Local information concentration and stock price informativeness

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Abstract: Investors have been shown to gather local information, which allows for superior investment returns. We document that when the local information landscape is less dispersed and local information is concentrated on fewer firms, stock prices better align with future earnings. These findings are clustered in small firms, firms in rural communities, and firms with low institutional ownership, suggesting that local information's ability to be priced into earnings is strongest in regions where information is otherwise unavailable. Overall, we show that the ability of local information to be utilised is dependent both on the amount of local information available to investors and the resources available to investors to capitalise on the information.

Keywords: local information; institutional ownership; information asymmetry; prices to earnings.

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1 Introduction

Previous research has documented that by being physically proximate to a firm, traders can generate positive abnormal returns on their local investments (e.g., Baik et al., 2010; Coval and Moskovitz, 1999; Garcia and Norli, 2012). These returns are driven by private information which is unavailable to non-locals, or does not become available until after local investors have the opportunity to trade on it (Ivković and Weisbenner, 2005). By being located closer to the firms which they are investing in, investors can have direct contact with employees, suppliers, and customers, and are able to witness the company's operations firsthand.

However, when there is a lot of local information to process as a result of a large populace of firms within a region, it is relatively more difficult for investors to process and trade on all of the private information they are obtaining because of both limited investor dollars and because that information is diffused over a larger set of firms. Conversely, if investors are located in a region with a less diffuse information environment, investors will be able to obtain relatively more private knowledge about a smaller subset of potential investments and therefore be able to better understand their local firms. Consistent with this notion, we find evidence that when there is less competition for local investor attention within a region, firms within that region have stock prices which are better informed and better align with future earnings streams. Although previous literature has identified that local investors generate increased returns when obtaining local information, we are the first study to identify that these returns are connected to future earnings and the accounting system. In addition, this is the first paper to demonstrate that the relative competition for local investor attention impacts the ability of local information to get utilised.

In additional testing, we investigate the connection between the local information environment and information asymmetry. If locals are improving stock price informativeness when local information competition is low, we would expect their impact to be concentrated in firms with greater information asymmetry. Consistent with this notion, we find that the relation between local information flows and the price informativeness regarding future earnings is concentrated in the smallest two terciles of firms. As larger firms typically have greater analyst following, media coverage, and ownership dispersion, this finding is consistent with local investors having the best opportunity to price their private knowledge when that knowledge has a lower likelihood of being attained by other investors. Similarly, we find that our results are also concentrated in firms that operate in the smallest two terciles of county population. Finally, our findings are also concentrated in the firms with the lowest institutional ownership, where firms are the least transparent and produce less information. Overall, our findings support that price improvements from local information concentration is most pronounced when there is greater information asymmetry.

Finally, to understand the impact which information concentration has on stock prices, we isolate firms who are in the most concentrated decile of local information and compare them to the rest of the firms in the population. We find that the amount of future earnings information which is not driven by company size, institutional ownership, analyst following, or earnings persistence that is considered in current stock prices is 3.6 times higher in the most concentrated information decile than the rest of the population.

This study contributes to the accounting literature in two distinct ways. First, we empirically demonstrate that the local information environment is related to stock prices that lead and more accurately anticipate earnings over a long-term (three year) horizon. While prior work has demonstrated that local investors are generating better returns (Coval and Moskovitz, 1999, 2001) we are the first paper to document that these returns are linked with information which ultimately manifests in the accounting system via future firm performance.

Second, we show that local information concentration is a contributing factor in understanding how prices are calculated and their relative level of informativeness. While substantial literature has discussed the financial benefits of information exchange amongst local parties (Agarwal and Hauswald, 2014; El Ghoul et al., 2013), there is no literature to date which discusses how local information concentration, or the competition amongst firms to benefit from local information, is impacting the ability of this information to get utilised. This paper shows that when local information exists in a less competitive landscape, the benefits of this local information exchange is greater as evidenced by more informed stock prices relative to future performance.

The rest of the paper continues as follows: in Section 2, we discuss the prior local literatures and motivate the hypothesis. Section 3 discusses the variable construction, data sources, and research design. Section 4 provides the results of the empirical tests, Section 5 provides robustness and ancillary tests from the main hypothesis, and Section 6 concludes.

2 Previous literature

2.1 Local information literature

The early literature on local investment is centred on investors concentrating their portfolios in geographically proximate stocks. French and Poterba (1991) first noticed this behaviour when documenting that investors overwhelmingly hold domestic securities, in spite of portfolio theory which suggests international diversification. Coval and Moskowitz (1999) expanded on this result and found that even within the USA investment managers prefer to invest in companies located near their headquarters. They suggest that the preference for local investment is driven by an informational advantage rather than mere familiarity.

Consistent with this belief, Malloy (2005) found that US analysts located nearer to the firms they covered had more accurate forecasts and a greater impact on stock prices after a forecast revision. Bae et al. (2008) extended this result internationally after examining a sample of 32 countries and finding that analysts from the same country as the firm they are covering produce more accurate forecasts. Ng (2008) found that foreign mergers and acquisitions were perceived less favourably by investors because of the increased cost of information to domestic investors. Similarly, in an institutional setting, Baik et al. (2010) and Bernile et al. (2015) find institutional traders perform better when their portfolio is concentrated locally. Overall, these papers suggest that both analysts and institutional and individual investors possess better information when they are physically closer to their targeted firms.

Although the previous literature focused on institutional trading patterns for local stocks, individual investors demonstrate similar local trading habits (Zhu, 2002). Locals have been found to make up a disproportionate percentage of trading as evidenced by the reduction in trading volume for local stocks around blackouts for local shareholders (Shive, 2012). Similarly, Ivković and Weisbenner (2005) find that households generate 3.2% higher returns on their local investments; which is indicative of having superior information on local investments in comparison to non-local investments.

2.1.1 Prices and future earnings literature

Researchers have found that the relation between prices and future earnings is impacted by certain firm and investor characteristics. Specifically, Collins et al. (1987) find that larger firms have more informative stock prices, with size proxying for the availability of firm information. In a more direct test on the role of information availability on price accuracy, Schleicher and Walker (1999) find that greater discussion in the annual report leads to a stronger relationship between returns and future earnings. In addition, corporate disclosure, as measured by analyst ratings, increases the relation between returns and earnings (Gelb and Zarowin, 2002; Lundholm and Myers, 2002). More detailed reporting of business segments also leads to more informative stock prices (Ettredge et al., 2005). Orpurt and Zang (2009) find that direct cash flow disclosures help investors price future cash flows more accurately. Similarly, Choi et al. (2011) find that when management forecasts are more frequent and precise, they assist investors in predicting future earnings and increase the relation between returns and future earnings. Thus, the frequency and precision of corporate disclosure can help prices reflect future earnings.

Yet while firm characteristics such as size and transparency can impact how well price and future earnings align, stock prices are also influenced when shareholders are independently more informed or when information is available through spillover effects from connected markets (Al-Zeaud, 2014; Kumar and Maheswaran, 2015). Firms with high institutional ownership have more accurate prices with respect to future performance as institutional owners are believed to have resources which give them an informational advantage (Jiambalvo et al., 2002). In addition, higher analyst coverage improves the information environment and gives investors a better understanding of the firms' financial future, allowing prices to better reflect future earnings streams (Ayers and Freeman, 2003). Drake et al. (2015) find that short sellers, who are often considered more sophisticated investors due to the additional requirements needed to properly execute short sales, also improve the relation between prices and future earnings. Hyman et al. (2021) find that as advertising improves the information environment, stock prices better incorporate future earnings information.

2.2 Hypothesis development

Local bias in investments has been attributed to local investors having a richer information set than non-locals (Baik et al., 2010; Coval and Moskowitz, 1999). The local information environment can provide unique insights into a firms' operations through direct and indirect observation. For example, a local investor may have access to private information, generally unavailable to non-locals, through direct contact with the firm as a supplier or contractor or via conversations with firm employees at community social functions. These examples of soft information could be price relevant as they provide indirect insight on firm morale, productivity, and future performance.

However, as the local information environment becomes crowded, the likelihood of investors aggregating enough private information to make informed trades is reduced. Investors are limited in their time and attention, and as more local firms compete for these cognitive resources, investors become less informed about each individual firm. Additionally, when there are relatively few local investment options available, the likelihood that local investors have sufficient financial resources to impact individual stock price increases. Thus, the concentration of the local information environment impacts how local information regarding future performance is impounded into price.

H1 The relation between price and future earnings increases as the local information environment becomes more concentrated.

3 Data

3.1 Local information environment proxy

We utilise a local information environment proxy similar to the measure used in Hong et al. (2008) which takes into account the number of local publicly traded firms and the local dollars available for investment.[1] If a firm is the only local investment opportunity, then all local knowledge spillover will be about that one firm. Conversely, regions which are home to multiple companies give local investors multiple opportunities to invest their funds locally, and therefore the local information environment for the firm is more diffused.

To create the measure for local environment concentration (*LOCAL*), we multiply the total population of each county within the USA by the county median income per capita to get a measure of the total dollars available for investment.[2] We then deflate this amount by the total market value of equity for all stocks with headquarters in the county. Finally, we take the natural logarithm of the ratio to normalise the distribution. Higher values of *LOCAL* indicate fewer firms per capita and a more concentrated local information environment.

Our measure differs slightly from Hong et al. (2008) who use regional book value of equity rather than market value. We use the market value of equity for two reasons. First, the market value of equity is a better measure of the size of a region's investment opportunities since it is updated every trading day and is not restricted by accounting policies such as historical pricing and conservatism. Second, firms with negative book equity can be included in the sample rather than appearing to reduce available investment choices as they will be draw local investment dollars as well. In untabulated robustness tests our results are similar using book value of equity as our deflator.

Table 1 shows the average values of *LOCAL* for counties within each state in the sample. Consistent with Hong et al. (2008), the local information environment is higher in rural states such as Wyoming or New Mexico where there are few businesses and little competition for local investment dollars.[3] Conversely, states home to large industries such as finance or oil have a less concentrated information environment as evidenced by the values of *LOCAL* for New York (6.94) and Texas (6.26). In addition, Table 1 presents the state ranks of *LOCAL* as compared to Hong et al.'s mean state ranking. The correlation of 0.88 between the two ranks suggests that both samples are picking up similar underlying phenomenon.

Table 1 Average local information concentration by state and comparison to Hong et al. (2008)

State	*LOCAL*	*LOCAL rank*	*HKS rank*	*State*	*LOCAL*	*LOCAL rank*	*HKS rank*
WY	10.20	1	1	PA	7.56	26	24
NM	9.32	2	4	UT	7.54	27	21
ME	8.93	3	12	RI	7.50	28	28
MT	8.80	4	4	NC	7.41	29	34
KS	8.64	5	8	CO	7.36	30	34
HI	8.61	6	-	OR	7.35	31	30
VT	8.50	7	6	WA	7.25	32	37
WV	8.42	8	2	AR	7.25	33	33
FL	8.41	9	10	TN	7.23	34	26
SD	8.30	10	6	OH	7.14	35	29
MS	8.30	11	15	NJ	7.11	36	43
NH	8.29	12	10	CT	7.02	37	47
SC	8.19	13	15	NY	6.94	38	45
LA	8.03	14	8	CA	6.92	39	31
IA	7.93	15	12	MA	6.74	40	31
MI	7.87	16	39	OK	6.72	41	40
KY	7.83	17	14	ID	6.69	42	26
ND	7.79	18	2	MN	6.66	43	24
AZ	7.69	19	17	GA	6.61	44	38
WI	7.67	20	25	IL	6.42	45	44
MO	7.65	21	21	TX	6.26	46	42
IN	7.63	22	19	VA	6.16	47	41
MD	7.61	23	17	NE	6.14	48	46
NV	7.60	24	21	DE	6.06	49	48
AL	7.58	25	20				
LO rank and HKS rank correlation of 0.8781***							

Notes: Table 1 presents the average values for *LOCAL* per state in the sample. *LOCAL* is measured as the natural logarithm of the county per capita median income multiplied by its population and divided by the market value of equity for all firms headquartered in the county. *LOCAL RANK* is the rank of firms with the highest concentration of local information using *LOCAL* with 1 indicated the highest concentration. *HKS RANK* represents the rank of *RATIO* from Hong et al. (2008) 1970–2005 sample. Hawaii was omitted from HKS's sample. *** = p-value<0.01.

3.2 Future earnings response coefficient model

To test the relation between local investment, future earnings, and stock price we use the future earnings response coefficient (FERC) model from Collins et al. (1994) as updated by Lundholm and Myers (2002). These models are used to investigate the informativeness of current returns with respect to information about current earnings (e.g., Choi et al., 2011; Drake et al., 2015; Orpurt and Zang, 2009; Tucker and Zarowin, 2006). The model assumes current returns are a function of changes in contemporaneous earnings and expectations of future earnings. The following model tests the strength of the relationship between current returns and expected future earnings by regressing returns on earnings in the next three years and controlling for past earnings, present earnings, and future returns:

$$R_{i,t} = \alpha_0 + \beta_1 IB_{t-1} + \beta_2 IB_t + \beta_3 IB_{t+3} + \beta_4 R_{t+3} + \varepsilon \quad (1)$$

where R is the annual stock return for year t inclusive of dividends, IB_{t-1} and IB_t are the income from continuing operations, IB_{t+3} is the sum of income from continuing operations from years $t + 1$ to $t + 3$, and R_{t+3} is buy-and-hold return on the stock from fiscal years $t + 1$ to $t + 3$, compounded annually. All earnings variables are scaled by the market value of equity at the beginning of fiscal year t.

The goal of the model is to capture how current returns reflect information contained in future earnings. Since current returns are partially a reflection of changes in contemporaneous earnings, the model includes earnings levels in year $t - 1$ and t with the two coefficients combining to show the effect of the change in current earnings on returns. In addition, current returns incorporate expected future earnings. Since future earnings expectations are unknown at time t, realised future earnings (IB_{t+3}) is used as an information proxy, with the assumption that current returns are inclusive of the earnings which will be realised over the next three years.

However, as prices at t can only reflect future earnings information which is anticipated at time t, it is necessary to control for the portion of future earnings which are realised in periods $t + 1$ to $t + 3$ but were unanticipated in t. Otherwise, IB_{t+3} will include both expected future earnings (which are correlated with current returns) and unexpected future earnings (which are uncorrelated with current returns) and the coefficient will be biased toward zero as it loses explanatory power for current returns. Thus, future returns (R_{t+3}) is included in the model to capture the portion of earnings realised in $t + 1$ to $t + 3$ but were unanticipated at time t.

To test for the effects of the local information environment on the relationship between current stock prices and future earnings, we modify equation (1) to interact local information concentration with future earnings. If a concentrated local information environment is related to increased information about future earnings at time t, the interaction between the local information environment and future earnings will be positive. We follow Drake et al. (2015) and include control variables as well as their interactions with the components of the FERC model that previous literature has shown to impact the relation between returns and future earnings. The expanded FERC model used to test our hypothesis is presented in equation (2).

$$
\begin{aligned}
R_{i,t} = {} & \alpha_0 + \beta_1 IB_{t-1} + \beta_2 IB_t + \beta_3 IB_{t+3} + \beta_4 R_{t+3} + \beta_5 LOCAL_t + \beta_6 LOCAL_t * IB_{t-1} \\
& + \beta_7 LOCAL_t * IB_t + \beta_8 LOCAL_t * IB_{t+3} + \beta_9 LOCAL_t * R_{t+3} + \beta_{10} ASSETS_t \\
& + \beta_{11} ASSETS_t * IB_{t-1} + \beta_{12} ASSETS_t * IB_t + \beta_{13} ASSETS_t * IB_{t+3} + \beta_{14} ASSETS_t \\
& * R_{t+3} + \beta_{15} LOSS_t + \beta_{16} LOSS_t * IB_{t-1} + \beta_{17} LOSS_t * IB_t + \beta_{18} LOSS_t * IB_{t+3} \\
& + \beta_{19} LOSS_t * R_{t+3} + \beta_{20} SD_t + \beta_{21} SD_t * IB_{t-1} + \beta_{22} SD_t * IB_t + \beta_{23} SD_t * IB_{t+3} \\
& + \beta_{24} SD_t * R_{t+3} + \beta_{25} IO_t + \beta_{26} IO_t * IB_{t-1} + \beta_{27} IO_t * IB_t + \beta_{28} IO_t * IB_{t+3} \\
& + \beta_{29} IO_t * R_{t+3} + \beta_{30} GROWTH_t + \beta_{31} GROWTH_t * IB_{t-1} + \beta_{32} GROWTH_t \\
& * IB_t + \beta_{33} GROWTH_t * IB_{t+3} + \beta_{34} GROWTH_t * R_{t+3} + \beta_{35} NUMEST_t \\
& + \beta_{36} NUMEST_t * IB_{t-1} + \beta_{37} NUMEST_t * IB_t + \beta_{38} NUMEST_t * IB_{t+3} \\
& + \beta_{39} NUMEST_t * R_{t+3} + \beta_{40} BTM_t + \beta_{41} BTM_t * IB_{t-1} + \beta_{42} BTM_t * IB_t \\
& + \beta_{43} BTM_t * IB_{t+3} + \beta_{44} BTM_t * R_{t+3} + \alpha_{year} + \alpha_{industry} + \alpha_{county} + \varepsilon
\end{aligned}
\tag{2}
$$

where *LOCAL* is the natural logarithm of the ratio of total county dollars of personal income divided by the market value of equity of all firms in the county, *ASSETS* is the natural logarithm of firm assets plus 1 at the end of the fiscal year, *LOSS* is an indicator variable equal to 1 if the firm had earnings before extraordinary items less than 0, and 0 otherwise, *SD* is the standard deviation of earnings from years t to $t + 3$, *IO* is the percentage of shares outstanding owned by institutions, *GROWTH* is the percentage change in assets from year $t – 1$ to t, *NUMEST* is the natural logarithm of one plus the number of analysts issuing forecasts for the firm, and *BTM* is the book value of equity at the end of the fiscal year divided by the corresponding market value of equity. We also include fixed effects for industry based on two-digit SICs and firm year. In addition, we include county fixed effects to demonstrate our finding is not driven specifically by time invariant properties of the information environment of specific locales. Finally, we cluster the standard errors by firm.

We control for firm size (*ASSETS*) due to the differences in the information environment for large and small firms. We control for *LOSS* as losses and gains affect prices differently (Hayn, 1995). We control for the standard deviation of earnings (*SD*) as firms with less persistent earnings streams are harder to predict at time t and therefore may have prices which poorly reflect future earnings streams. Since institutional owners are better informed than individual investors, we include *IO* to control for the amount of information contained in the stock price which is a result of institutional investor's superior information rather than local investors (Jiambalvo et al., 2002). We control for firm growth (*GROWTH*) as rapidly growing firms are likely to have higher FERCs. To further control for the information environment we include the analyst following (*NUMEST*) due to analysts' superior resources in discovering information (Ayers and Freeman, 2003). Lastly, we control for *BTM* as distressed firms often have more complicated information environments than their profitable peers due to restructurings, management changes, or bankruptcies which make predicting earnings streams more difficult (Zhang, 2006).

3.3 Sample selection

County-level personal income data is obtained from the Bureau of Economic Analysis' Regional Gross Domestic Product and Personal Income Database. This database contains regional personal income, population, and per capita median income data for each county in the USA dating back to 1969. Return information was obtained from the CRSP daily return file. Accounting information and corporate headquarter locations were obtained using Compustat. We obtain analyst coverage information from Institutional Brokers' Estimate System (I/B/E/S). Lastly, Thompson Reuters Institutional Holdings Summary file is used to obtain data regarding the percentage of firm shares outstanding held by major financial institutions. Our sample consists of all firms with available future returns data from 1985–2014. Consistent with prior literature price to earnings literature (Tucker and Zarowin, 2006; Drake et al., 2015), all continuous variables are truncated at the 1st and 99th percentile.

Table 2 Descriptive statistics

Variable	*N*	*Mean*	*Median*	*Standard deviation*	*25th percentile*	*75th percentile*
IB_t	44,101	0.04	0.05	0.09	0.02	0.08
IB_{t+3}	44,101	0.15	0.18	0.26	0.06	0.28
R_t	44,101	0.23	0.11	0.60	–0.13	0.42
R_{t+3}	44,101	0.48	0.22	1.07	–0.19	0.80
LOCAL	44,101	7.12	7.06	1.58	5.99	8.13
ASSETS	44,101	5.82	5.77	1.91	4.39	7.14
LOSS	44,101	0.16	0.00	0.37	0.00	0.00
SD	44,101	0.06	0.03	0.11	0.01	0.06
IO	44,101	0.41	0.38	0.27	0.17	0.63
GROWTH	44,101	0.14	0.08	0.29	0.00	0.20
NUMEST	44,101	1.28	1.39	0.98	0.69	2.08
BTM	44,101	0.63	0.55	0.41	0.34	0.82

Notes: Table 2 presents the descriptive statistics for the variables used in the main tests. The sample runs from 1986–2011. *IB* is income from continuing operations items scaled by the market value of equity at the beginning of the fiscal year. IB_{t+3} is the sum of income before extraordinary items for years $t + 1$ to $t + 3$, scaled by the market value of equity at the beginning of fiscal year $t + 1$. R_t is the buy-and-hold return measured over the 12-month period beginning at the start of fiscal year t. R_{t+3} is the buy-and-hold return for the three years following the beginning of fiscal year $t + 1$. *LOCAL* is the natural logarithm of the total county population multiplied by the county median personal income and divided by the sum of the market value of equity for all firms headquartered in that county. *ASSETS* is the natural logarithm of firm assets plus one. *LOSS* is an indicator variable equal to 1 if the firm has a report income before extraordinary items less than 0, and 0 otherwise. *SD* is the standard deviation of earnings from year t to $t + 3$. *IO* is the percentage of shares outstanding owned by an institution. *GROWTH* is the percentage growth in assets from year $t – 1$ to year t. *NUMEST* is the natural logarithm of one plus the number of analysts producing annual earnings forecasts for the firm. *BTM* is the book value of equity at the beginning of the fiscal year divided by the market value of equity. All continuous variables are truncated at the 1 and 99% levels.

Table 3 Spearman/Pearson correlation matrix

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	IB_t		0.48	0.00	0.07	0.10	0.15	–0.64	–0.19	–0.07	0.15	–0.04	0.24
2	IB_{t+3}	0.42		0.07	0.51	0.08	0.16	–0.33	–0.38	–0.05	0.03	–0.02	0.18
3	RET_t	0.06	0.04		–0.03	–0.05	0.03	–0.14	–0.17	0.03	0.27	–0.01	–0.31
4	RET_{t+3}	–0.04	0.36	–0.02		0.02	0.04	0.01	–0.27	–0.01	–0.04	0.02	0.12
5	*LOCAL*	0.04	0.06	–0.05	0.03		–0.18	–0.03	0.01	–0.24	–0.01	–0.22	0.19
6	*ASSETS*	0.18	0.17	–0.05	–0.07	–0.20		–0.22	–0.27	0.55	0.03	0.58	–0.02
7	*LOSS*	–0.73	–0.37	–0.07	0.05	–0.03	–0.22		0.40	–0.09	–0.27	–0.10	0.02
8	*SD*	–0.31	–0.50	–0.08	–0.17	–0.01	–0.17	0.28		–0.16	–0.15	–0.21	0.27
9	*IO*	0.03	–0.01	0.00	–0.07	–0.25	0.54	–0.09	–0.10		0.04	0.62	–0.20
10	*GROWTH*	0.13	–0.01	0.29	–0.05	–0.03	0.00	–0.13	–0.03	0.03		0.08	–0.24
11	*NUMEST*	0.04	0.01	–0.04	–0.05	–0.23	0.59	–0.10	–0.13	0.60	0.03		–0.28
12	*BTM*	0.00	0.08	–0.27	0.10	0.17	–0.06	0.07	0.18	–0.21	–0.19	–0.28	

Notes: Table 3 presents the correlation matrix for the variables used in the main tests. Pearson correlations are below the diagonal and Spearman correlations are above. The sample runs from 1986–2011. *IB* is income from continuing operations items scaled by the market value of equity at the beginning of the fiscal year. IB_{t+3} is the sum of income before extraordinary items for years $t + 1$ to $t + 3$, scaled by the market value of equity at the beginning of fiscal year $t + 1$. R_t is the buy-and-hold return measured over the 12-month period beginning at the start of fiscal year *t*. R_{t+3} is the buy-and-hold return for the three years following the beginning of fiscal year $t + 1$. *LO* is the natural logarithm of the total county population multiplied by the county median personal income and divided by the sum of the market value of equity for all firms headquartered in that county. *ASSETS* is the natural logarithm of firm assets plus one. *LOSS* is an indicator variable equal to 1 if the firm has a report income before extraordinary items less than 0, and 0 otherwise. *SD* is the standard deviation of earnings from year *t* to $t + 3$. *IO* is the percentage of shares outstanding owned by an institution. *GROWTH* is the percentage growth in assets from year $t – 1$ to year *t*. *NUMEST* is the natural logarithm of one plus the number of analysts producing annual earnings forecasts for the firm. *BTM* is the book value of equity at the beginning of the fiscal year divided by the market value of equity. All continuous variables are truncated at the 1 and 99% levels.

4 Empirical results

4.1 Descriptive statistics and correlations

Table 2 presents the descriptive statistics for the data used in the sample. The median firm in the sample has net income equal to 5% of their market value for a corresponding P/E ratio of 20 ×. Over a three-year window, the total net income earned is equal to 18% of the market capitalisation at the median. Firms also exhibit a median return of 22% over three years. The average institutional ownership in our sample is 41% and the median firm is covered by four analysts. The median book to market ratio for our firms is 0.55.

The average value for county levels of *LOCAL* is 7.06. These values are generally highest in rural regions and lowest in major cities such as Atlanta, Cincinnati, Dallas, and New York City. Further, values for *LOCAL* are low in towns where large corporations are headquartered but without a large population base such as Bentonville, Arkansas (Wal-Mart) and Cupertino, California (Apple). Overall, the sample appears to represent an appropriate cross-section of publicly traded firms.

Table 3 shows the Pearson and Spearman correlations. Firms in informationally concentrated areas (*LOCAL*) tend to be smaller, have less institutional ownership, less analyst coverage, and higher book to market ratios. In addition, a concentrated local information environment is positively correlated with future earnings, suggesting that local investors' information advantage allows them to better discern profitable from unprofitable companies and therefore buy into companies with high future earnings streams.

4.2 Local information environment and the pricing of future earnings

In Table 4 we present the estimation of equation (2). The coefficient of interest in Table 4, *LOCAL * FUT_IB* determines whether a higher concentration of local information leads to stock prices with greater informativeness in regards to future earnings. A positive coefficient indicates that the greater the concentration of local information, the greater the correlation between prices today and future earning streams.

The first column contains the FERC model without control variables, the second column includes control variables as well as firm and industry fixed effects, and the third column includes all previous controls as well as county fixed effects. In the model without controls, which is similar to the FERC model of Collins et al. (1994) future earnings are captured in price at the 1% level of significance, but once control variables are added the coefficient on *FUT_IB* becomes insignificant. However, the coefficient on *LOCAL * FUT_IB* is positive and significant at the 5% level. The results from equation (2), support H1 and suggest that a concentrated local information environment improves the information contained in prices by generating stock prices which better align with future earnings streams. We also find the interaction of future earrings (*FUT_IB*) and growth is positive and significant while the interaction of future earnings and the loss indicator is negative and significant. This finding is consistent with future earnings being easier to price when the firm is financially sound rather than shrinking or in distress. Additionally, the interaction of analyst following (*NUMEST*) and future earnings (*FUT_IB*) is positive and significant, suggesting that prices are more informed when the firm is more prominently covered and in the financial media. Overall, stock price informativeness improves as the overall information environment improves and simplifies.

Table 4 Regressions of annual returns on earnings and local information concentration

Independent variables	*Dependent variable: annual returns*		
	Model 1	*Model 2*	*Model 3*
LAG_IB	–1.78***	–1.94***	–1.94***
	(–31.93)	(–6.31)	(–6.32)
IB	1.19***	0.47**	0.43*
	(30.29)	(2.04)	(1.86)
FUT_IB	0.17***	0.05	0.03
	(11.74)	(0.58)	(0.37)
FUT_RET	–0.04***	–0.09***	–0.09***
	(–10.06)	(–4.77)	(–4.44)
LOCAL		–0.01***	–0.02***
		(–3.70)	(–3.88)
*LOCAL * LAG_IB*		–0.08**	–0.08**
		(–2.51)	(–2.44)
*LOCAL * IB*		0.07***	0.07***
		(3.52)	(3.50)
*LOCAL * FUT_IB*		0.02**	0.02**
		(2.15)	(2.30)
*LOCAL * FUT_RET*		0.00*	0.00
		(1.70)	(1.16)
ASSETS		0.01***	0.02***
		(4.50)	(4.86)
*ASSETS * LAG_IB*		–0.05	–0.05
		(–1.41)	(–1.40)
*ASSETS * IB*		–0.04	–0.04
		(–1.49)	(–1.34)
*ASSETS * FUT_IB*		–0.01	–0.01
		(–0.73)	(–0.58)
*ASSETS * FUT_RET*		0.01***	0.01***
		(4.68)	(4.34)

Notes: Table 4 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls. The controls include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

Table 4 Regressions of annual returns on earnings and local information concentration (continued)

Independent variables	*Dependent variable: annual returns*		
	Model 1	*Model 2*	*Model 3*
LOSS		–0.08***	–0.08***
		(–5.86)	(–6.09)
*LOSS * LAG_IB*		0.53***	0.51***
		(5.29)	(5.11)
*LOSS * IB*		0.60***	0.64***
		(4.25)	(4.43)
*LOSS * FUT_IB*		–0.17***	–0.16***
		(–5.07)	(–4.80)
*LOSS * FUT_RET*		0.00	0.00
		(0.11)	(0.19)
SD		0.07	0.03
		(1.40)	(0.57)
*SD * LAG_IB*		1.55***	1.55***
		(4.73)	(4.71)
*SD * IB*		–0.03	–0.04
		(–0.12)	(–0.17)
*SD * FUT_IB*		0.12	0.09
		(1.34)	(1.03)
*SD * FUT_RET*		–0.09**	–0.10**
		(–2.24)	(–2.33)
IO		0.02	0.01
		(1.00)	(0.42)
*IO * LAG_IB*		–0.39	–0.37
		(–1.50)	(–1.44)
*IO * IB*		–0.41**	–0.38**
		(–2.12)	(–1.97)
*IO * FUT_IB*		0.07	0.06
		(0.92)	(0.88)
*IO * FUT_RET*		–0.04**	–0.03**
		(–2.25)	(–2.07)

Notes: Table 4 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls. The controls include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

Table 4 Regressions of annual returns on earnings and local information concentration (continued)

Independent variables	*Dependent variable: annual returns*		
	Model 1	*Model 2*	*Model 3*
GROWTH		0.52***	0.51***
		(29.69)	(29.30)
*GROWTH * LAG_IB*		–3.75***	–3.74***
		(–12.75)	(–12.75)
*GROWTH * IB*		0.96***	0.94***
		(4.03)	(3.96)
*GROWTH * FUT_IB*		0.26***	0.25***
		(3.66)	(3.55)
*GROWTH * FUT_RET*		–0.03**	–0.03**
		(–2.21)	(–2.18)
NUMEST		–0.10***	–0.11***
		(–16.80)	(–16.96)
*NUMEST * LAG_IB*		–0.08	–0.08
		(–1.10)	(–1.03)
*NUMEST * IB*		–0.07	–0.08
		(–1.23)	(–1.54)
*NUMEST * FUT_IB*		0.09***	0.09***
		(4.52)	(4.43)
*NUMEST * FUT_RET*		–0.01	–0.01
		(–1.31)	(–1.15)
BTM		–0.38***	–0.39***
		(–34.01)	(–34.17)
*BTM * LAG_IB*		0.95***	0.94***
		(11.36)	(11.26)
*BTM * IB*		–0.49***	–0.50***
		(–7.78)	(–8.00)
*BTM * FUT_IB*		–0.02	–0.02
		(–0.67)	(–0.80)
*BTM * FUT_RET*		0.03***	0.03***
		(4.09)	(4.41)

Notes: Table 4 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls. The controls include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

Table 4 Regressions of annual returns on earnings and local information concentration (continued)

Independent variables	*Dependent variable: annual returns*		
	Model 1	*Model 2*	*Model 3*
Constant	0.22***	0.50***	0.47***
	(4.33)	(5.35)	(3.61)
Observations	44,101	44,101	44,101
Adjusted R-squared	14.12%	29.40%	29.40%
Year fixed effects	No	Yes	Yes
Industry fixed effects	No	Yes	Yes
County fixed effects	No	No	Yes

Notes: Table 4 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls. The controls include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

5 Robustness tests

5.1 Information asymmetry and the local information environment

The information advantage of local owners is likely in part due to information asymmetry. For example, Baik et al. (2010) find that local institutional traders have greater returns in cases where information asymmetry is high. We break our sample into size terciles to test for the effects of information asymmetry as large firms tend to have greater analyst following and media coverage, allowing for better information flows.

Consistent with local investors having an information advantage only for small firms, the coefficient on *LO * FUT_IB* is positive and significant at the 5% level of significance in the smallest tercile and the 10% level in the middle tercile. These findings are consistent with the local information environment being less impactful as firm size increases.

The information environment of the firm is also impacted by the population surrounding the headquarters. As the population surrounding a firm increases, the likelihood of there being national media, institutional presence, and financial analysts all with access to similar local information increases. Thus, it is possible that for companies with headquarters in more populous regions the effects are weaker as the local firms attract greater investor attention. Similarly, regions of the country with little institutional presence should see greater benefits to tacit knowledge as the information landscape for those firms is more opaque. Therefore, we investigate whether the price informativeness of future earnings with respect to the local information environment varies by population size and institutional ownership. In Table 6 we partition our sample into terciles based on county size and estimate equation (2); while in Table 7 we estimate equation (2) based on terciles of intuitional ownership.

Table 5 Regressions of annual returns on earnings and local information concentration by firm size

Independent variables	Dependent variable: annual returns		
	Smallest firms	*Middle*	*Largest firms*
LAG_IB	–1.06**	–2.26***	–3.29***
	(–2.37)	(–2.79)	(–3.27)
IB	0.19	0.13	0.71
	(0.53)	(0.25)	(1.07)
FUT_IB	–0.13	–0.09	0.24
	(–0.95)	(–0.37)	(0.86)
FUT_RET	–0.09***	–0.09*	0.03
	(–2.86)	(–1.84)	(0.45)
LOCAL	–0.01*	–0.01	–0.03***
	(–1.89)	(–0.95)	(–3.03)
*LOCAL * LAG_IB*	–0.06	–0.16***	–0.02
	(–1.46)	(–3.09)	(–0.30)
*LOCAL * IB*	0.03	0.11***	0.08*
	(0.85)	(3.25)	(1.65)
*LOCAL * FUT_IB*	0.03**	0.02	0.03
	(2.41)	(1.00)	(1.13)
*LOCAL * FUT_RET*	0.00	0.00	–0.01***
	(1.29)	(0.45)	(–2.60)
Controls included	Yes	Yes	Yes
Observations	14,712	14,699	14,690
Adjusted R-squared	29.92%	30.77%	32.81%
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes

Notes: Table 5 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls split into firm size terciles. Size terciles are determined by company total assets as reported in year *t*. The controls are not reported here for brevity, but include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

Consistent with the information environment being richer in larger markets in Table 6 we find that local information concentration is positively related to price informativeness of future earnings (*LOCAL * FUT_IB*) for only the two smallest market size terciles. Similarly, in Table 7 we find that local information concentration impacts the relationship between prices and earnings only for the smallest intuitional ownership tercile. These findings suggest that within urban areas there is less impact of the local information environment on firm pricing while prices for firms in sparsely populated regions of the country, often distant from institutional investors and the financial media, are more influenced by the impact of local knowledge. This is consistent with the overall findings that firms with weaker information environments see greater impacts of local shareholder influence.

Table 6 Regressions of annual returns on earnings and local information concentration by county population

Independent variables	*Dependent variable: annual returns*		
	Smallest counties	*Middle*	*Largest counties*
LAG_IB	–2.07***	–1.70***	–2.51***
	(–3.73)	(–3.12)	(–3.93)
IB	0.66*	0.84**	–0.16
	(1.69)	(2.13)	(–0.32)
FUT_IB	0.08	–0.04	–0.02
	(0.60)	(–0.25)	(–0.11)
FUT_RET	–0.11***	–0.06*	–0.11***
	(–3.16)	(–1.93)	(–2.70)
LOCAL	–0.02***	0.00	–0.02
	(–3.02)	(0.34)	(–1.64)
*LOCAL * LAG_IB*	–0.09*	–0.12**	0.04
	(–1.72)	(–2.03)	(0.51)
*LOCAL * IB*	0.06*	0.04	0.12**
	(1.80)	(1.00)	(2.46)
*LOCAL * FUT_IB*	0.03**	0.03*	0.01
	(2.33)	(1.72)	(0.33)
*LOCAL * FUT_RET*	0.00	–0.00	0.01
	(0.90)	(–0.36)	(1.64)
Controls included	Yes	Yes	Yes
Observations	14,769	14,845	14,487
Adjusted R-squared	30.05%	29.62%	30.15%
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes

Notes: Table 6 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls split into county population terciles. The controls are not reported here for brevity, but include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

Table 7 Regressions of annual returns on earnings and local information concentration by institutional ownership percentage

Independent variables	*Dependent variable: annual returns*		
	Lowest institutional ownership	*Middle*	*Highest institutional ownership*
LAG_IB	–1.43***	–1.92***	–4.93***
	(–3.55)	(–3.65)	(–4.83)
IB	1.13***	–0.14	0.34
	(3.64)	(–0.32)	(0.51)
FUT_IB	0.00	0.11	0.14
	(0.02)	(0.67)	(0.59)
FUT_RET	–0.09***	–0.13***	0.05
	(–3.51)	(–3.19)	(0.90)
LOCAL	–0.01	–0.02***	–0.01
	(–1.29)	(–3.11)	(–1.30)
*LOCAL * LAG_IB*	–0.06	–0.11**	–0.09
	(–1.37)	(–2.17)	(–1.29)
*LOCAL * IB*	0.04	0.12***	0.02
	(1.55)	(3.25)	(0.32)
*LOCAL * FUT_IB*	0.02**	0.02	0.00
	(2.04)	(1.18)	(0.23)
*LOCAL * FUT_RET*	0.00	0.01	–0.00
	(0.27)	(1.41)	(–0.59)
Controls included	Yes	Yes	Yes
Observations	14,713	14,699	14,689
Adjusted R-squared	27.11%	31.31%	34.55%
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
County fixed effects	Yes	Yes	Yes

Notes: Table 7 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LOCAL* and controls split into percentages of institutional ownership terciles. The controls are not reported here for brevity, but include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, **p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

5.2 *Additional analysis*

To quantify the impact which local information concentration is having on stock price informativeness, we split our sample into two groups: the top decile of local concentration and the rest of the population. We then estimate model (2) without *LOCAL* and its interactions. This way we can examine what the relative impact of being in the most concentrated regions of the country on the relationship between current prices and future earnings.

Table 8 Comparisons of future earnings coefficients in diffuse vs concentrated information environments

Independent variables	*Dependent variable: annual returns*	
	Diffuse information environment	*Concentrated information environment*
LAG_IB	–2.37***	–3.29***
	(–19.11)	(–8.80)
IB	0.87***	1.46***
	(5.31)	(3.55)
FUT_IB	0.15***	0.55***
	(3.18)	(3.91)
FUT_RET	–0.07***	–0.10***
	(–6.73)	(–3.40)
Control included	Yes	Yes
Observations	39,664	4,437
Adjusted R-squared	29.17%	34.56%
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
County fixed effects	Yes	Yes
Test of equality in future earnings coefficients		
Chi-squared = 5.88		
p-value of chi-squared: 0.0153**		

Notes: Table 8 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with controls split on whether firms are in the top decile of *LOCAL*. The controls include *ASSETS*, *LOSS*, *SD*, *IO*, *GROWTH*, *NUMEST*, and *BTM*, each interacted with lagged, current, and future earnings, and future returns, standard errors are clustered by firm. All continuous variables are truncated at the 1 and 99% levels. *p-value <= 0.10, ** p-value <= 0.05, ***p-value <= 0.01. Variables are defined in Table 2.

The results from Table 8 indicate that after controlling for earnings information available via firm size, analyst coverage, institutional ownership, and earnings persistence, the coefficient on *FUT_IB* is 3.6 times greater, 0.15 to 0.55, for firms with the highest local information concentration. This suggests that substantially more private, local information is making its way into prices when the information environment is less crowed, although in all cases some private information is incorporated into prices.

6 Conclusions

This paper contributes to the literature by demonstrating that local information concentration provides information relevant to future financial performance regarding earnings and that that information is better utilised when competition for local information is lower. Specifically, we find that the concentration of the local information environment is positively related to price informativeness regarding long-horizon future earnings. We find this result is strongest for firms where the information environment is weaker and the information advantage of local investors is likely to be strongest. Overall, these findings are consistent with local investors playing a significant role in pricing of equity, particularly in rural areas and small firms.

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References

Agarwal, S. and Hauswald, R. (2014) 'Distance and private information in lending', *Review of Financial Studies*, Vol. 23, No. 7, pp.2757–2788.

Al-Zeaud, H.A. (2014) 'Spillover effects between US and major European stock markets', *American Journal of Finance and Accounting*, Vol. 3, Nos. 2/3/4, pp.172–184.

Ayers, B.C. and Freeman, R.N. (2003) 'Evidence that analyst following and institutional ownership accelerate the pricing of future earnings', *Review of Accounting Studies*, Vol. 8, No. 1, pp.47–67.

Bae, K-H., Stulz, R.M. and Tan, H. (2008) 'Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts', *Journal of Financial Economics*, Vol. 88, No. 3, pp.581–606.

Baik, B., Kang, J-K. and Kim, J-M. (2010) 'Local institutional investors, information asymmetries, and equity returns', *Journal of Financial Economics*, Vol. 97, No. 1, pp.81–106.

Bernile, G., Kumar, A. and Sulaeman, J. (2015) 'Home away from home: geography of information and local investors', *The Review of Financial Studies*, Vol. 28, No. 7, pp.2009–2049.

Choi, J.-H., Myers, L.A., Zang, Y. and Ziebart, D.A. (2011) 'Do management EPS forecasts allow returns to reflect future earnings? Implications for the continuation of management's quarterly earnings guidance', *Review of Accounting Studies*, Vol. 16, No. 1, pp.143–182.

Collins, D.W., Kothari, S.P. and Rayburn, J.D. (1987) 'Firm size and the information content of prices with respect to earnings', *Journal of Accounting and Economics*, Vol. 9, No. 2, pp.111–138.

Collins, D.W., Kothari, S.P., Shanken, J. and Sloan, R.G. (1994) 'Lack of timeliness and noise as explanations for the low contemporaneous return-earnings association', *Journal of Accounting and Economics*, Vol. 18, No. 3, pp.289–324.

Coval, J.D. and Moskowitz, T.J. (1999) 'Home bias at home: local equity preference in domestic portfolios', *Journal of Finance*, Vol. 54, No. 6, pp.2045–2073.

Coval, J.D. and Moskowitz, T.J. (2001) 'The geography of investment: informed trading and asset prices', *Journal of Political Economy*, Vol. 109, No. 4, pp.811–841.

Drake, M.S., Myers, J.N., Myers, L.A. and Stuart, M.D. (2015) 'Short sellers and the informativeness of stock prices with respect to future earnings', *Review of Accounting Studies*, Vol. 20, No. 2, pp.747–774.

El Ghoul, S., Guedhami, O., Ni, Y., Pittman, J. and Saadi, S. (2013) 'Does information asymmetry matter to equity pricing? Evidence from firms' geographic location', *Contemporary Accounting Research*, Vol. 30, No. 1, pp.140–181.

Ettredge, M.L., Kwon, S.Y., Smith, D.B. and Zarowin, P.A. (2005) 'The impact of SFAS No. 131 business segment data on the market's ability to anticipate future earnings', *The Accounting Review*, Vol. 80, No. 3, pp.773–804.

French, K.R. and Poterba, J.M. (1991) *Investor Diversification and International Equity Markets*, No. w3609, National Bureau of Economic Research.

Garcia, D. and Norli, Ø. (2012) 'Geographic dispersion and stock returns', *Journal of Financial Economics*, Vol. 106, No. 3, pp.547–565.

Gelb, D.S. and Zarowin, P. (2002) 'Corporate disclosure policy and the informativeness of stock prices', *Review of Accounting Studies*, Vol. 7, No. 1, pp.33–52.

Hayn, C. (1995) 'The information content of losses', *Journal of Accounting and Economics*, Vol. 20, No. 2, pp.125–153.

Hong, H., Kubik, J.D. and Stein, J.C. (2008) 'The only game in town: Stock-price consequences of local bias', *Journal of Financial Economics*, Vol. 90, No. 1, pp.20–37.

Hyman, M., Jayamohan, P. and Watts, O. (2021) 'Advertising and the impact on stock price accuracy', *Journal of Corporate Accounting & Finance* [online] https://doi.org/10.1002/jcaf.22488.

Ivković, Z. and Weisbenner, S. (2005) 'Local does as local is: information content of the geography of individual investors' common stock investments', *The Journal of Finance*, Vol. 60, No. 1, pp.267–306.

Jiambalvo, J., Rajgopal, S. and Venkatachalam, M. (2002) 'Institutional ownership and the extent to which stock prices reflect future earnings', *Contemporary Accounting Research*, Vol. 19, No. 1, pp.117–145.

Kumar, D. and Maheswaran, S. (2015) 'Return and volatility spillover among the PIIGS economies and India', *American Journal of Finance and Accounting*, Vol. 4, No. 1, pp.28–49.

Lundholm, R. and Myers, L.A. (2002) 'Bringing the future forward: the effect of disclosure on the returns-earnings relation', *Journal of Accounting Research*, Vol. 40, No. 3, pp.809–839.

Malloy, C.J. (2005) 'The geography of equity analysis', *The Journal of Finance*, Vol. 60, No. 2, pp.719–755.

Ng, A. (2008) 'Wealth effects of Canadian financial services takeovers: consolidation, diversification and foreign evidence', *American Journal of Finance and Accounting*, Vol. 1, No. 2, pp.194–212.

Orpurt, S.F. and Zang, Y. (2009) 'Do direct cash flow disclosures help predict future operating cash flows and earnings?', *The Accounting Review*, Vol. 84, No. 3, pp.893–935.

Schleicher, T. and Walker, M. (1999) 'Share price anticipation of earnings and management's discussion of operations and financing', *Accounting and Business Research*, Vol. 29, No. 4, pp.321–335.

Shive, S. (2012) 'Local investors, price discovery, and market efficiency', *Journal of Financial Economics*, Vol. 104, No. 1, pp.145–161.

Tucker, J.W. and Zarowin, P.A. (2006) 'Does income smoothing improve earnings informativeness?', *The Accounting Review*, Vol. 81, No. 1, pp.251–270.

Zhang, X.F. (2006) 'Information uncertainty and analyst forecast behavior', *Contemporary Accounting Research*, Vol. 23, No. 2, pp.565–590.

Zhu, N. (2002) *The Local Bias of Individual Investors*, Working Paper, University of California at Davis.

Notes

1 Hong et al. (2008) find that local concentration is positively correlated with local ownership in a sample of the largest 3,000 stocks in 1995, consistent with investors purchasing local firms due to an information advantage.

2 We use county level data rather than Metropolitan Statistical Areas (MSA) because MSAs are required to have at least one urbanised area of at least 50,000 inhabitants and therefore omits the most rural areas where the bias should be strongest. However, results are consistent when we use MSAs rather than counties to calculate *LOCAL*.

3 Our sample does not contain any publicly traded firms located in Alaska. Thus, our rankings stop at 49.