1.82	0.15	5.29	2.35	-0.03	2.13	0.86	0.14	2.89	1.66	-0.19	3.83
	2.42**	0.82	0.01	1.46	0.10	0.07	2.06**	0.81	0.04	1.80*	0.93	0.03
I(national newspaper article)	0.63	1.28	1.77	0.13	0.55	0.38	0.92	1.27	0.78	0.56	0.46	0.03
	1.06	1.91*	0.18	0.23	1.31	0.54	1.30	1.98**	0.38	1.01	1.10	0.87
I(non-regional, non-national newspaper article)	0.44	0.96	1.15	-0.21	1.18	4.63	0.51	1.28	2.23	-0.27	1.68	7.63
	0.95	4.04***	0.28	0.45	2.83***	0.03	1.17	4.16***	0.14	0.72	3.00***	0.01
Prior day return	1.27	1.61	0.41	1.49	0.38	1.51	1.38	1.63	0.34	0.76	0.49	0.16
	2.26**	3.43***	0.52	1.86*	0.62	0.22	2.73***	3.41***	0.56	1.11	0.83	0.69
Prior day absolute return	3.16	2.97	0.04	2.49	2.49	0.00	3.24	2.89	0.23	3.11	2.26	0.55
	2.97***	2.81***	0.84	2.03**	1.96*	1.00	3.16***	2.73***	0.63	2.53**	1.75*	0.46
Prior day trading volume, scaled	0.16	0.21	3.97	0.14	0.13	0.01	0.18	0.21	3.14	0.15	0.13	0.50
	6.52***	11.45***	0.05	4.35***	6.47***	0.93	8.74***	11.17***	0.08	5.74***	6.00***	0.48
Prior month trading volume, unscaled	0.00	0.00	0.01	0.00	0.00	0.46	0.00	0.00	0.02	0.00	0.00	0.69
	4.57***	5.99***	0.92	4.09***	3.60***	0.50	6.51***	5.82***	0.89	4.92***	3.46***	0.41
Constant	0.17	0.16	0.00	0.35	0.33	0.04	0.17	0.16	0.01	0.32	0.34	0.06
	1.73*	1.94*	0.96	4.07***	2.86***	0.85	2.41**	1.85*	0.92	4.23***	2.78***	0.81
Observations	215,399	215,399		215,399	215,399		215,399	215,399		215,399	215,399	
R-squared	0.0079	0.0316		0.0018	0.0096		0.012	0.0292		0.0029	0.0088	

TABLE 6

Trading Response of Local and Non-local Investors to Newspaper Articles Around Earnings Announcements

This table presents results from estimating ordinary least square regressions, separately for "local" and "non-local" investors, on the number of newspaper articles appearing in different categories of newspapers. The sample is limited to the window [0, 1] around an earnings announcement, i.e. the day of and one day after the given announcement. The dependent variable is total trade for the given stock-day for the given investors, normalized by total trade across the entire sample of stock-days, for the given investors, to allow for direct comparability across investor groups. The following control variables are included: prior-day stock return, absolute value of prior-day stock return, prior-month average daily trading volume, prior-day trading volume normalized by prior-month average volume. T-statistics are given below coefficients. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors are robust to heteroskedasticity and arbitrary within-firm-year correlation.

The "Difference" column presents chi-square and p-value (1-tailed for regional newspaper articles, 2-tailed for other variables) on the difference between the estimates in the local and non-local columns (where the two regressions are estimated using seemingly unrelated estimation to control for cross-correlation).

Columns 1-6 present results in which "regional" newspaper and "local" and "non-local" investor are defined using a 50 mile radius, and indicators for newspaper article categories are used as independent variables. Columns 7-12 present results in which "regional" "local" and "non-local" are defined using a 250 mile radius, and counts of the number of newspaper articles in each category are used as independent variables.

	50 Miles						250 Miles					
	All local and non-local investors			Investors with holdings in the given stock as of the prior month-end			All local and non-local investors			Investors with holdings in the given stock as of the prior month-end		
	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value	local	non-local	Difference, chi2 and p-value
Regional newspaper articles	2.07	0.48	1.68	4.97	-0.22	3.72	1.38	0.97	0.36	3.69	0.00	6.58
	1.53	0.88	0.10	1.80*	0.35	0.03	1.55	1.40	0.27	2.06**	0.00	0.01
National newspaper articles	0.38	0.85	0.29	0.70	1.88	0.78	2.30	0.41	2.37	2.76	1.70	0.55
	0.42	1.10	0.59	0.48	1.73*	0.38	1.62	0.57	0.12	1.47	1.76*	0.46
Non-regional, non-national newspaper articles	2.20	1.03	0.89	1.27	1.70	0.08	4.93	2.83	8.21	9.32	3.71	7.49
	1.34	0.88	0.35	0.61	0.93	0.78	2.90***	1.99**	0.00	2.57**	2.20**	0.01
Prior day return	-3.72	-2.05	0.04	-3.63	-8.67	0.20	-1.76	0.84	0.21	-6.14	-3.38	0.17
	0.82	0.28	0.84	0.45	1.11	0.66	0.44	0.12	0.65	0.97	0.57	0.68
Prior day absolute return	14.17	25.81	1.20	19.48	23.12	0.06	16.41	22.05	0.57	22.30	15.52	0.58
	2.22**	2.77***	0.27	1.72*	2.27**	0.80	3.32***	2.43**	0.45	2.68***	2.09**	0.45
Prior day trading volume, scaled	0.20	0.30	0.26	-0.07	0.03	0.22	0.15	0.26	0.75	-0.23	0.00	2.35
	1.26	1.89*	0.61	0.35	0.29	0.64	1.28	1.55	0.39	1.49	0.01	0.13
Prior month trading volume, unscaled	0.00	0.00	3.40	0.00	0.00	0.68	0.00	0.00	0.64	0.00	0.00	0.15
	3.54***	3.55***	0.07	2.82***	2.89***	0.41	4.59***	3.21***	0.43	3.84***	3.17***	0.70
Constant	-0.42	-1.77	2.51	-0.45	-1.10	0.59	-0.79	-1.45	0.93	-0.86	-0.46	0.48
	0.90	2.05**	0.11	0.68	1.30	0.44	2.01**	1.70*	0.34	1.78*	0.79	0.49
Observations	6,905	6,905		6,905	6,905		6,904	6,904		6,904	6,904	
R-squared	0.0212	0.1125		0.0118	0.0758		0.1094	0.1181		0.1153	0.09	

TABLE 7

Trading Response of Local Investors From 10 Most and 10 Least Literate Cities

This table presents results from estimating ordinary least square regressions, separately for "most literate" and "least literate" local investors trade. The dependent variable is total trade for the given stock-day for the given investors, normalized by total trade across the entire sample of stock-days, for the given investors, to allow for direct comparability across investor groups. The following control variables are included: prior-day stock return, absolute value of prior-day stock return, prior-month average daily trading volume, prior-day trading volume normalized by prior-month average volume. Most (least) literate investors are defined as those who live in the zipcodes attributable to the ten most (least) literate cities, as ranked by "America's Most Literate Cities," 2007. The table shows results for investor reactions to news regarding firms which are local to the investor. T-statistics are given below coefficients. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors are robust to heteroskedasticity and arbitrary within-firm-year correlation.

The "Difference" column presents chi-square and p-value (1-tailed for regional newspaper articles, 2-tailed for other variables) on the difference between the estimates in the local and non-local columns (where the two regressions are estimated using seemingly unrelated estimation to control for cross-correlation).

Columns 1-3 present results in which "regional" newspaper and "local" and "non-local" investor are defined using a 50 mile radius, and indicators for management announcement and newspaper article categories are used as independent variables. Columns 4-6 present results in which "regional" "local" and "non-local" are defined using a 250 mile radius, and counts of the number of management announcements and newspaper articles in each category are used as independent variables.

	50 Miles			250 Miles		
	Most literate	Least literate	Difference, chi2 and p-value	Most literate	Least literate	Difference, chi2 and p-value
Management announcements	1.98	2.47	0.06	2.04	0.87	0.97
	2.25**	1.44	0.80	2.10**	1.28	0.33
Regional newspaper articles	5.97	-1.76	5.77	2.38	-1.20	6.22
	1.91*	2.45**	0.00	1.72*	3.05***	0.00
National newspaper articles	0.61	4.87	1.02	-0.66	1.19	0.75
	0.68	1.19	0.31	0.44	0.78	0.39
Non-regional, non-national newspaper articles	3.87	-1.67	3.55	6.49	-0.38	1.67
	1.36	2.43**	0.06	1.23	1.74*	0.20
Prior day return	0.22	-8.98	2.87	0.58	-3.68	1.64
	0.16	1.71*	0.09	0.48	1.19	0.20
Prior day absolute return	2.96	6.49	0.20	2.87	7.01	0.50
	1.67*	0.84	0.66	1.72*	1.24	0.48
Prior day trading volume, scaled	0.24	0.25	0.00	0.25	0.13	0.61
	2.11**	1.13	0.95	2.66***	1.09	0.43
Prior month trading volume, unscaled	0.00	0.00	3.37	0.00	0.00	0.02
	2.42**	0.34	0.07	2.35**	1.22	0.90
Constant	-0.02	0.39	1.26	0.02	0.22	0.17
	0.07	2.03**	0.26	0.08	0.58	0.68
Observations	243,975	243,975		243,975	243,975	
R-squared	0.0019	0.0001		0.0046	0.0002	

TABLE 8

Returns Differences for Local and Non-local Investor Reactions to News

"Net Buy Indicator" is an indicator, defined for each stock-day, for whether the net dollar trades made by the given investor group are positive - i.e. whether they are net buyers on the given day. Panel A presents sample statistics for the "Net Buy Indicator" while Panels B and C present results from estimating ordinary least squares regressions of future returns on trade characteristics on news event days. The dependent variable in Panel B is raw return over trading days 1 through 21 (1 month), 1 through 63 (3 months), and 1 through 127 (6 months), following the given news event day. * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors are robust to heteroskedasticity and arbitrary within-firm-year correlation. The significance of the difference between coefficients on local and non-local net-buy indicators is based on 1-tailed tests for regional news and 2-tailed tests for all other subsets.

Panel A. Sample Statistics, Net Buy Indicators

	50 Miles						250 Miles					
				Correlation with:						Correlation with:		
	Mean	Standard Deviation	Median	Local investors	Non-local investors	Local investors with prior holding	Mean	Standard Deviation	Median	Local investors	Non-local investors	Local investors with prior holding
Local investors	0.0063	0.0793	0				0.0100	0.0997	0			
Non-local investors	0.0295	0.1692	0	0.0413			0.0265	0.1606	0	0.0591		
Local investors with prior holding	0.0015	0.0387	0	0.482	0.0187		0.0023	0.0480	0	0.4736	0.0242	
Non-local investors with prior holding	0.0064	0.0796	0	0.0233	0.4535	0.0167	0.0056	0.0749	0	0.0284	0.4529	0.0201

Panel B. Regressions of Future Returns on Net Buy Indicators: All News Event Days, 50 Miles

	Days with no news event			Days with management announcement			Days with regional newspaper article			Days with national newspaper article		
	1-month	3-month	6-month	1-month	3-month	6-month	1-month	3-month	6-month	1-month	3-month	6-month
	I(local investors net buy)	-0.003	-0.028	-0.062	0.020	-0.023	-0.039	0.111	0.107	0.131	0.064	-0.066
	0.40	1.83*	2.54**	0.97	0.71	0.68	2.02**	2.17**	1.25	1.50	1.19	0.61
I(non-local investors net buy)	-0.011	-0.050	-0.088	0.003	-0.048	-0.090	0.015	-0.078	-0.098	0.002	-0.048	-0.097
	2.73***	5.51***	6.19***	0.30	2.62***	2.71***	0.81	2.40**	1.74*	0.08	1.87*	2.73***
Constant	0.038	0.106	0.204	0.030	0.087	0.161	0.020	0.065	0.140	0.021	0.064	0.143
	13.85***	13.22***	13.36***	8.65***	11.16***	10.33***	2.80***	4.13***	4.21***	3.85***	5.53***	6.81***
Observations	229,355	229,355	229,355	8,983	8,983	8,983	2,064	2,064	2,064	2,096	2,096	2,096
R-squared	0.0001	0.0004	0.0006	0.0001	0.0008	0.0011	0.0070	0.0038	0.0030	0.0016	0.0020	0.0021
Difference between local and non-local investor coefficients:	0.008	0.022	0.025	0.017	0.025	0.051	0.096	0.185	0.229	0.063	-0.018	0.144
P-value for difference:	0.33	0.15	0.32	0.47	0.52	0.49	0.04	0.00	0.01	0.13	0.79	0.09

Panel C. Regressions of Future Returns on Net Buy Indicators: All News Event Days, 250 Miles

	Days with no news event			Days with management announcement			Days with regional newspaper article			Days with national newspaper article		
	1-month	3-month	6-month	1-month	3-month	6-month	1-month	3-month	6-month	1-month	3-month	6-month
I(local investors net buy)	-0.007	-0.044	-0.086	-0.001	-0.044	-0.107	0.054	0.030	-0.029	0.040	-0.015	-0.003
	1.17	3.64***	4.37***	0.03	1.65*	2.42**	1.83*	0.91	0.52	1.42	0.35	0.04
I(non-local investors net buy)	-0.010	-0.047	-0.084	0.002	-0.050	-0.084	0.000	-0.067	-0.084	-0.012	-0.082	-0.128
	2.65***	5.02***	5.78***	0.18	2.52**	2.12**	0.00	2.00**	1.73*	0.73	3.01***	3.43***
Constant	0.038	0.106	0.204	0.031	0.087	0.161	0.021	0.064	0.140	0.022	0.065	0.145
	13.85***	13.22***	13.36***	8.81***	11.25***	10.43***	3.41***	4.77***	4.79***	4.07***	5.77***	7.09***
Observations	229,355	229,355	229,355	8,983	8,983	8,983	2,560	2,560	2,560	2,096	2,096	2,096
R-squared	0.0001	0.0004	0.0006	0.0000	0.0010	0.0014	0.0021	0.0020	0.0017	0.0011	0.0034	0.0033
Difference between local and non-local investor coefficients:	0.003	0.003	-0.002	-0.003	0.007	-0.024	0.054	0.096	0.056	0.052	0.067	0.126
P-value for difference:	0.59	0.80	0.92	0.90	0.84	0.68	0.05	0.02	0.17	0.08	0.21	0.05