ABSTRACT

This paper examines how local stock ownership influences the relationship between stock prices and future earnings. Prior finance literature has found that local investment leads to superior returns and has suggested that these returns are a result of an informational edge for those who invest locally. However, the literature has yet to examine which types of information local investors have access to and how that impacts the informativeness of stock prices. This paper shows that local investors have access to earnings-relevant information which results in stock prices which better lead future earnings for companies with larger local ownership bases. This phenomenon is more pronounced for companies headquartered away from institutional investors, where local investors are better able to drive the stock price. In addition, I find local investors have been more influential in pricing future earnings in local stocks in recent years as online and individual stock trading has allowed more local information to get priced. Overall, these results indicate that due to their physical closeness local investors are better able to anticipate future earnings than the investing public and can lead to more informative stock prices.

LOCAL INVESTMENT AND THE RELATIONSHIP BETWEEN PRICES AND EARNINGS

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1. Introduction

This paper investigates empirically how local investors are generating superior returns and if local trading results in stock prices which better reflect future earnings information. Over the past decade the accounting and finance literatures have found consistent evidence that investors prefer to allocate capital toward firms that are physically proximate to their locales. Originally observed at the national-level (French and Poterba, 1991), more recent papers have found evidence of this phenomenon within countries and states (Grinblatt and Keloharju, 2001; Shive, 2012). In addition, while this local bias was first found in institutional trading patterns, it now appears to influence individual trading habits as well. (Huberman, 2001; Zhu, 2002; Ivkovic and Weisbenner, 2005).

One of the most surprising findings of the local bias literature is that the portfolio shift toward local firms typically results in positive abnormal returns for investors (Coval and Moskowitz, 1999). The literature theorizes that these returns are a result of local investors' superior information on nearby firms due to their first-hand understanding of the firm's operations and financial future. Yet despite considerable research which supports this belief using local portfolio returns, there has been no empirical evidence examining the types of information which local investors are privy to and how that information influences the relationship between prices and earnings. This paper investigates empirically how local investors are generating superior returns and whether local investors are able to better align prices and earnings through their informed trading.

To test this hypothesis, I first identify firms where local ownership is expected to be highest. Following Hong, Kubik, and Stein's (2008) proxy for local ownership, I calculate the total county-wide dollars of personal income scaled by the market value of equity for all firms in the county. This measure captures local ownership by examining the relationship between the supply of local investment dollars and the potential public investment avenues for those dollars. Investors, who are known to bias their portfolio toward local firms, can only invest locally in the firms which are situated near them. When there are few firms competing for local investment dollars, the available investments receive a greater portion of the available local investment dollars. Therefore, firms located in regions with a high supply of local investment dollars and low competition for those dollars are theorized, and have been shown empirically, to have higher local ownership. Using this measure, I examine whether the presence of local shareholders affects the extent to which prices lead earnings. As the quality of information on which investors are trading on increases, prices better reflect future cash flows as investors are better able to predict firm performance (Ayers and Freeman, 2003). Thus, if local investors have superior information regarding local firm performance, then a greater correlation should exist between prices today and future earnings streams for firms with high local ownership.

Using a sample of 42,342 firm-years from 1985-2011[1], I find evidence that local investors are better able to predict future earnings streams even after controlling for other potential explanations such as size, analyst coverage, and institutional ownership. This result indicates that much like institutional investors and short-sellers, investors who buy stock in local companies are trading on information sets which are superior to the general marketplace (Drake et al. 2014). In addition, for firms with high local ownership, stock prices are more informative and better incorporate information regarding future earnings.

In further testing, I demonstrate that the connection between local investment and stock price informativeness is less pronounced for companies located near institutional investors. In

[1] The sample stops at 2011 because 3 years of future earnings and price information is needed in order to assess the relationship between current prices and future earnings.

cities with a large institutional presence, local individual investors are less capable of influencing the stock price since local institutional investors are privy to the same information set and have greater investing resources. Therefore, in regions where institutional investors make up the greatest percentage of the local investment base, the level of institutional investment should have a greater influence on the relationship between prices and earnings than individual investors. Consistent with this belief, I demonstrate that companies located in New York City have more accurate prices when institutional ownership is higher, showing that institutions are also benefitting from their proximity to their investments and that it is the party with the greatest local capital which affects how prices relate to earnings. Additionally, I examine how the relationship between local ownership and the pricing of future earnings has changed over time. Individual investing has become significantly more commonplace in recent years as online and retail trading platforms have allowed for cheap individual trading in ways unavailable in prior decades (Choi et al, 2000). This has allowed for greater individual trading and better opportunities to take advantage of local trading knowledge. Results confirm that the effect of local investors on stock prices has been stronger in recent years, consistent with the notion that new trading platforms have allowed individual traders to better utilize their information advantage. Taken together, these results all support the belief that local investors are trading on better information than non-locals and high local ownership results in stock prices which more accurately reflect future earnings.

This study contributes to the accounting literature in two primary ways. First, to my knowledge this is the first paper which empirically demonstrates that local shareholders are better predictors of future earnings.[2] Despite the large finance literature which theorizes that

[2] Malloy (2005) and Bae, Stulz, and Tan (2008) find that local analysts are better at predicting local firm earnings. This paper is distinct from their findings since analysts have substantial resources at their disposal which are not

local investors can generate higher abnormal returns because of improved information, little research empirically examines the nature and impact of the information sets which local investors are trading on. This paper helps researchers understand what kind of information locals possess that outside investors do not and provides evidence that this information is eventually revealed in future earnings. Second, this paper contributes to the literature discussing how prices lead earnings. The literature has generally established that prices better reflect future earnings when the information environment is richer (Jiambalvo et al, 2002; Ayers and Freeman, 2003). Yet there has been no literature which discusses how local investors, who are believed to be trading on a superior set of information, influence the relationship between prices and earnings. If local investors have access to a richer information set then their trades should influence how informative prices are regarding future firm performance.

The rest of the paper continues as follows: In Section 2, I discuss the prior local bias and prices and earnings literatures and motivate my hypotheses. Section 3 discusses the variable construction, data sources, and research design. Section 4 provides the results of my empirical tests, Section 5 provides robustness and ancillary tests from the main hypothesis and Section 6 offers some concluding remarks.

2. Prior Literature and Research Questions

2.1 Prior Literature

2.1.1 Local Bias Literature

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available to individual investors and because analysts do not trade on their information and therefore do impact stock prices. A finding that local shareholders are able to predict future earnings would offer direct evidence regarding what drives local returns and show that superior local information can be obtained independent of the resources available to major institutions.

Local bias is the phenomenon that both individual traders and institutions prefer to invest in companies which are physically proximate to them. French and Poterba (1991) first noticed this behavior when documenting that investors overwhelmingly hold domestic securities, in spite of portfolio theory which suggests international diversification. The authors offered that this "under-diversification" is either due to optimism regarding local investment opportunities or risk concerns about buying equities abroad. Coval and Moskowitz (1999) expanded on this result and found that even within the United States investment managers prefer to invest in companies located near their headquarters. They suggest that this bias is driven by an informational advantage rather than mere familiarity after finding that the local bias is strongest in small and highly levered firms. 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, Stulz, and Tan (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. Both papers suggested that their findings were a result of local analysts possessing better information than their non-local counterparts.

Although the original literature focused on institutional trading, individual investors are also locally biased (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). Specifically, Shive (2012) finds that during blackouts (which presumably prevent trading from those affected) companies headquartered in the affected area see 3-7% lower share turnover and lower price volatility. This effect is strongest for remote firms and firms located in wealthy areas, consistent with local investors comprising a disproportionate number of shareholders in local stocks One of the most surprising results regarding individual investment came from Ivkovic and Weisbenner (2005) who found that households generate 3.2% higher returns on their local investments than on their non-local investments.[3] Further, the authors find that superior returns are highest among firms not in the S&P 500 and suggest that this is evidence of informational asymmetry.

Beyond the effects of local investment, the literature has examined other phenomenon associated with a firm's geographic proximity to capital. Loughran and Schultz (2005) find that firms located in urban regions benefit from greater institutional ownership and liquidity as a result of their proximity to financial centers. In debt markets, local bond underwriters will issue municipal debt at a lower rate than non-locals due to their access to soft information and relationships with potential buyers (Butler 2008). Agarwal and Hauswald (2010) further this result and find that local banks issue debt at a lower cost to local borrowers. In equity markets, El Ghoul et al. (2013) find that investors located nearer to financial centers benefit from lower costs of equity capital. Finally, in acquisitions, firms acquiring local targets were found to have higher post-acquisition returns even after controlling for the potential synergies and similarities between the two firms (Uysal, Kedia, and Panchapagesan, 2008).

2.1.2 Prices and Future Earnings Literature

The prices-leading-earnings literature finds that the relation between current prices and future earnings improves when the average shareholder has more information about the firm. Because current stock prices reflect investor beliefs about future cash flows, stock returns today can predict what earnings will be in future periods. Over time, researchers have found that the relationship between prices and future earnings has strengthened as investors have become more informed. Specifically, Collins, Kothari, and Rayburn (1987) found the initial evidence that larger firms have

[3] This result was later found in institutional trading as well, with firms in the highest quintile of local institutional ownership demonstrating more positive returns than those in the lowest quintile (Baik, Kang, Kim, 2010).

more informative stock prices, with size proxying for the availability of firm information. Later research would use more direct tests of information supply, such as Schleicher and Walker (1999) who found that greater discussion in the annual report leads to a stronger relationship between returns and future earnings. In addition, increased corporate disclosure as measured by AIMR ratings "brings the future forward" and improves the returns and earnings relationship (Gelb and Zarowin, 2002; Lundholm and Myers, 2002). Ettredge et al. (2005) found that firms which previously reported as single-segment had more informative stock prices after SFAS No. 131 improved disclosure quality and mandated they report as multi-segment entities. More recently, Orpurt and Zang (2009) found that direct cash flow disclosures helped investors better price future cash flows. Finally, Choi et al. (2011) found that management forecasts help improve the informativeness of prices. Specifically, the existence, frequency, and precision of management forecasts are all factors which help prices better reflect future firm performance. In total, there is substantial evidence examining how improved disclosure can improve the relationship between prices and future earnings.

Yet in addition to corporate disclosure, stock prices can better reflect future performance when shareholders are independently more informed. 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). Most recently, Drake et al. (2014) found that the presence of short sellers, who are believed to be highly sophisticated traders, helps prices better align with future earnings. They found this to be most true when the information environment is weakest and short sellers are best able to exploit their informational advantage.

2.2 Motivation and Hypothesis

From the results found in prior research, geographic proximity to an investment appears to influence capital allocation decisions. Institutional investors are awarding lower costs of capital to and are better predicting earnings for nearby firms, presumably because of better access to information. Continuing this logic to individual investors, it is believed that even small traders are able to benefit from superior information flows as a result of their ability to interact with firm stakeholders such as customers, suppliers, employees, and management. Through this interaction, small traders may be able to obtain information which allows them to better predict future earnings streams and thus profit from an information advantage. This value-relevant information is often unavailable to other shareholders rendering local traders as a subset of the trading population, much like institutions or short sellers, with superior information on which they can trade.

From the prices leading earnings literature we know that the relationship between current prices and future earnings is improved when the average shareholder has more information about the firm. This can occur directly through increased corporate disclosure or when the shareholder base possesses private, quality information. Since local investors have access to superior information, when there are more local investors owning a company's stock, all else equal the shareholder base is better informed. Therefore, the greater the percentage of local investors owning a company's shares, the more information is being priced into a company's stock.
should lead to more informed stock prices for firms with high local ownership and a stronger relationship between current prices and future earnings.

H1: Prices better lead earnings as local ownership increases

3. Data

3.1 Measuring Local Ownership

I proxy for local ownership using a measure similar to the *RATIO* measure established in Hong, Kubik, and Stein (2008). Their paper is centered on the phenomenon of a firm being the "only game in town" or being the only firm in a region available to locals for local investment. If a firm is the only local investment opportunity, then investors with a local bias are left with only one option if they wish to invest in a geographically proximate firm. Conversely, regions which are home to multiple companies give local investors many opportunities to invest their funds locally and therefore each individual firm demonstrates less local ownership. Using a dataset of 1995 investor holdings, the authors confirm that companies located in regions with fewer firms competing for local dollars demonstrate higher local ownership.

To create this ratio, which I name *LO* for Local Ownership, I first find the total population of each county within the United States.[4] Next, I multiply the county populations by the county median income per capita to get a measure of the total dollars available for investment. Regions with more money should have a greater effect on local stock prices since they have more capital available to them to invest. In the denominator of *LO*, I use the market value of equity of all stocks headquartered in the county. This measure differs slightly from Hong, Kubik, and Stein (hereafter HKS) who use regional book value of equity rather than

[4] I use county level data rather than Metropolitan Statistical Areas because MSAs are required to have at least one urbanized area of at least 50,000 inhabitants and therefore omits the country's most rural areas where the local bias effect should be strongest. Further, I use counties rather than states since cities within states can be hundreds of miles apart and it seems dubious to suggest that there is local knowledge acquisition when a firm and its "locals" are so distant. However, results are consistent when I use MSAs and states rather than counties.

market value. I choose market value of equity for two reasons: (1) I believe market value of equity is a better measure of the size of a region's investment opportunities since it is updated daily and is not restricted by accounting policies such as historical pricing and conservatism and (2) because firms with negative equity can be included in the sample rather than appearing to reduce available investment choices. Nevertheless, results are similar whether market value or book value is used as the two measures are correlated at .94. Finally, I take the natural logarithm of the ratio to normalize the distribution. Higher values of *LO* indicate fewer firms per capita and greater local ownership.[5]

::See Table 1::

Table 1 shows the average values of *LO* for counties within each state in the sample. Consistent with HKS, local ownership is higher in rural states such as Wyoming or Maine where there are few businesses and little competition for local dollars. Conversely, states home to large industries such as finance or oil have low local ownership as evidenced by the values of *LO* for New York *(6.46)* and Texas *(6.24).* This is because these states are home to some of America's largest companies with market capitalizations that overpower the potential effects of local investment. In addition, Table 1 presents the state ranks of *LO* as compared to HKS's mean state ranking. The correlation of .88 between the two ranks suggests that both samples are picking up similar underlying phenomenon.

3.2 FERC Model

[5] Hong, Kubik, and Stein calculate *RATIO* as the regional book value of equity of all firms divided by regional personal income. I switch the numerator and denominator to ease interpretation and so higher values equal greater local ownership

In order to test how local investment affects the relationship between prices and future earnings, I use the future earnings response coefficient (FERC) model from Lundholm and Myers (2002).[6] The model assumes current returns are a function of changes in contemporaneous earnings and expectations of future earnings. It 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 and present earnings and future returns. The model is

$$R_t = a_1 + b_1 IB_{t-1} + b_2 IB + b_3 IB_{t3} + b_4 R_{t3} + \varepsilon_t \qquad (1)$$

where R_t is the annual stock return for year *t*, inclusive of dividends, IB_{t-1} and IB_t are the income before extraordinary items from fiscal years *t-1*and *t* respectively, IB_{t3} is the sum of income before extraordinary items for fiscal year *t+1* to *t+3*, and R_{t3} 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 overall goal of the model is to capture how current returns are reflecting 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*, realized future earnings are used as a proxy. IB_{t3} is therefore added to the model with the assumption that current returns are inclusive of the earnings which are to be realized over the next three years. However, since prices at *t* can only reflect future earnings

[6] This model is an adaptation of the model used in Collins et al. (1994)

information which is anticipated at time *t*, it is necessary to control for the portion of future earnings which are realized in periods *t+1* to *t+3* but were unanticipated in *t* when prices were set. Otherwise IB_{t3} 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 bias toward zero as it loses explanatory power for current returns. R_{t3} is included in the model to capture the portion of earnings which were realized in *t+1* to *t+3* but were unanticipated at time *t.*[7] Future returns will be highly correlated with changes in future earnings which were unexpected at time *t.* Therefore, by including R_{t3} in the model, it controls for the portion of earnings which are unexpected at time *t* but are realized in *t+1* to *t+3* and allows IB_{t3} to only capture the future earnings streams which were expected when setting prices in *t.*

Since this paper is testing the effects of local ownership on the relationship between current stock prices and future earnings, I set up interaction variables within model (1) to test how local ownership modifies the relationship between R_t and IB_{t3}. If high local ownership means that stock prices contain more information about future earnings at time *t*, the interaction term should have a positive coefficient. Since prior literature has found other factors which explain the relationship between prices and earnings, I include controls to help ensure the tests are truly capturing the effects of local ownership. In full, the model is

[7] In a robustness test available in Appendix B I use local inflation levels as a proxy for expected returns since expected returns for local stockholders may be different than the expected returns priced by the market as a whole. Prior literature has used inflation as a proxy for discount rates (Patatoukas 2015) and therefore by using local inflation levels I am able to infer what local expected returns are. Results are similar regardless of the expected return proxy used.

$$R_t = a_1 + b_1IB_{t-1} + b_2IB_t + b_3IB_{t3} + b_4R_{t3} + b_5LO_t + b_6LO_t * IB_{t-1} + b_7LO_t * IB_t$$
$$+ b_8LO_t * IB_{t3} + b_9LO_t * R_{t3} + b_{10}MV_{t-1} + b_{11}MV_{t-1} * IB_{t-1}$$
$$+ b_{12}MV_{t-1} * IB_t + b_{13}MV_{t-1} * IB_{t3} + b_{14}MV_{t-1} * R_{t3} + b_{15}LOSS_t$$
$$+ b_{16}LOSS_t * IB_{t-1} + b_{17}LOSS_t * IB_t + b_{18}LOSS_t * IB_{t3} + b_{19}\,LOSS_t * R_{t3}$$
$$+ b_{20}SD_t + b_{21}SD_t * IB + b_{22}SD_t * IB_t + b_{23}\,SD_t * IB_{t3} + b_{24}SD_t * R_{t3}$$
$$+ b_{25}IO_t + b_{26}IO_t * IB_{t-1} + b_{27}IO_t * IB_t + b_{28}IO_t * IB_{t3} + b_{29}IO_t * R_{t3}$$
$$+ b_{30}NUMEST_t + b_{31}NUMEST_t * IB_{t-1} + b_{32}NUMEST_t * IB_t$$
$$+ b_{33}NUMEST_t * IB_{t3} + b_{34}NUMEST_t * R_{t3} + b_{35}MTB_t + b_{36}MTB_t * IB_{t-1}$$
$$+ b_{37}MTB_t * IB_t + b_{38}MTB_t * IB_{t3} + b_{39}MTB_t * R_{t3} + Industry\ Controls$$
$$+ Year\ Controls + \varepsilon_t \quad (2)$$

where *LO* 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, *MV* is the log of the market value of equity at the beginning 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, *NUMEST* is the natural logarithm of one plus the number of analysts issuing forecasts for the firm, *MTB* is the market value of equity divided by the book value of equity, and industry controls are two-digit SIC codes.

MV is included in the model to control for differences in the information environment due to size. *LOSS* is included because of differences in how losses and gains affect prices (Hayn, 1995). *SD* is added to the model because 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, I 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). *NUMEST* is added because firms with high analyst followings have better information environments, a result of analysts' superior resources (Ayers and Freeman, 2003). Lastly, *MTB* is included because 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). Finally, in addition to industry and year controls, in all tests I cluster standard errors by firm and year. This is done to mitigate the individual effects that particular firms, industries, or years may have on the predictability of earnings and the earnings-return relationship.

3.3 Sources

County-level personal income data is obtained from the Bureau of Economic Analysis' (BEA) Regional GDP and Personal Income Database. This database contains regional personal income, population, and per capita median income data for each county in the United States dating back to 1969. For pricing data, I use the Center for Research in Security Prices' (CRSP) daily return file to obtain firm and market-level returns for all available firms. I use Compustat to obtain both firm level accounting information and headquarter information. To place cities in their proper county, I refer to the United States Postal Services Zip Code Database which lists each city and ZIP code with the associated county it belongs to. For estimates of earnings expectations and levels of analyst coverage, I use the 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.

4. Empirical Results

::See Table 2::

Table 2 Panel A presents the descriptive statistics for the data used in the sample. The median firm in the sample has net income equal to 6% of their market capitalization or equivalently a P/E ratio around 16x. Over a three-year window, the total net income earned is equal to 18% of the market capitalization from year t-1. Firms also exhibit a median return of 9%, consistent with the average returns on the stock market. Return and income variables are positively skewed, even after winsorizing the data.[8]

The average value for county levels of *LO* is 7.02. Consistent with Table 1, these values are highest in rural regions and lowest in major cities such as Atlanta, Cincinnati, Dallas, and New York City. Further, values for *LO* are low in towns where large corporations are headquartered but without a large population base such as Bentonville (Wal-Mart) and Cupertino (Apple). Institutional owners account for 50% of the shares outstanding and the median firm is covered by four analysts. Overall the sample appears to represent an appropriate cross-section of publicly traded firms.

[8] Because of the potential influence of outliers in unreported tests I truncate rather than winsorize the top 1 and 99%. Results are consistent across both treatments of outliers. In further tests, I truncate the sample by the top and bottom 10% to see the extent to which my results apply to the general population and find stronger results when the "extreme" observations are eliminated from the sample.

Panel B presents tests for differences between high and low local ownership firms. Firms are split at the median of *LO* with firms below the median categorized as low local ownership firms and those above the median as having high local ownership. The results from this sample split indicate that firms with high local ownership are generally smaller and have less institutional ownership and analyst coverage. This is consistent with prior literature such as Loughran and Schultz (2005) who find that firms located in remote regions of the country attract less institutional interest. In addition, firms with large local ownership tend to be more profitable as evidenced by their greater present and future earnings streams. Yet despite this improved profitability, local ownership appears to play little role in generating greater returns for their local firms as there is no statistical difference between high and low local ownership firms with regard to contemporaneous or future earnings streams.

::See Table 3::

Table 3 shows the Pearson and Spearman correlations. From column (5) is appears that firms with high local ownership tend to be smaller, have less institutional ownership, have fewer analyst coverage, and have lower market to book ratios. This is consistent with the theory that the lower the market capitalization and the lower the institutional ownership, the easier it is for local traders with limited capital to buy large portions in their local companies. In addition, local ownership 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.

::See Table 4::

The results for the tests of *H1* appear in Table 4. The first model in Table 4 is the base model from Lundholm and Myers (2002) without the inclusion of any controls. Consistent with their findings, current returns are negatively correlated with past earnings and future returns, and positively correlated with present earnings and future earnings. The consistency between the base model and prior literature offers confidence that the model is well specified and suitable for examining how local ownership impacts the informativeness of prices.

The second model in Table 4 is the main test of the effect of local ownership on the informativeness of stock prices. The coefficient of interest in Table 4, $LO * IB_{t3}$, determines whether higher local ownership leads to stock prices which have better information regarding future cash flows. A positive coefficient on b_8 would indicate that the greater the level of local ownership, the greater the correlation between prices today and future earning streams. In addition, because prices may be better informed due to better future return information rather than future cash flow information, b_9 ($LO * Ret_{t3}$) tests how the discount rate may be influencing the amount of information contained in the stock price.

The results from model 2, which unlike model 1 include full controls, support *H1* and suggest that local ownership improves the information contained in prices by generating stock prices which better align with future earnings streams.[9] The positive and significant coefficient on $LO * IB_{t3}$ of 0.06 indicates that even after controlling for the potentially mitigating effects of size and institutional ownership, local owners are able to better price stocks. The positive

[9] For brevity, the coefficients on the control variables are not reported in Table 4. Appendix A reports the full models for the second and third models in Table 4.

coefficient of 0.06 on *LO* * IB_{t3} increases in both magnitude and significance after controlling for factors such as size, institutional ownership, and analyst coverage, providing robust evidence that locals have access to private information which allows them to more accurately price local stocks. In addition, the insignificance on *LO* * Ret_{t3} confirms that the improved accuracy of local stock prices is not due to any improved accuracy in predicting future returns for local investors, but is instead attributable to improvements in future cash flow estimation.[10]

In order to better understand the economic impact of local ownership, in unreported tests I convert *LO* into a decile rank and re-run Model 2 from Table 4. Because *LO* is a continuous variable in Table 4, it is difficult to interpret what the coefficient of 0.06 means economically. By transforming the variable of interest into a rank, I am able to better ascertain what the impact of an increase in local ownership means for local firm returns. When *LO* is calculated as a decile rank variable (meaning it ranges from 1 to 10), the coefficient on *LO* * IB_{t3} is 0.03 and maintains its statistical significance. Interpreted economically, this result suggests that for an average value of IB_{t3} (0.17), a one decile increase in local ownership results in a 0.51% increase in current returns (0.03 * 0.17). Taken further, a firm in the greatest decile of *LO* has current returns which are 4.59% higher than those in the lowest decile for equal future earnings streams as a percentage of market value of equity.[11] Taken together with the prior results, while this paper does not look directly at local portfolio returns, it offers strong evidence that locals are able to outperform non-local investors because they have access to information which is relevant to future earnings.

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[10] As another test of this result, I substitute future returns for local inflation levels as a predictor of the discount rate in Appendix B. Regardless of the proxy used, the results confirm that it is the prediction of future cash flows that drive the improved accuracy of local stock prices.

[11] This is calculated by taking the coefficient of 0.03, multiplying it by the average value of IB_{t3} of 0.17, and then calculating the value for the lowest and highest deciles, which have values of 1 and 10 respectively. Therefore 4.59% is calculated from (0.03*0.17*10) – (0.03*0.17*1) which is equal to (0.051 – 0.0051) or 4.59%

Model 3 in Table 4 includes county level controls in the main model as a substitute for year controls. By doing so, this test controls for any county specific factors that may influence the ability of stock prices to reflect information such as permanent risks associated with climate, poverty levels, education, or other demographics. Therefore, Model 3 is testing how the information in stock prices changes when local ownership within a county has increased, rather than testing how local ownership is changing between counties which may have inherently different characteristics. Even after the inclusion of county level controls the results continue to suggest that as local ownership increases, stock prices are better reflecting future earnings. Overall, the results from both models suggest that both between counties and within counties, the greater the local ownership the better information contained in the stock price.

5. Robustness

5.1 The impact of the Internet on Prices and Earnings

Because the main sample extends from 1985-2011, it is possible that the influence local investors have on stock prices has changed as the investing landscape has evolved over the past 30 years. In recent years, individual trading has increased with the advent of the internet and online trading, allowing for local investors to trade more easily and cheaply than in the past (Choi et al. 2000). These online brokerages could increase the amount of local knowledge contained in prices as they allow individuals to trade more easily than before and include their local knowledge into stock prices when in prior years they may have been unwilling or unable to do so. However, the internet has also allowed for information to disseminate more easily than in the past, perhaps eliminating the local information advantage as traders from around the world can now access local media which was previously only available to traders with a physical proximity to the investment. Therefore Table 5 tests how the relationship between prices and earnings has evolved over time and whether the changing technological landscape of the past 30 years has strengthened or attenuated the local investor effect.

::See Table 5::

The results from Table 5 suggest that as the internet has become a more commonplace feature of everyday life, local investors can more easily act on their private information. The coefficient on $LO * IB_{t3}$ for the regression from 2007-2011 is 2.5 times higher than it is for any prior period, suggesting that in the most recent years the influence of local ownership has been strongest within the sample. This is consistent with notion that local traders possessed an information advantage in prior years but were less able to act upon their information edge because the ease of online trading was unavailable, resulting in the reduced correlation between prices today and future earnings for earlier decades. In addition, the results do not support the belief that the improved dissemination of information through the internet is mitigating the information advantage available to investors who are physically proximate to their investments.

5.2 Institutional Owners as Local Investors

While local ownership appears to be an influencing factor for all time periods in the sample, it is possible that for companies in certain regions, the effects are weaker. The data supports that local ownership is highest in rural counties where institutional ownership is least prevalent. Consistent with this notion, in regions where institutional ownership is highest, the effects of local ownership should be reduced. If institutional investors are also physically proximate to their investments, then they should benefit from the local information advantage as well. To test this belief, I split the sample into two groups, New York companies[12] and Non-New York companies, to test whether regions with a high institutional presence are more dependent on institutional trading rather than individual trading to drive the information in stock prices.

::See Table 6::

Consistent with the belief that a greater city-wide institutional presence may mitigate the effects of local ownership, Table 6 finds that in New York City, the effect of local ownership on stock prices is insignificant. Instead, institutional ownership drives the relationship between prices and future earnings while for companies outside of a financial center, locals are still able to drive stock prices informativeness. This is because institutions in New York City have an informational edge due to both their sophistication and their physical presence, allowing them to dominate local stock prices. This result suggests that institutional traders are also benefitting from a local information advantage and the effects of individual trading are most pronounced in regions outside of institutional attention.

5.3 Cost of Living

Lastly, Table 7 re-runs the main test but on a subsample which includes a control for the cost of living in a particular county. Regions with a high cost of living tend to pay higher wages and therefore may be more able to control stock market prices as a result of their relatively inflated income. Conversely, regions with low relative pay may not have the same resources

[12] New York companies here consist of companies located near New York as well including those in Newark, Long Island, and Yonkers

available to them to influence stock prices and the effects of local ownership may be reduced for these regions. Using Wage Index data from the National Bureau of Economic Research from 1986-2003, I match each county with its Metropolitan Statistical Area and assign the proper Wage Index for that county-year.[13] I then re-run Model (2) to on this reduced sample, but include the Wage Index control.

::See Table 7::

The results from Table 7 show that even after controlling for the potential influencing effects of local cost of living, locals are still able to drive the relationship between prices and earnings. However, the Wage Index results suggest that as the cost of living increases, the relationship between prices and earnings attenuates. This once again supports the idea that the effect of local ownership on prices and future earnings streams is highest in the most rural areas of the country, where the cost of living is typically the lowest. Overall, the results from these additional tests support that while local investor's ability to improve the information contained in stock prices may vary across locations and time periods, the result is robustness and consistently present within the sample.

5.4 Untabulated Analysis

As further robustness, I run several tests which examine whether my results are consistent across different specifications of the main model. First, I examine whether measuring local ownership by metropolitan statistical areas (MSAs) or states produces similar results to the

[13] The Wage Index is a scaling index used to determine the average wage differences for medical professionals in MSAs across the country and is a used as an approximation of the general cost of living in each region.

original county measurement. Hong, Kubik, and Stein (2008) measure local ownership at the MSA and state levels and find greater local ownership across both groupings. To ensure that my results are not being driven by the decision to use county measurements, I re-run my main model with *LO* measured as the MSA (state) income levels divided by the market capitalization of firms in the MSA (state). Results are consistent regardless of the region classification used, suggesting that information flows are available to all persons within a reasonable geographic proximity. Additionally, since HKS use book value of equity rather than the market value, I re-run my main test with book value as the denominator. Because of the high correlation between the two measurements, results are relatively unchanged.

Further, while I originally winsorize my data by 1 and 99%, I run supplementary tests to examine the extent to which my results apply to the population at large and to confirm they are not driven by the extremes of the population. First I truncate rather than winsorize the 1st and 99th percentiles and find results in line with those reported. I also truncate the sample at the 10th and 90th percentile because the summary statistics in Table 2 suggest skewness in the data and because I wish to test whether my local ownership results are driven by the most urban or rural regions of the country or if they are applicable to investors everywhere. Using this reduced sample I find results stronger than those reported with a coefficient on $LO * IB_{t3}$ of .10 and z-statistic of 4.11, suggesting that the information advantage I report is available to investors throughout the country. Taken together, it appears the reported results are robust across different constructions of my main proxy and across sample variations, both lending credence to the validity of the main results.

6. Conclusions

Despite a substantial literature which discusses the informational advantages of physical proximity to an investment, the accounting literature has yet to explore how this information affects the relationship between stock prices and accounting information. This paper documents that local shareholders are a set of investors with access to superior price-relevant information who assist stock prices in more accurately reflect future firm performance. Much like institutional investors, analysts, or short sellers, local investors should be seen as a subset of the investing population which can improve stock prices and anticipate future accounting information better than the general population.

These results will allow accounting researchers to consider the value of the information gleaned by physical proximity and how it can impact the information content contained in future corporate disclosure or accounting releases. For example, restatements may be known by local investors prior to the official announcement if they are aware of director malfeasance or have inside knowledge regarding the veracity of the original numbers. Additionally, earnings management may be less fruitful if local investors are better aware of the true financial state of the firm and are not misled by financial manipulation techniques. In total, this paper hopes to demonstrate that local investors are a substantial part of the investing population who can better predict future earnings streams and potentially mitigate the importance of earnings or performance disclosures.

7. Tables

TABLE 1

Average LO by State and Comparison to Hong, Kubik, and Stein (2008)

State	LO	LO RANK	HKS RANK	State	LO	LO RANK	HKS RANK
WY	9.99	1	1	WI	7.48	26	25
NM	9.25	2	4	NC	7.43	27	34
ME	8.87	3	12	RI	7.40	28	28
MT	8.87	4	4	CO	7.39	29	34
HI	8.69	5	-	AL	7.35	30	20
VT	8.69	6	6	IN	7.34	31	19
NH	8.69	7	10	ID	7.32	32	26
SD	8.56	8	6	TN	7.26	33	26
WV	8.53	9	2	NJ	7.10	34	43
KS	8.41	10	8	OH	7.08	35	29
SC	8.38	11	15	WA	7.08	36	37
FL	8.33	12	10	AR	6.86	37	33
MS	8.28	13	15	MA	6.83	38	31
LA	8.03	14	8	CA	6.74	39	31
ND	8.02	15	2	OK	6.67	40	40
IA	7.95	16	12	IL	6.66	41	44
MI	7.90	17	39	MN	6.66	42	24
KY	7.80	18	14	NY	6.46	43	45
AZ	7.71	19	17	VA	6.42	44	41
OR	7.61	20	30	CT	6.30	45	47
UT	7.59	21	21	TX	6.24	46	42
MD	7.59	22	17	DE	6.12	47	48
NV	7.57	23	21	NE	5.81	48	46
MO	7.57	24	21	GA	5.66	49	38
PA	7.48	25	34				
LO RANK and HKS RANK Correlation						0.8841***	

Table 1 presents the average values for LO per state in the sample. LO 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. LO RANK is the rank of firms with the highest local ownership using LO with 1 indicated the highest local ownership. HKS RANK represents the rank of *RATIO* from Hong, Kubik, and Stein (2008's) 1970-2005 sample. Hawaii was omitted from HKS's sample. *** = p-value<0.01

TABLE 2

Descriptive Statistics

Variable	Mean	Median	Standard Deviation	25%	75%
IB_t	0.04	0.06	0.14	0.02	0.09
IB_{t3}	0.17	0.18	0.41	0.03	0.33
RET_t	0.22	0.09	0.72	-0.17	0.41
RET_{t3}	0.62	0.23	1.53	-0.21	0.89
LO	7.02	6.96	1.60	5.88	8.00
SIZE	6.05	5.90	1.81	4.69	7.20
LOSS	0.14	0	0.35	0	0
SD	0.08	0.03	0.14	0.02	0.08
IO	0.50	0.49	0.27	0.27	0.71
NUMEST	1.75	1.61	0.79	1.10	2.30
MTB	2.58	1.75	3.03	1.17	2.80

Table 2 presents the descriptive statistics for the variables used in the main tests. The sample runs from 1986-2011. *IB* is income before extraordinary items scaled by the market value of equity at the beginning of the fiscal year. IB_{t3} 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. *RET* is the buy-and-hold return measured over the 12-month period beginning at the start of fiscal year *t*. RET_{t3} 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. *SIZE* is the natural logarithm of the market value of equity. *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. *NUMEST* is the natural logarithm of one plus the number of analysts producing annual earnings forecasts for the firm. *MTB* is the market value of equity at the beginning of the fiscal year divided by the book value of equity. All variables are winsorized by year at the 1 and 99% levels.

TABLE 3

Spearman/Pearson Correlation Matrix

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
(1) IB_t		***0.54***	***0.36***	***0.04***	***0.09***	***-0.01***	***-0.42***	***-0.18***	***-0.03***	***0.01***	***-0.35***
(2) IB_{t3}	***0.40***		***0.33***	***0.46***	***0.07***	0.00	***-0.28***	***-0.33***	***-0.03***	***0.03***	***-0.28***
(3) RET_t	***0.08***	***0.12***		***-0.06***	***0.01***	***-0.07***	***-0.03***	***-0.13***	***0.05***	0.00	***-0.28***
(4) RET_{t3}	***-0.09***	***0.28***	***-0.07***		***0.01***	***-0.06***	***0.04***	***-0.10***	***-0.05***	***-0.02***	***-0.10***
(5) LO	***0.05***	***0.06***	***0.02***	***0.02***		***-0.35***	***-0.02***	***0.05***	***-0.25***	***-0.25***	***-0.18***
(6) SIZE	***0.09***	***0.01***	***-0.15***	***-0.15***	***-0.37***		***-0.23***	***-0.36***	***0.59***	***0.73***	***0.38***
(7) LOSS	***-0.42***	***-0.27***	***0.06***	***0.11***	***-0.01***	***-0.23***		***0.41***	***-0.08***	***-0.12***	***0.08***
(8) SD	***-0.37***	***-0.33***	***-0.01***	***0.04***	***0.02***	***-0.21***	***0.22***		***-0.13***	***-0.22***	***-0.26***
(9) IO	***0.03***	0.00	0.00	***-0.10***	***-0.25***	***0.55***	***-0.13***	***-0.06***		***0.49***	***0.14***
(10) NUMEST	***0.06***	***0.04***	***-0.04***	***-0.06***	***-0.26***	***0.71***	***-0.16***	***-0.13***	***0.36***		***0.26***
(11) MTB	***-0.13***	***-0.14***	***-0.16***	0.00	***-0.15***	***0.23***	***0.13***	***-0.05***	***0.05***	***0.13***	

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 before extraordinary items scaled by the market value of equity at the beginning of the fiscal year. IB_{t3} 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. *RET* is the buy-and-hold return measured over the 12-month period beginning at the start of fiscal year *t*. RET_{t3} is the buy-and-hold return for the three years following beginning of fiscal year t+1. *LO* is the natural logarithm of the total county population multiplied by the median county income per capita divided by the sum of the market value of equity for all firms headquartered in that county. *SIZE* is the natural logarithm of the market value of equity. *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. *NUMEST* is the number of analysts producing annual earnings forecasts for the firm. *MTB* is the market value of equity at the beginning of the fiscal year divided by the book value of equity. All variables are winsorized by year at the 1 and 99% levels.

TABLE 4

Regressions of Prices and Earnings and Local Ownership

Dependent Variable: RET_t

Independent Variables	**Model 1**	**Model 2**	**Model 3**
IB_{t-1}	-1.01***	-0.73*	-0.95**
	(-6.80)	*(-1.77)*	*(-2.22)*
IB_t	0.74***	1.34***	1.30***
	(2.62)	*(5.89)*	*(4.37)*
IB_{t3}	0.25***	-0.53**	-0.56***
	(4.01)	*(-2.55)*	*(-2.64)*
RET_{t3}	-0.06***	-0.01	0.01
	(-4.98)	*(-0.37)*	*(0.54)*
LO		-0.03***	-0.02
		(-4.57)	*(-0.99)*
$LO * IB_{t-1}$		-0.02	0.01
		(-0.79)	*(0.37)*
$LO * IB_t$		0.09**	0.08***
		(2.40)	*(2.65)*
$LO * IB_{t3}$		**0.06*** **	**0.06*** **
		(3.63)	***(4.36)***
$LO * RET_{t3}$		-0.00	-0.00
		(-0.24)	*(-1.05)*
CONTROLS	NO	YES	YES
County Fixed Effects	NO	NO	YES
Intercept	0.21***	0.67***	0.25
	(4.88)	*(6.11)*	*(1.54)*
Number of Obs.	42,342	42,342	42,342
Adjusted R^2	8.62%	26.75%	23.38%

Table 4 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with LO and controls. The controls, whose coefficients are not reported for brevity, include *SIZE, LOSS, SD, IO, NUMEST,* and *MTB,* each interacted with lagged, current, and future earnings, and future returns, and year and 2-digit SICs. Model 1 shows the base model from Lundholm and Myers (2002) without any controls. Model 2 includes the full model with all controls. Model 3 includes the full model with county fixed effects instead of year fixed effects. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics. Variables are defined in Table 2. A version of Table 4 with all values reported is available in Appendix A.

TABLE 5

Changes in the Price to Earnings and Local Ownership Relationship Over Time

Dependent Variable: *RET_t*

Independent Variables	1986-1995	1996-2000	2001-2006	2007-2011
IB_{t-1}	-0.91**	-2.07***	-1.03	-0.83***
	(-2.59)	*(-4.64)*	*(-1.04)*	*(-6.78)*
IB_t	1.98***	4.73***	0.50**	0.81**
	(3.15)	*(6.36)*	*(2.14)*	*(2.42)*
IB_{t3}	-0.02	-0.62**	-0.10	-1.16***
	(-0.11)	*(-2.09)*	*(-0.28)*	*(-4.13)*
RET_{t3}	-0.07*	-0.03	-0.01	0.06
	(-1.80)	*(-0.80)*	*(-0.45)*	*(1.11)*
LO	-0.01*	-0.05***	-0.03***	-0.03***
	(-1.78)	*(-4.46)*	*(-3.38)*	*(-3.21)*
$LO * IB_{t-1}$	-0.03	0.01	-0.02	0.02
	(-1.02)	*(0.15)*	*(-0.26)*	*(1.26)*
$LO * IB_t$	0.07	0.19***	0.11***	-0.01
	(0.95)	*(2.87)*	*(2.85)*	*(-0.18)*
$\mathbf{LO * IB_{t3}}$	**0.03****	**0.04*****	**0.02**	**0.10*****
	(2.15)	***(2.79)***	***(1.63)***	***(4.23)***
$LO * RET_{t3}$	0.00	0.00	0.00	-0.02*
	(0.15)	*(0.39)*	*(0.37)*	*(1.83)*
CONTROLS	YES	YES	YES	YES
Intercept	0.62***	0.61***	0.99***	0.80***
	(6.34)	*(2.90)*	*(6.98)*	*(5.00)*
Number of Obs.	13,193	9,427	11,514	8,212
Adjusted R^2	29.45%	24.36%	32.34%	45.39%

Table 5 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with LO and controls. The controls, whose coefficients are not reported for brevity, include *SIZE, LOSS, SD, IO, NUMEST,* and *MTB,* each interacted with lagged, current, and future earnings, and future returns, and year and 2-digit SICs. The sample is split into different time periods, each representing approximately one-quarter of the total sample. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics. Variables are defined in Table 2

TABLE 6

Institutional Ownership and Price to Earnings for New York and Non-New York Firms

Dependent Variable: RET_t

Independent Variables	New York Companies	Non-New York Companies
IB_{t-1}	-1.56**	-0.98*
	(-2.04)	*(-1.88)*
IB_t	1.35	1.46***
	(0.97)	*(4.38)*
IB_{t3}	-0.43	-0.58**
	(-0.75)	*(-2.49)*
RET_{t3}	-0.05	-0.01
	(-0.55)	*(-0.21)*
LO	-0.07***	-0.03***
	(-3.25)	*(-4.56)*
$LO * IB_{t-1}$	0.10	0.01
	(0.98)	*(0.16)*
$LO * IB_t$	0.21	0.06**
	(0.99)	*(1.96)*
$LO * IB_{t3}$	**0.07**	**0.07*** **
	(0.82)	***(3.37)***
$LO * RET_{t3}$	0.00	-0.00
	(0.09)	*(-0.43)*
IO	-0.03	0.19***
	(-0.30)	*(3.26)*
$IO * IB_{t-1}$	-0.33	-0.26
	(-0.61)	*(-0.62)*
$IO * IB_t$	0.95***	0.02
	(2.89)	*(0.05)*
$IO * IB_{t3}$	0.49**	0.22
	(2.13)	*(1.32)*

*IO * RET_{t3}*	0.01	-0.04
	(0.20)	*(-1.53)*
CONTROLS	YES	YES
Intercept	0.87***	0.69***
	(3.43)	*(8.94)*
Number of Obs.	1,799	40,547
Adjusted R^2	34.85%	26.73%

Table 6 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with LO, IO, and controls. The controls, whose coefficients are not reported for brevity, include *SIZE, LOSS, SD, NUMEST,* and *MTB,* each interacted with lagged, current, and future earnings, and future returns, and year and 2-digit SICs. The first column is a sample of firms headquartered in New York City, Yonkers, White Plains, or Newark. The second column is a sample of firms not headquartered in one of those cities. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics. Variables are defined in Table 2.

TABLE 7

Regressions of Prices and Earnings, Local Ownership, and Cost of Living

Dependent Variable: *RET_t*

Independent Variables	Full Model with Wage Index
IB_{t-1}	0.04
	(0.11)
IB_t	0.81
	(0.76)
IB_{t3}	0.21
	(0.76)
RET_{t3}	-0.01
	(-0.15)
LO	-0.03***
	(-2.82)
$LO * IB_{t-1}$	-0.06
	(-1.43)
$LO * IB_t$	0.14***
	(4.10)
$LO * IB_{t3}$	**0.04** **
	(2.22)
$LO * RET_{t3}$	0.00
	(0.59)
WI	0.39***
	(3.44)
$WI * IB_{t-1}$	-1.01
	(-1.35)
$WI * IB_t$	0.34
	(0.42)
$WI * IB_{t3}$	-0.48*
	(-1.72)
$WI * RET_{t3}$	-0.03
	(-0.70)
CONTROLS	YES

Intercept	0.22
	(1.21)
Number of Obs.	25,070
Adjusted R^2	23.49%

Table 7 shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with LO and controls. The controls, whose coefficients are not reported for brevity, include *WI, SIZE, LOSS, SD, IO, NUMEST,* and *MTB*, each interacted with lagged, current, and future earnings, and future returns, and year and 2-digit SICs. *WI* is the wage index from the National Bureau of Economic Research from 1986-2003. All other variables are defined in Table 2. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics.

8. Appendices

Appendix A

Regressions of Prices and Earnings and Local Ownership

Dependent Variable: RET_t

Independent Variables	Full Model	Full Model with County Fixed Effects
IB_{t-1}	-0.73*	-0.95**
	(-1.77)	*(-2.22)*
IB_t	1.34***	1.30***
	(5.89)	*(4.37)*
IB_{t3}	-0.53**	-0.56***
	(-2.55)	*(-2.64)*
RET_{t3}	-0.01	0.01
	(-0.37)	*(0.54)*
LO	-0.03***	-0.02
	(-4.57)	*(-0.99)*
$LO * IB_{t-1}$	-0.02	0.01
	(-0.79)	*(0.37)*
$LO * IB_t$	0.09**	0.08***
	(2.40)	*(2.65)*
$\boldsymbol{LO * IB_{t3}}$	**0.06*** **	**0.06*** **
	(3.63)	***(4.36)***
$LO * RET_{t3}$	-0.00	-0.00
	(-0.24)	*(-1.05)*
SIZE	-0.13***	-0.12***
	(-7.41)	*(-7.16)*
$SIZE * IB_{t-1}$	0.06***	0.02
	(2.61)	*(0.99)*
$SIZE * IB_t$	0.04	0.09*
	(0.55)	*(1.71)*

*SIZE * IB_{t3}*	0.06**	0.08***
	(2.46)	*(2.75)*
*SIZE * RET_{t3}*	-0.01	-0.01**
	(-1.54)	*(-2.10)*
LOSS	0.06**	0.07***
	(2.42)	*(2.58)*
*LOSS * IB_{t-1}*	0.04	0.03
	(0.55)	*(0.63)*
*LOSS * IB_{t}*	-1.24***	-1.28***
	(-4.50)	*(-4.57)*
*LOSS * IB_{t3}*	-0.21***	-0.22***
	(-3.97)	*(-4.18)*
*LOSS * RET_{t3}*	0.00	0.01
	(0.83)	*(1.47)*
SD	-0.20	-0.24
	(-1.47)	*(-1.63)*
*SD * IB_{t-1}*	0.10	0.01
	(0.38)	*(0.03)*
*SD * IB_{t}*	-0.82***	-0.75***
	(-2.80)	*(-2.76)*
*SD * IB_{t3}*	-0.35**	-0.47**
	(-2.04)	*(-2.44)*
*SD * RET_{t3}*	-0.11***	-0.12***
	(-2.75)	*(-3.58)*
IO	0.18***	0.23***
	(3.25)	*(3.22)*
*IO * IB_{t-1}*	-0.18	-0.03
	(-0.42)	*(-0.07)*
*IO * IB_{t}*	0.02	0.07
	(0.06)	*(0.13)*
*IO * IB_{t3}*	0.22	0.20

	(1.41)	*(1.57)*
$IO * RET_{t3}$	-0.04	-0.04
	(-1.54)	*(-1.49)*
NUMEST	0.12***	0.08***
	(4.50)	*(3.00)*
$NUMEST * IB_{t-1}$	0.01	0.01
	(0.09)	*(0.11)*
$NUMEST * IB_{t}$	-0.05	-0.13
	(-0.54)	*(-1.44)*
$NUMEST * IB_{t3}$	0.12***	0.10***
	(3.49)	*(2.67)*
$NUMEST * RET_{t3}$	-0.01	-0.01*
	(-1.62)	*(-1.69)*
MTB	-0.02***	-0.03***
	(-8.24)	*(-8.05)*
$MTB * IB_{t-1}$	0.02	0.02
	(0.58)	*(0.47)*
$MTB * IB_{t}$	0.03	0.03
	(0.42)	*(0.88)*
$MTB * IB_{t3}$	-0.03	-0.04
	(-1.27)	*(-1.46)*
$MTB * RET_{t3}$	0.01***	0.01***
	(4.76)	*(4.48)*
Intercept	0.67***	0.25
	(6.11)	*(1.54)*
Number of Obs.	42,342	42,342
Adjusted R^2	26.75%	23.38%

Appendix A shows the results for regressions of returns on lagged, current, and future earnings and future returns interacted with *LO*, *SIZE*, *LOSS*, *SD*, *IO*, *NUMEST*, and *MTB*, as well as year and 2-digit SICs. The model with county controls includes county fixed effects rather than year fixed effects. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics. Variables are defined in Table 2.

Appendix B

Regressions of Prices and Earnings and Local Ownership Using Inflation

Dependent Variable: *RET_t*

Independent Variables	Full Model with Inflation
IB_{t-1}	-0.86**
	(-2.03)
IB_t	0.60***
	(3.88)
IB_{t3}	-0.44
	(-1.56)
$Inflation_t$	-0.01
	(-1.39)
LO	0.03
	(0.67)
$LO * IB_{t-1}$	0.01
	(0.41)
$LO * IB_t$	0.07**
	(2.03)
$LO * IB_{t3}$	**0.03****
	(2.03)
$LO * Inflation_t$	-0.00
	(-1.28)
CONTROLS	YES
Intercept	2.04**
	(2.10)
Number of Obs.	19,083
Adjusted R^2	34.47%

Appendix A shows the results for regressions of returns on lagged, current, and future earnings and MSA level inflation interacted with *LO*, *SIZE*, *LOSS*, *SD*, *IO*, *NUMEST*, and *MTB*, as well as year and 2-digit SICs. The sample runs from 2000-2011. Standard errors are clustered by firm and year. All variables are winsorized at the 1 and 99% levels. * p-value <=0.10, ** p-value <=.05, *** p-value <=.01. t-statistics are below the coefficients in parentheses and italics. Variables are defined in Table 2.

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