# Information Spillovers and Firm Geographic Dispersion: Evidence from Local Stock Return Comovement

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### Abstract

This paper investigates the information spillover relation between geographic dispersion of operations and local return comovement based on firm headquarters. Using the number of different states mentioned in 10-K filings as a proxy for the geographic dispersion of a firm, we show that geographically concentrated firms (operating in a few states) exhibit greater comovement with firms headquartered in the same region than geographically dispersed firms. Consistent with the investor recognition hypothesis, we argue that information spillover and comovement are exacerbated in concentrated firms as investors are more likely to have greater information gathering and processing costs for these firms. Moreover, we find geographically concentrated firms exhibit higher local return comovement when the peer firms located in the same area announce their earnings and lower local comovement during the month of their own annual earnings announcement, which suggests the intra-regional information spillover. This effect is even more pronounced in low social capital areas, where information acquisition and processing costs are relatively higher.

JEL Codes: D8, D83, G1, G12, G14, M41

Keywords: Comovement, Information Transfer, Geographic Dispersion, Local Bias, Information Costs, Spillover Effects, Social Capital

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## 1. Introduction

There has been a rapid growth of research exploring information spillovers and comovement dynamics for stock returns. Notably, among these studies, Pirinsky and Wang (2006) show that firms co-move within geographic clusters (based on geographic headquarters) and that this comovement is unrelated to firm fundamentals. In this paper, we show that geographically concentrated firms (those with operations in few states) exhibit substantial comovement with similar firms inside their metropolitan statistical area (MSA), while geographically dispersed firms (those operating in many states) do not. Garcia and Norli (2012) argue that the higher likelihood of investor recognition (Merton, 1987) of dispersed firms leads to a price premium for concentrated stocks. Our results complement this finding by showing that dispersed stocks are less prone to excess local comovement. Further, we find evidence of significant information spillover between geographically concentrated firms – earnings announcements and analyst revisions drive comovement in returns in localized peer group firms that are unrelated to industries. Our results shed light on the subset of firms that exhibit return comovement, showing that geographically concentrated firms are much more sensitive to information spillover from their local peers.

Barberis, Shleifer, and Wurgler (2005) argue that comovement arises for three (non-distinct) reasons that are friction- and sentiment-based. First, some investors, due to limited attention may categorize multiple assets into a single 'portfolio,' driving excess comovement through market frictions (Peng and Xiong, 2006), such as by considering 'small cap' or 'oil' stocks in the same basket. We consider whether investors may categorize stocks based on geographical location into similar 'local' portfolios, and how this affects comovement. Second, the 'habitat view' supposes that some investors may limit their trading to a subset of available stocks, due to trading restrictions, costs, or a lack of available information (e.g., Veldkamp, 2006; Mondria, 2010). Third, the 'information diffusion' view suggests that some stocks incorporate information into their prices faster than others (e.g., Hou and Moskowitz, 2005; Ahn and Patatoukas, 2022?). Some stocks may be less costly to trade, and similarly, some stocks may have differences in information accessibility by select groups of investors. Geographic concentration may intensify the information flow from regional sources, and also slow the impounding of information into prices from nonlocal and aggregate sources.

We build upon the empirical literature documenting the local bias of investors (e.g., Coval and Moskowitz, 1999, 2001; Grinblatt and Keloharju, 2001; Pirinsky and Wang, 2006) as well as information transfer and spillover effects across firms (e.g., Firth, 1976, 1996; Foster, 1981; Szewczyk, 1992; Ramnath, 2002; Muslu, 2014; Brochet et al., 2018; Bhojraj et al., 2020; Breuer et al., 2022). These studies lead us to predict that geographically concentrated firms exhibit greater local return comovement and experience more information spillover from local peers than dispersed firms for several reasons. Firstly, firms with geographically proximate headquarters are more likely to be held by local investors (e.g., Coval and Moskowitz, 1999, 2001; Zhu, 2002; Ivković and Weisbenner, 2005; Massa and Simonov, 2006; Goetzmann and Kumar, 2008; Ivković et al., 2008; Seasholes and Zhu, 2010; Shive, 2012). A geographically dispersed firm attracts more attention and a broader investor base than a geographically concentrated counterpart, reducing the headquarter-level effect of local bias. Thus, according to the investor recognition argument (Merton, 1987), firms that are more geographically dispersed are subject to more public scrutiny and a greater amount of monitoring (e.g., Garcia and Norli, 2012; Shi et al., 2015; Ma et al., 2020). Due to their relatively high information acquisition and processing costs (Veldkamp, 2006), local investors are more likely to use common information sets across multiple local stocks (Mondria, 2010), especially for those that are geographically concentrated, causing higher excess geography-related comovement.

Secondly, investors exhibit category-learning behavior and limited attention (Peng and Xiong, 2006; Huang, 2019). Thus, they may prefer to use regional-level (rather than firm-specific) information when making their trading decisions. Geographically concentrated firms are more representative of particular regions than dispersed firms, and disproportionately more likely to be affected by 'local-basket' trades. Investors with a category view may perceive concentrated firms as 'truly' local, analogous to a pure-play industry, whereas dispersed firms are considered geographic conglomerates.

According to Mondria's (2010) model, investors use an informational signal from one firm (or set of firms) and extrapolate it to other firms in the same category, which impacts the stock returns of the entire group of firms and results in excess comovement. This prediction is consistent with the habitat view and fits the casual definition of information transfer (or "spillover") offered by Schipper (1990).[1] In the context of local firm categorization, local investors could infer the payoffs of each firm in their local portfolio from a signal provided by one firm in that portfolio. This type of information spillover between firms would be particularly detectable during attention-grabbing information releases, such as earnings announcements (e.g., Pownall and Waymire, 1989; Ramnath, 2002; Thomas and Zhang, 2008; Drake et al., 2017).

Taken altogether, information releases at the local level could increase the local comovement through spillover effects due to informational frictions associated with peer firms. For example, on earnings announcement days, information acquisition and processing costs are relatively low for the announcing firms compared to non-announcing firms (e.g., Drake et al., 2017).[2] The relative differences in costs are likely to be greater when information is particularly expensive on no-information days. We posit that, in accordance with the investor recognition argument, geographically dispersed firms have lower information acquisition and processing costs than geographically concentrated firms since they are spread out over both local and non-local investors (i.e., the physical presence of the dispersed firms across geographies helps alleviate information diffusion costs). Since the information costs for geographically dispersed firms are lower, the effect of peer firms' earnings announcements should be less impactful on the level of own-firm local comovement.

[1] The literature provides evidence of information spillovers in a wide variety of firm categorizations, largely by industry (e.g., Foster, 1981; Szewczyk, 1992; Firth, 1996; Jennings et al., 2017; Bhojraj et al., 2020; Liu et al., 2022; Desir et al., 2024), but also by others such as analyst coverage (e.g., Crawford et al., 2012; Muslu et al., 2014; Hameed et al., 2015), financial reporting frequency (e.g., Kajüter et al., 2019; Arif and De George, 2020; Breuer et al., 2022), and regulatory reporting standards (e.g., Yip and Young, 2012; Wang, 2014).

[2] Pirinsky and Wang (2006) do not find positive comovement of earnings among local firms. This does not, however, preclude the possibility that investors extrapolate the earnings of one local firm to their expectation of earnings of other local firms.

Using the number of different states mentioned in firms' 10-K filings for the proxy of their geographic dispersion (Garcia and Norli, 2012), we find evidence from both time-series and cross-sectional regressions supporting our predictions. The estimated local return comovement betas of geographically concentrated firms are approximately three times larger than those of geographically dispersed firms. This finding is economically meaningful: a one-standard-deviation increase in the geographic dispersion measure is associated with an 18.71-percent decrease in local return comovement.

Next, to study the attention allocation and information production within the geographic clusters, we examine the pattern of local return comovement during earnings announcements. We find evidence of intra-regional information spillover: firms exhibit higher local return comovement when there is an increasing number of earnings announcements of local peer firms in the same month. The information spillover effect is pronounced among geographically concentrated firms. In the month of a firm's own earnings announcement, the added attention leads investors to price the stock using firm-specific information. Consequently, locally focused firms exhibit less local return comovement during their own earnings announcement month. However, this firm-specific information release triggers higher comovement among peers who are also geographically concentrated. This effect does not occur with geographically dispersed firms. We find similar results using analysts' forecast revisions as a proxy for information production. This evidence is consistent with local investors extrapolating information signals only to local firms with relatively high information costs.

Additionally, we perform a series of robustness checks, and we show that our results remain robust and significant after dropping sample firms headquartered in specific regions, dropping samples in January, February, and March, controlling for regional economic activities, or using alternative corporate events to test the intra-regional information spillover. While their study is relevant, our study differs from Bernile et al. (2015) in that we focus on geographically proximate information spillovers and not the informational advantages of institutional holders of local portfolios.

We make several contributions to literature. Firstly, we contribute to the strands of literature on stock return comovement and geographic dispersion by presenting evidence showing the negative relation between geographic dispersion and local return comovement, which cannot be fully explained by firm-specific fundamentals or regional economic activities. Secondly, we contribute to the literature on information transfer in financial markets by extending it to the intra-regional aspect and showing that a firm's corporate events and performance affect its geographically local peers' return patterns, which suggests intra-regional information spillover that is unrelated to industry. Importantly, this spillover is only to geographically concentrated local peer firms. Lastly, we add to the literature on social capital by demonstrating that information spillover to local peer firms is greater in low social capital areas, where there are greater informational frictions.

The rest of this paper is organized as follows. In Section 2, we review relevant literature and develop the main hypotheses. In Section 3, we describe the data and research methodologies. In Section 4, we present and discuss the results. Lastly, Section 5 concludes the paper.

## 2. Relevant Literature and Hypotheses

Our research is built on several streams of literature. Firstly, the topic of stock return comovement has attracted much attention. Veldkamp (2006) models a market with high information processing costs, with rational investors only willing to purchase a subset of information for certain assets. This model then forecasts the information-driven price comovement as investors use this common information subset to price assets (i.e., information spillover). Peng and Xiong (2006) provide support from the behavioral perspective, based on the category-learning behavior of investors with limited attention. Such investors would prefer to evaluate the market- or industry-level information instead of firm-specific information, which, combined with investor overconfidence, consequently, leads to excess return comovement (i.e., comovement unexplained by firm fundamentals and other economic factors).

Empirically, studies find excess comovement around events such as index inclusion (Barberis, Shleifer, and Wurgler, 2005; Boyer, 2011) and stock splits (Green and Hwang, 2009; Kumar, Page and Spalt, 2013). Moreover, stock returns tend to covary when firms share the same lead underwriters in initial public offerings or seasoned equity offerings (Grullon, Underwood, and Weston, 2014), same active mutual fund owners (Antón and Polk, 2014), or the same analyst coverage (Israelsen, 2016). Hameed, Morck, Shen, and Yeung (2015) further support the predictions of Veldkamp (2006) and Mondria (2010) with empirical evidence that firms with high analyst coverage would become "bellwether firms" helping to predict the stock performance of their industry peers with lower coverage.

There is also evidence supporting the attention-induced comovement of Peng and Xiong (2006) which shows the positive relationship between comovement in investor attention and return comovement (Dang et al., 2015; Drake et al., 2017). Additionally, Malceniece, Malcenieks, and Putninš (2019) contribute to the comovement literature by showing high-frequency trading instigates faster market-wide information transmission along with stronger return and liquidity comovement.

A sub-stream of the literature focuses on the return covariance among geographically related firms. Pirinsky and Wang (2006) document strong return comovement of firms whose headquarters are in the same Metropolitan Statistical Area (MSA). Pirinsky and Wang (2006) also suggest that the comovement among local stocks cannot be explained by firm-level or regional economic fundamentals. Moreover, they show that the comovement effect is more pronounced for smaller firms, those with a greater share of individual investors, and for firms located in regions with lower levels of financial sophistication. Kumar et al. (2013) argue that retail investors are key participants in driving comovement, particularly during the period of high market-wide uncertainty (which creates more noisy signals for traders). Additionally, Kumar, Page, and Spalt (2016) document strong comovement among lottery-like stocks (which are typically favored by retail investors) and find this is more pronounced for the firm located in regions where local investors show a stronger propensity to gamble.

Secondly, our study is related to the local bias of investors. The phenomenon of local or home bias is widely documented by various studies (e.g., Huberman, 2001; Grinblatt and Keloharju, 2001; Ivkovic and Weisbenner, 2005; Massa and Simonov, 2006), and finds that investors exhibit a strong preference to invest in stocks headquartered near to them. There is some debate as to whether local investors hold informational advantages or they under-diversify their holdings of local stocks (Seasholes and Zhu, 2010). Moreover, using quasi-natural experiments such as regional holidays and power outages, researchers (e.g., Shive, 2012; Jacobs and Weber, 2012) show that local investors positively contribute to the trading volume and price discovery of local stocks. Recently, Branikas, Hong and Xu (2020) use an instrumental variable approach to account for the potential endogeneity of the household's location choice, and document similar patterns in local bias.

The third stream of literature is related to the geographic dispersion of firms and its impact on firm valuation and information quality. Using state name counts from the 10-K filings as a proxy for geographic dispersion, Garcia and Norli (2012) document the stock outperformance of geographically concentrated firms over geographically dispersed firms by 8.4% annually. They attribute the geographic concentration premium to Merton's (1987) investor recognition hypothesis; the premium is compensation to investors for insufficient diversification. Other studies find a similar negative relation between investor recognition and stock returns (e.g., Lehavy and Sloan, 2008; Bodnaruk and Ostberg, 2009). Subsequent research investigates the effect geographic dispersion has on firm monitoring and information quality. For example, Shi, Sun, and Luo (2015) find that firms' geographic dispersion is negative related to accruals-based earnings management. Additionally, Ma, Li, and Lobo (2020) demonstrate that geographically dispersed parent companies have fewer accounting misstatements in their financial reports than their concentrated counterparts. These studies support the investor recognition hypthosesis and suggest that geographically dispersed firms garner more public attention, have more extensive monitoring, and exhibit a higher level of information transparency.

Combining these strands of literature discussed above, we expect that investors hold a higher proportion of their investments in the firms located in the same region. Given the hypotheses of limited attention (Peng and Xiong, 2006) and costly information processing (Veldkamp, 2006), investors may price local stocks using regional-specific information or using a common subset of information encompassing stocks in the local portfolio. According to Merton's (1987) investor recognition argument, however, more geographically dispersed firms garner more attention and are exposed to a greater amount of monitoring (e.g., Garcia and Norli, 2012; Shi et al., 2015; Ma et al., 2020), which increases information production and lowers information processing costs. Therefore, we conjecture that geographically local firms would exhibit stronger comovement with the other firms headquartered in the same region than the geographically dispersed firms, which we summarize in Hypothesis 1.

***H1: Stock returns of geographically concentrated firms co-move more with the returns of other firms headquartered in the same region than with those of geographically dispersed firms.***

The large literature on intra-industry information transfers (see, e.g., Foster, 1981; Firth, 1996; Ramnath, 2002; Thomas and Zhang, 2008; Chung et al., 2015; Brochet et al., 2018; Hann et al., 2019; Bergsma and Tayal, 2020; Bhojraj et al., 2020) documents that the earnings of a "first announcer" have an impact on the non-announcing peer firms in the same industry. Drake et al. (2017) show that the earnings announcements of peer firms in the same industry affect market attention on the firm itself and that the information spillover is more pronounced in the firms exhibiting higher stock comovement. Corporate events other than earnings announcements also trigger intra-industry information spillovers. For example, Szewczyk (1992) finds that offerings of corporate securities generate information transfers to firms in the same industry. In addition, Desir et al. (2024) provide evidence that intra-industry information transfer accompanies CEO turnovers.

Information spillovers are not limited to industry categorization, however. Muslu et al. (2014) find that stocks covered by the same analyst have excess comovement when the analyst releases information about one of the firms, indicating information spillover between the firms that share analyst coverage. Kajüter et al.(2019) and Breuer et al. (2022) demonstrate information spillovers from firms with regulated disclosures to firms with unregulated disclosures. Similarly, Arif and De George (2020) show information transfer from firms that provide frequent disclosures to those with infrequent disclosures. Additionally, Wang (2014) finds evidence of stronger cross-border information spillover when countries use the same reporting standards.

Combining existing empirical evidence with the theories of investor recognition (Merton, 1987), category learning (Peng and Xiong, 2006), and costly information acquisition and processing (Veldkamp, 2006; Mondria, 2010), we hypothesize that intra-regional information spillover is heightened and that comovement with local firms is more pronounced during periods when peer firms located in the same region experience corporate events. Moreover, given the effects of investor recognition, we conjecture that information spillover is more pronounced for geographically concentrated firms than those that are geographically dispersed. This leads to Hypotheses 2 and 3.

***H2: A firm's return comovement with their local portfolio increases when peer firms in the same region experience corporate events, specifically earnings announcements.***

***H3: Geographically concentrated firms exhibit greater comovement with their local portfolio when peer firms in the same region experience corporate events than geographically dispersed firms.***

Social capital is viewed as the resource that emerged from trust and social ties to encourage cooperation in society, which consequently facilitates the production of socially efficient outcomes (Coleman, 1990; Putnam, 1993, 2000; Servaes and Tamayo, 2017). There is a growing literature showing the economic impacts of social capital and firms located in the regions with high social capital exhibit lower cost of equity, lower leverage, and lower loan spreads (e.g., Guiso et al., 2004; Jha and Cox, 2015; Hasan et al., 2017a, 2017b; Gupta et al., 2018; Hoi et al., 2019; Huang and Shang, 2019). Furthermore, Wei and Zhang (2020) examine the relationship between local bias in institutional investment and the level of social trust at both investor and firm levels. They show the institutional investors in low-trust regions exhibit higher local bias and stocks headquartered in the low-trust regions exhibit greater local institutional ownership.

Additionally, there are several studies linking higher social capital to lower firm information asymmetry, better transparency, and higher levels of trust. For example, Jha and Chen (2015) find that auditors have more trust in firms located in high social capital areas and charge them lower fees. Javakhadze et al. (2016) show that firms in high social capital locales depend less on internally generated cash and have easier access to financing. Jha (2019) demonstrates that firms in high social capital areas issue higher quality disclosures than firms in low social capital areas. Furthermore, Bhandari and Bhuyan (2023) find evidence that firms in high social capital have higher capital allocation efficiency. Consequently, we would expect the negative relationship between local return comovement and geographic dispersion to be more pronounced among firms headquartered in the low-social capital areas where the local bias is higher and information production is less efficient.

***H4a: The social capital rating of a firm's headquarter county is negatively related to the level of local return comovement observed in geographically concentrated firms.***

***H4b: Concentrated firms headquartered in high social capital counties exhibit lower return comovement than concentrated firms in low social capital counties.***

## 3. Data and Methodology

We estimate stock return comovement with a local portfolio approach, following Pirinsky and Wang (2006). Our study focuses on U.S. domestic common stocks over the period from 2001 to 2018, excluding REITs, closed-end funds, and ADRs (firms with CRSP share codes other than 10 or 11). Following previous studies (e.g., Ivkovic and Weisbenner, 2005; Pirinsky and Wang, 2006), we define the firm's location as the headquarter location. However, researchers (see, e.g., Pirinsky and Wang, 2006; Bai et al., 2020) point out the issue of backfilling in headquarter location by COMPUSTAT. Thus, we obtain the historical headquarters data from the column of business address in the header of

10K/Q filings[3] and define the firm's region by the Metropolitan Statistical Area (MSA) of its headquarters. Then, following Pirinsky and Wang (2006), we construct the local portfolio for each MSA, and we require each MSA to have at least 5 firms and 2 industries (by Fama-French (1997) 48 industries). The local portfolio return, $R_{i,t}^{LOC}$, for firm $i$ in month $t$ is the equally weighted return of the MSA portfolio based on corporate headquarters, after excluding the return of the firm $i$. We also calculate the equally weighted industry portfolio return, $R_{i,t}^{IND}$, for each firm $i$, similar to the process of estimating local portfolio return. Lastly, $R_t^{MKT}$ is the excess return of the value-weighted market portfolio in month $t$.

We regress Model (1) for each firm and the coefficient, $\beta^{LOC}$, is expected to capture the degree of comovement of return on the firm with other local firms' returns in the same MSA. Hypothesis 1 predicts the higher $\beta^{LOC}$ for the geographically local firms.

$$R_t = \alpha_i + \beta^{LOC} R_t^{LOC} + \beta^{MKT} R_t^{MKT} + \beta^{IND} R_t^{IND} + \varepsilon_{i,t} \tag{1}$$

We estimate the geographic dispersion by counting the number of states mentioned from the 10-K filings via the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR), consistent with previous literature (Garcia and Norli, 2012; Platikanova and Mattei, 2016). Then, we use the natural logarithms of one plus the number of different states mentioned and the corresponding decile ranks as the measures of geographic dispersion used in the later regressions.

Panel A of Table 1 shows the descriptive statistics of the main variables used in the following sections[4]. After dropping observations with missing control variables, the sample contains 162,413 firm-month observations. The estimated local betas exhibit large variation, with a mean of 0.116 and a standard deviation of 1.085. The distribution is slightly right-skewed, as the median local beta is 0.043. The mean and median of the number of states mentioned in the firm's 10-K filing are 12.88 and 11, respectively. All continuous variables are winsorized at 1% and 99%.

[3] We obtain the augmented 10-X header data from the Notre Dame Software Repository for Accounting and Finance, https://sraf.nd.edu/data/augmented-10-x-header-data/.
[4] We report the descriptive statistics by the terciles of geographical dispersion in Table A2.

**[Insert Table 1 About Here]**

Panel B displays the correlation coefficient matrix. Consistent with previous results reported in Section 4.1, the degree of local return comovement, *β(R_LOC_EW)*, is positively correlated with the geographic dispersion measure, *LOCAL RANK*, which supports the first hypothesis that geographically concentrated firms exhibit higher return comovement with the local portfolio. Furthermore, the correlation coefficient between *β(R_LOC_EW)* and *EA* is -0.006, which suggests that firms exhibit less comovement with the local portfolio in months with earnings. In contrast, the correlation coefficient between *β(R_LOC_EW)* and *PEER EA* is 0.019, which is in alignment with our second hypothesis. Return comovement with the local portfolio increases when peer firms in the same region experience corporate events since peer firms' activities may distract the attention away from the firm's investors.

To test Hypothesis 1 in a cross-sectional setting, we first use the firm-level local comovement measure, $\beta_{i,t}^{LOC}$ for each month using as a dependent variable and estimate regression Model (2). $GD_{i,t-1}$ are the lagged geographic dispersion measures including *NSTATES, LOG(1+NSTATES),* and *LOCAL RANK*. *NSTATES* is the number of different states mentioned in the firm's 10-K filings. *LOG(1+NSTATES)* is the natural logarithm of one plus *NSTATES*. *LOCAL RANK* is the decile rank of *NSTATES* times minus one for each year-month, ranging from 0 to 1. Industry fixed effects (determined by Fama-French (1997) 48 industries) are expected to capture the unobservable time-invariant patterns in each industry and year-month fixed effects are included to capture the time trends. Standard errors are clustered by the firm in the regression.

$$\beta_{i,t}^{LOC} = b_0 + b_1\, GD_{i,t-1} + \mathbf{\Gamma} * Firm - Level\ Controls_{i,t-1} + Industry\ FEs + Yearmonth\ FEs + u_{i,t} \tag{2}$$

A set of lagged control variables are included in Model (2), consistent with Pirinsky and Wang (2006). We include a set of firm-specific variables, *AT (natural log of Total Assets)*, *MB*, *ROA*, *DEBT*, *STD(EARN)*, *TOBINQ*, *ADVERTISEMENT*, *DIV YIELD*. Then, we include variables related to stock ownership including *NUMBER OF SHAREHOLDERS* and *IO*. Additionally, *ANALYSTS* and *ANALYST DISP* are included to account for the level of information asymmetry. Table A1 provides the details of all variables used in this paper.

In order to test the intra-regional information spillover suggested in Hypothesis 2 and 3, we regress the monthly local comovement using Models (3) and (4), similar to the setting used in Drake et al. (2017). In the main regressions, we treat other firms headquartered in the same MSA and the same Fama-French (1997)-48 industry as the local peer firms for each observation. We use annual earnings announcements as main corporate events. Then, *PEER EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. *EA* is a dummy variable equal to one if the firm announces its annual earnings in the same month and zero otherwise. The same set of control variables used in Model (2), industry, and year-month fixed effects are included in Model (3). The hypothesis of information spillover would predict the positive sign of $c_2$, suggesting the earnings announcements of local peers would distract attention away from the firm and lead to the increase of comovement with local stocks. Meanwhile, we predict the sign of $c_1$ would be negative, which implies that the corporate events of the firm itself would attract the attention of investors who invest in the local portfolio back. Consequently, the degree of local return comovement is lower during the months of corporate events

$$\beta_{i,t}^{LOC} = c_0 + c_1\, EA_{i,t} + c_2\, PEER\ EA_{i,t} + \mathbf{\Gamma} * Firm - Level\ Controls_{i,t-1} + Industry\ FEs \\ + Yearmonth\ FEs + u_{i,t} \quad (3)$$

To test H4a and b, we obtain the county-level social capital data developed by Rupasingha, Goetz, and Freshwater (2006) from the Northeast Regional Center for Rural Development (NRCRD) of Pennsylvania State University[5]. Consistent with Hasan et al. (2017a, 2017b), we backfill the social capital measures for the missing year using the values in the preceding year with available data.[6] Then,

[5] Social capital data is available via the following website, https://aese.psu.edu/nercrd/community/social-capital-resources.
[6] Following Jha and Cox (2015), we also perform tests using the linear interpolated social capital metrics and obtain the similar results.

we sort firms into terciles based on the level of social capital where the firms are located and estimate comovement for firms headquartered in these regions. We then re-estimate model (3) separately by low and high geographic dispersion and social capital.

## 4. Empirical Results

### *4.1. Time-Series Regressions*

Table 2 reports the regressions of firms' daily excess returns using different models, and it reports the mean statistics in year $t$ for each group sorted by tercile of the number of different states mentioned in the 10-K filings in year $t-1$. Overall, consistent with previous literature on return comovement (Pirinsky and Wang, 2006), firms exhibit significant return comovement with the return of the local portfolio.

**[Insert Table 2 About Here]**

Consistent with the first hypothesis, geographically local firms have higher loadings on the return of the local portfolio from Models 1 to 3[7]. Specifically, the slope of local portfolio return for a geographically local firm is higher than geographically dispersed firms by 0.182 (*p-value*<0.01) in Model 2 after controlling the market and industry returns. This result is robust after accounting for the non-local portfolio returns suggested by Li and Zhao (2016) in Models 3 and 4, where *R_NLOC(EW)* is the daily return on the equally-weighted non-local portfolio of firms headquartered in the different MSAs. Moreover, Table 1 documents the shifting patterns of the comovement with the market to the comovement with local returns after sorting by firms according to their geographic dispersion. The coefficient on market return is higher for dispersed firms by 0.241 units (*p-value* < 0.01) in Model 2. Similarly, Models 3 and 4 suggest that the geographically dispersed firms exhibit greater return comovement with non-local firms and less return comovement with local returns.

[7] Consistent with Pirinsky and Wang (2006), we use equally-weighted local and industry portfolios. We find our results still hold using value-weighted portfolios, which are available upon request.

*4.2.Firm-Month Cross-Sectional Regressions*

To further test our first hypothesis, we estimate Equation (2) and present the results in Table 3[8], where we use alternative specifications for geographic dispersion (*NSTATES*, *LOG(1+NSTATES)* and *LOCAL RANK*) as independent variables, both with and without controls. The results presented in Table 3 support the first hypothesis that geographically concentrated firms exhibit greater local return comovement. The results remain robust to the alternative forms of geographic dispersion measure. Specifically, the natural logarithm of the number of states mentioned in 10-Ks, *LOG(1+NSTATES)*, is negatively related to local return comovement with the coefficient of -0.035 (*p-value<0.05*) in Column (4) of Table 3. Economically speaking, the one-standard-deviation increase in *LOG(1+NSTATES)* would lead to about 18.71 ($= -0.035 \times 0.588/0.116$) percentage decrease in local return comovement, *β(R_LOC_EW)*. Table 3, Column (6) shows a positive relationship between *LOCAL RANK* and local return comovement ($b_{LOCAL\ RANK} = 0.057$, *p-value*<0.05) after controlling for firm-specific variables, industry fixed effects, and year-month fixed effects. The bottom decile (most concentrated group) of firms ranked by *NSTATES* exhibits 49.14 percent (=$0.057/0.116 \times 100$) higher local return comovement than firms ranked in the top decile (most dispersed group) of *NSTATES*.

**[Insert Table 3 About Here]**

Additionally, the signs of slope estimates of firm-specific variables on local beta are consistent with Pirinsky and Wang (2006). Local return comovement is more pronounced among small ($b_{AT} = -0.057$, *p-value*<0.01) and less profitable ($b_{ROA} = -0.325$, *p-value*<0.01) firms, from the estimation in Table 4, Column (6). Moreover, firms with a smaller number of shareholders and greater informational asymmetry (e.g., $b_{NUMBER\ OF\ SHAREHOLDERS} = -0.008$, $b_{ANALYSTS} = -0.066$ and $b_{ANALYST\ DISP} = 0.095$) comove more with stocks headquartered in the same MSA. Our findings align

[8] We further report the cross-sectional regression of firm's market and industry beta on geographic dispersion in Table A3 in the Appendix. As with the pattern shown in Table 1, geographically dispersed firms have higher general return comovement ($b_{LOCAL\ RANK} = -0.065$, *p-value<0.01*) with the market.

with Veldkamp (2006); smaller, less profitable firms and those with fewer shareholders are less visible, and thus attract less attention from non-local investors. In turn, these stocks exhibit greater comovement with the local portfolio. Similarly, firms with higher information asymmetry (with fewer analysts or higher dispersion of opinion among analysts) exhibit higher information processing costs. As such, investors tend to utilize the common set of local information to price those stocks, which explains the greater local return comovement of stocks with higher informational asymmetry.

*4.3.Tests for Intra-Regional Information Spillover and Geographic Dispersion*

In this sub-section, we test the second and third hypotheses on intra-regional attention-transfer using Equations (3). Table 4 presents the regression result of monthly local beta on *PEER EA*. Column (2) shows that firms exhibit higher local return comovement ($b_{PEER\ EA} = 0.071$, *p-value*<0.01), when there is an increase in the number of earnings announcements of local peer firms in the same month. Economically speaking, a one-standard-deviation increase in *PEER EA* results in a 0.04-unit ($= 0.071 \times 0.524$) increase in local return comovement, which is equivalent to 32.07-percent ($= (0.071 \times 0.524)/0.116 \times 100$) increase in local return comovement. Moreover, Column (2) of Table 4 shows that firms comove less ($b_{EA} = -0.030$, *p-value*<0.05) with the local portfolio in the month of their own earnings announcement, controlling for firm-specific control variables, and with inclusions for industry and year-month fixed effects.

**[Insert Table 4 About Here]**

Overall, the results in Table 4 are consistent with the second hypothesis. During the months when peer firms announce their earnings, the firm itself exhibits greater comovement with the local portfolio. This finding is consistent with peer firms' earnings announcements distracting the attention of investors away in the setting of limited attention and high information processing costs, or investors using the information from earnings announcements of other regional firms to adjust price expectations. On the other hand, the firm exhibits less local comovement during the month of its own annual earnings announcement, as investors allocate more attention to the firm to process the firm-specific information acquired from the earnings.

Columns (3) and (4) of Table 4 report the regression results of monthly local return comovement on local peers' activities in the same month, separately for geographically concentrated and dispersed firms. The variable *CONC* is the bottom tercile group of firms ranked by *NSTATES* for each year-month and *DISP* is the top tercile group of firms ranked by *NSTATES* by each year-month. Supporting the third hypothesis, intra-regional information spillover is prominent among geographically concentrated firms ($b_{PEER\ EA} = 0.098$, *p-value*<0.01) from Columns (3) of Table 7. The relationship between *PEER EA* and local beta is not statistically significant for geographically dispersed firms. [9]

Furthermore, we propose two alternative measures, *PEER SUE* and *HIGH PEER SUE,* to examine how the magnitude of local firms' earnings surprises affects information spillovers. We first calculate the size-weighted average of absolute values of the local peers' standardized unexpected earnings (SUE[10]) in the same month as *ABS(PEER SUE)*. Then, *PEER SUE* is the decile score[11] of *ABS(PEER SUE)* by each year-month and *HIGH PEER SUE* is the dummy variable which equals to one if the firm's *ABS(PEER SUE)* ranks in the top tercile in the same year-month and zero otherwise. We replace the variables *PEER EA* in Table 4 with *PEER SUE (or HIGH PEER SUE)* and report the results in Table 5. Our results support the view of information-driven comovement. Panel A of Table 5 suggests that the firm would experience a higher degree of local return comovement when their local peers report greater magnitude of earnings surprises ($b_{PEER\ SUE} = 0.097$ in Column (2), *p-value*<0.01; $b_{HIGH\ PEER\ SUE} = 0.086$ in Column (4), *p-value*<0.01. Panel B of Table 5 is also consistent with our previous results in Table 4, and we conclude that the information-driven local return comovement is more pronounced in geographically concentrated firms. The results suggest that the larger the magnitude of local firms' earnings surprises (either positive or negative), the more information

[9] We use the analysts' recommendation revisions as the alternative corporate events and we find similar results, shown in Table A4, of intra-regional information spillover.

[10] We calculate the SUE as the difference between actual EPS from IBES and the median of most recent analysts' forecasts, divided by the stock price at the fiscal year end.

[11] We compute the decile score by subtracting 1 from the decile rank (from 1 to 10) of *ABS(PEER SUE)* and then dividing the value by 9, which makes *PEER SUE ranging from 0 to 1*.

spillover there is to non-announcing local firms that are geographically concentrated. However, there is no evidence of any information spillover to geographically dispersed local firms.

**[Insert Table 5 About Here]**

Intuitively, this reveals the distinctive patterns of attention allocation and information production between geographically local and dispersed firms. Geographically local firms are more likely to be held by a smaller set of investors, based on the limited locations of their business operations. Therefore, the corporate events of the other firms headquartered in the same MSA are more likely to attract the attention of investors holding the local portfolio. Investors subsequently value those stocks using the regional level information (i.e., information spillover) due to informational frictions, which leads to comovement within the local firm portfolio.

On the other hand, geographically dispersed firms are more likely to be held by investors located in regions beyond the firm's headquarters. Therefore, peer firms in the same MSAs are less likely to be held by investors holding geographically dispersed firms. In turn, the corporate events of peer firms are less influential in terms of attention allocation and information production for geographically dispersed firms. As a result, the intra-regional information spillover effect driven by other local peers' earnings announcements is less influential among the sub-sample of geographically dispersed firms.

Thus, we explore the differences between the roles of local and industry information in explaining the intra-regional information spillover. In previous results, we define the local peers as the other firms headquartered in the same MSA and in the same Fama-French (1997)-48 industry. To distinguish the geographical and industry effects, we create a set of new variables, *IND EA*, *LOCAL EA*, *LOCAL_NIND EA*, *NLOCAL_IND EA*, and *NLOCAL_NIND EA*. Specifically, *IND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms in the same Fama-French (1997)-48 industry in the same month. *LOCAL EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same month. *LOCAL_NIND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the different Fama-French (1997)-48 industry in the same month. *NLOCAL_IND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the different MSAs in the same Fama-French (1997)-48 industry in the same month. *NLOCAL_NIND EA* is the natural logarithm of one plus the number of annual earnings announcements for firms headquartered in the different MSAs in the different Fama-French (1997)-48 industry in the same month. Then, we add these new variables into Equation (3). Column (2) in Panel A of Table 6 shows that the geographical effect dominates and the firms exhibit higher local return comovement when there is an increasing number of local firms announcing their earnings ($b_{LOCAL\ EA} = 0.021$, *p-value*<0.01). Column (4) in the Panel A of Table 6 suggests that the effect of *PEER EA* would still hold after adding this set of variables and the industry-related information from other MSAs may distract the investor attention and lead to lower local return comovement ($b_{NLOCAL\_IND\ EA} = -0.015$, *p-value*<0.05).

**[Insert Table 6 About Here]**

We re-estimate the regressions of Table 4 with control variables capturing the geographic and industry effects in Panel B of Table 6. In addition to the findings reported in Table 4, among the geographically local firms, the local return comovement is also driven by the local information from other different industries ($b_{LOCAL\_NIND\ EA} = 0.041$, *p-value*<0.01), which is shown in Column (3) of Panel B. Interestingly, the magnitude of this less relevant geographical effect is lower than the effect of local peers for the geographically-local firms.

*4.4.Social Capital, Information Spillovers, and Geographic Dispersion*

In order to examine the impact of social capital on information spillover among geographically concentrated and dispersed firms, we estimate local comovement betas by both geographic dispersion and social capital terciles. Consistent with our Hypothesis 4, the results displayed in Table 7 show that local comovement is more pronounced among firms headquartered in low social capital counties. For example, when equation (1) is used to estimate the local comovement beta, the comovement of firms in low social capital, low geographically dispersed firms is approximately 39% larger than those of high social capital, low geographically dispersed firms. One plausible explanation is that the investors in low social capital regions exhibit lower trust, lower information transmission among the inhabitants, and higher local bias in investment. Therefore, the geographically concentrated firms are disproportionately held by investors located in low-social-capital regions. Compounding this effect, firm-specific information production is less efficient in the low-social capital regions. Consequently, the negative relationship between geographic dispersion and local return comovement is more pronounced in the counties with low social capital.[12]

**[Insert Table 7 About Here]**

We then investigate the role of social capital in our setting using pooled data and panel regressions. We estimate equation (3) for subsamples of firms separated by geographic dispersion and social capital. The results from these estimations are presented in Table 8. There is still no evidence of information spillover in highly geographically dispersed firms, regardless of the social capital of the areas (see Columns (3) and (4)). However, Columns (1) and (2) show a large difference in information spillover among geographically concentrated firms that are located in low social capital areas versus in high social capital areas. In the subset of geographically concentrated firms, local peer earnings announcements increase the local comovement beta in high social capital areas by 0.051 (p-value<0.10) while increasing the beta in low social capital areas by 0.141 (p-value<0.01), a difference of over 175%. The evidence in Tables 7 and 8 supports Hypotheses 4a and 4b. There appears to be more information spillover among geographically concentrated firms in low social capital areas, where information asymmetry is higher than in high social capital areas.

**[Insert Table 8 About Here]**

[12] We perform further sub-sample analyses for local return comovement and intra-regional attention transfer for high/low social capital groups. Additional supporting evidence is presented in Tables A6 and A7, respectively. Table A6 shows that, controlling for geographic dispersion, return comovement is stronger in firms headquartered in low social capital counties. Table A7 shows that the intra-regional attention transfer is heightened for firms headquartered in low social capital counties.

*4.5.Robustness Tests*

We test the robustness of our results by examining the sample dropping the firms headquartered in the Top 3 MSAs, New York-Newark-Jersey City, NY-NJ-PA, Boston-Cambridge-Newton, MA-NH, and Chicago-Naperville-Elgin, in terms of the number of firm-month observations in Table 9.[13] Firms located in the Top 3 MSAs comprise more than 20% of the sample. Panel A of Table 9 suggests that the negative relationship between geographic dispersion and local return comovement remains robust. Columns (1) and (3) of Panel B show that geographically concentrated firms continue to exhibit greater intra-regional information spillover after dropping the firms located in the three largest clusters. In further the robustness, reported in Table A5, we examine earnings announcements excluding those occurring in January, February, and March. Results remain materially unaltered, suggesting that the intra-regional information spillover is not simply a clustering effect in earnings announcements.

**[Insert Table 9 About Here]**

As a further robustness check, we examine whether local economic conditions drive return comovement. Brockman, Liebenberg, and Schutte (2010) document a countercyclical pattern of stock comovement and argue that the return comovement is low during the economic expansion of increasing information production. Pirinsky and Wang (2006) document that the local comovement is more pronounced for the areas with the higher number of firms, higher industry concentration, and greater regional economic development. We add *NO OF FIRMS*, *INDUSTRY CONCENTRATION*, *PERSONAL INCOME*, *INVESTMENT INCOME*, and *COINCIDENT INDEX*[14] as additional control variables in Table 10. The former four variables are estimated in the same approach described in Pirinsky and Wang (2006). We employ State Coincident Indexes (SCI) developed by Crone and Clayton-Matthews (2005) (utilized in many studies, e.g., Pirinsky and Wang, 2006; Amore, Schneider,

[13] We find qualitatively similar results after dropping the firms headquartered in New York-Newark-Jersey City, NY-NJ-PA and results are available upon request.

[14] *COINCIDENT INDEX* data is obtained from the website of the Federal Reserve Bank of Philadelphia, http://www.philadelphiafed.org/research-and-data/regional-economy/indexes/coincident.
*PERSONAL INCOME* and *INVESTMENT INCOME* are obtained from the Regional Economic Accounts by U.S. Bureau of Economic Analysis, https://www.bea.gov/data/economic-accounts/regional.

and Žaldokas, 2013; Smajlbegovic, 2019; Wei and Zhang, 2020) to capture current state-level economic conditions including nonfarm payroll employment, average hours worked, the unemployment rate, and real wages. Both Panels A and B of Table 10 show that our results remain statistically significant after controlling for regional economic activities. We obtain results consistent with Pirinsky and Wang (2006) that local return comovement is more pronounced for the firms headquartered in the areas with the higher industry concentration, and higher personal income. Additionally, Column (3) of Panel A in Table 10 suggests the firms headquartered in regions with lower levels of financial sophistication exhibit higher local comovement ($b_{INVESTMENT\ INCOME} = -0.012, p-value < 0.05$), consistent with Brown et al. (2008).

**[Insert Table 10 About Here]**

## 5. Conclusion

This paper investigates the relation between geographic dispersion and information spillover by examining stock return comovement with local stocks headquartered in the same region. Using the number of different states mentioned in the 10-K filings as the proxy of geographic dispersion, we find evidence that geographically concentrated firms exhibit greater return comovement with the local stocks whose headquarters are located in the same region. Economically speaking, the geographically concentrated firm ranking in the bottom decile of geographic dispersion exhibits 49.14 percent higher local return comovement than the geographically dispersed firm ranking in the top decile does, after controlling firm-level control variables, industry, and year-month fixed effects.

Moreover, we perform additional tests to understand the information spillover within the geographic cluster by using informational corporate events. Specifically, we find evidence consistent with previous literature (e.g., Ramnath, 2002; Thomas and Zhang, 2008; Drake et al., 2017), that return comovement with the local portfolio of the firm increases when peer firms in the same region experience earnings announcements or analysts' recommendation revisions. Notably, this result is more pronounced for geographically concentrated firms, indicating that local information spillover occurs among geographically concentrated firms and not in geographically dispersed firms. In addition, after performing the sub-sample analysis by terciles of the social capital in the regions where firms are located, we find the local return comovement for geographically local firms is more pronounced in the firms headquartered in the low social capital regions. Our results are consistent with literature showing that both retail and institutional investors in low-trust regions exhibit higher local bias (e.g., Wei and Zhang, 2020; Shao and Wang, 2021) and demonstrating more information spillover in high information asymmetry environments (e.g., Kajüter et al., 2019; Arif and De George, 2020; Breuer et al., 2022).

Importantly, our results are qualitatively and quantitatively similar after a battery of robustness checks such as dropping sample firms headquartered in specific regions, removing observations in certain months, adding additional control variables for regional economic activities, and using alternative proxies for corporate events. Overall, our evidence supports Veldkamp (2006)'s and Mondria's (2010) predictions of information-induced comovement and information spillover.

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**Table 1 Variable Summary Statistics**

This table reports the descriptive statistics and correlations for the variables used in the cross-sectional regressions. All continuous variables are winsorized at 1% and 99%. Detailed descriptions of variables are provided in Table A1.

Panel A: Descriptive Statistics

| VARIABLES | N | MEAN | SD | P5 | P25 | P50 | P75 | P95 |
|---|---|---|---|---|---|---|---|---|
| β(R_LOC_EW) | 162,413 | 0.116 | 1.085 | -1.549 | -0.403 | 0.043 | 0.581 | 2.018 |
| NSTATES | 162,413 | 12.880 | 7.979 | 4.000 | 7.000 | 11.000 | 16.000 | 29.000 |
| LOG(1+NSTATES) | 162,413 | 2.383 | 0.588 | 1.386 | 1.946 | 2.398 | 2.773 | 3.367 |
| LOCAL RANK | 162,413 | 0.528 | 0.328 | 0.000 | 0.222 | 0.556 | 0.778 | 1.000 |
| AT | 162,413 | 7.744 | 1.956 | 4.708 | 6.355 | 7.584 | 9.023 | 11.230 |
| MB | 162,413 | 3.313 | 4.749 | 0.721 | 1.512 | 2.394 | 3.971 | 9.920 |
| ROA | 162,413 | 0.126 | 0.145 | -0.077 | 0.077 | 0.132 | 0.194 | 0.329 |
| DEBT | 162,413 | 0.241 | 0.221 | 0.000 | 0.054 | 0.209 | 0.352 | 0.658 |
| STD(EARN) | 162,413 | 1.174 | 1.537 | 0.149 | 0.363 | 0.675 | 1.323 | 3.895 |
| TOBINQ | 162,413 | 2.070 | 1.346 | 0.934 | 1.177 | 1.627 | 2.420 | 4.871 |
| ADVERTISEMENT | 162,413 | 0.013 | 0.032 | 0.000 | 0.000 | 0.000 | 0.008 | 0.076 |
| DIV YIELD | 162,413 | 0.012 | 0.016 | 0.000 | 0.000 | 0.005 | 0.020 | 0.044 |
| NUMBER OF SHAREHOLDERS | 162,413 | 0.714 | 2.387 | -3.101 | -1.079 | 0.751 | 2.492 | 4.654 |
| IO | 162,413 | 0.763 | 0.205 | 0.347 | 0.652 | 0.797 | 0.907 | 1.037 |
| ANALYSTS | 162,413 | 2.234 | 0.673 | 1.099 | 1.609 | 2.197 | 2.773 | 3.296 |
| ANALYST DISP | 162,413 | 0.059 | 0.153 | 0.000 | 0.008 | 0.016 | 0.042 | 0.222 |
| EA | 162,413 | 0.083 | 0.277 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| PEER EA | 162,413 | 0.229 | 0.524 | 0.000 | 0.000 | 0.000 | 0.000 | 1.386 |

Panel B: Correlation Coefficient Matrix

| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|---|
| β(R_LOC_EW) | (1) | 1.000 | | | | | | | |
| LOCAL RANK | (2) | 0.074 | 1.000 | | | | | | |
| AT | (3) | -0.156 | -0.437 | 1.000 | | | | | |
| MB | (4) | -0.010 | 0.080 | -0.038 | 1.000 | | | | |
| ROA | (5) | -0.064 | -0.082 | 0.142 | 0.062 | 1.000 | | | |
| DEBT | (6) | -0.004 | -0.222 | 0.220 | -0.015 | 0.061 | 1.000 | | |
| STD(EARN) | (7) | -0.023 | -0.129 | 0.238 | -0.065 | -0.033 | 0.096 | 1.000 | |
| TOBINQ | (8) | 0.009 | 0.291 | -0.273 | 0.450 | 0.102 | -0.107 | -0.145 | 1.000 |
| ADVERTISEMENT | (9) | -0.009 | 0.078 | -0.082 | 0.073 | 0.201 | -0.035 | -0.087 | 0.171 |
| DIV YIELD | (10) | -0.065 | -0.174 | 0.361 | -0.056 | 0.070 | 0.097 | 0.012 | -0.181 |
| NUMBER OF SHAREHOLDERS | (11) | -0.112 | -0.229 | 0.553 | 0.012 | 0.121 | 0.015 | 0.051 | -0.089 |
| IO | (12) | -0.011 | -0.082 | 0.143 | 0.015 | 0.177 | 0.061 | 0.109 | -0.016 |
| ANALYSTS | (13) | -0.134 | -0.198 | 0.644 | 0.118 | 0.187 | 0.075 | 0.071 | 0.113 |
| ANALYST DISP | (14) | 0.044 | 0.012 | -0.119 | -0.032 | -0.183 | 0.041 | 0.103 | -0.055 |
| EA | (15) | -0.006 | 0.001 | 0.000 | 0.001 | 0.001 | -0.001 | -0.001 | 0.001 |
| PEER EA | (16) | 0.019 | 0.118 | -0.025 | 0.035 | -0.060 | -0.054 | -0.008 | 0.107 |

**Table 1 Correlation Coefficient Matrix (Continued)**

| | | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|
| β(R_LOC_EW) | (1) | | | | | | | | |
| LOCAL RANK | (2) | | | | | | | | |
| AT | (3) | | | | | | | | |
| MB | (4) | | | | | | | | |
| ROA | (5) | | | | | | | | |
| DEBT | (6) | | | | | | | | |
| STD(EARN) | (7) | | | | | | | | |
| TOBINQ | (8) | | | | | | | | |
| ADVERTISEMENT | (9) | 1.000 | | | | | | | |
| DIV YIELD | (10) | -0.004 | 1.000 | | | | | | |
| NUMBER OF SHAREHOLDERS | (11) | 0.017 | 0.337 | 1.000 | | | | | |
| IO | (12) | 0.015 | -0.137 | -0.112 | 1.000 | | | | |
| ANALYSTS | (13) | 0.068 | 0.111 | 0.329 | 0.244 | 1.000 | | | |
| ANALYST DISP | (14) | -0.022 | -0.028 | -0.080 | -0.094 | -0.150 | 1.000 | | |
| EA | (15) | 0.000 | 0.000 | 0.000 | -0.001 | 0.000 | 0.000 | 1.000 | |
| PEER EA | (16) | -0.015 | -0.073 | -0.050 | 0.008 | 0.061 | 0.015 | 0.243 | 1.000 |

**Table 2 Regression of Return Comovement with Local Stocks, by Geographical Dispersion Tercile**

This table reports the mean statistics for the time-series regressions of daily excess returns by the tercile of firms' geographical dispersion. Models are estimated for each firm annually. *MKTRF* is the daily excess return of the value-weighted market portfolio. *R_LOC(EW)* is the daily return on the equally-weighted local portfolio of firms headquartered in the same MSA, excluding the firm itself. *R_NLOC(EW)* is the daily return on the equally-weighted non-local portfolio of firms headquartered in the different MSAs. *R_IND(EW)* is the daily returns on equally-weighted portfolio of firms in the same industry (by Fama-French (1997) 48 industries), excluding the firm itself. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

$$R_t = \alpha_t + \beta^{LOC} R_t^{LOC} + \beta^{MKT} R_t^{MKT} + \varepsilon_t \quad (1)$$

$$R_t = \alpha_t + \beta^{LOC} R_t^{LOC} + \beta^{MKT} R_t^{MKT} + \beta^{IND} R_t^{IND} + \varepsilon_t \quad (2)$$

$$R_t = \alpha_t + \beta^{LOC} R_t^{LOC} + \beta^{NLOC} R_t^{NLOC} + \varepsilon_{i,t} \quad (3)$$

$$R_t = \alpha_t + \beta^{LOC} R_t^{LOC} + \beta^{NLOC} R_t^{NLOC} + \beta^{IND} R_t^{IND} + \varepsilon_t \quad (4)$$

| MODEL | GD TERCILE | ALPHA | T | MKTRF | T | R_LOC(EW) | T | R_NLOC(EW) | T | R_IND(EW) | T | ADJ-R2 | OBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Local | 0.009% | 3.85 | 0.494 | 64.48 | 0.606 | 84.66 | . | . | . | . | 0.228 | 8760 |
| 1 | Mid | 0.005% | 2.21 | 0.628 | 81.69 | 0.502 | 68.04 | . | . | . | . | 0.270 | 7385 |
| 1 | Disp | 0.005% | 3.15 | 0.785 | 121.13 | 0.333 | 52.66 | . | . | . | . | 0.310 | 7297 |
| | **L - D** | | | **-0.291*****| | **0.273***** | | | | | | | |
| | **T-Stats** | | | **(-29.02)** | | **(28.56)** | | | | | | | |
| 2 | Local | 0.006% | 2.53 | 0.164 | 22.40 | 0.248 | 36.18 | . | . | 0.683 | 89.28 | 0.257 | 8760 |
| 2 | Mid | 0.001% | 0.50 | 0.290 | 38.86 | 0.189 | 28.08 | . | . | 0.633 | 88.46 | 0.310 | 7385 |
| 2 | Disp | 0.001% | 0.53 | 0.405 | 62.39 | 0.066 | 12.17 | . | . | 0.633 | 101.23 | 0.365 | 7297 |
| | **L - D** | | | **-0.241***** | | **0.182***** | | | | **0.050***** | | | |
| | **T-Stats** | | | **(-24.60)** | | **(20.74)** | | | | **(5.07)** | | | |
| 3 | Local | 0.000% | 0.12 | . | . | 0.306 | 37.06 | 0.779 | 85.60 | . | . | 0.229 | 8760 |
| 3 | Mid | -0.003% | -1.41 | . | . | 0.242 | 30.10 | 0.848 | 93.44 | . | . | 0.267 | 7385 |
| 3 | Disp | -0.005% | -3.17 | . | . | 0.213 | 31.78 | 0.837 | 105.21 | . | . | 0.294 | 7297 |
| | **L - D** | | | | | **0.093***** | | **-0.058***** | | | | | |
| | **T-Stats** | | | | | **(8.71)** | | **(-4.78)** | | | | | |
| 4 | Local | 0.001% | 0.53 | . | . | 0.166 | 22.42 | 0.290 | 26.48 | 0.627 | 67.52 | 0.255 | 8760 |
| 4 | Mid | -0.003% | -1.35 | . | . | 0.131 | 19.32 | 0.384 | 37.23 | 0.573 | 67.18 | 0.304 | 7385 |
| 4 | Disp | -0.004% | -2.66 | . | . | 0.108 | 20.05 | 0.331 | 36.22 | 0.620 | 83.46 | 0.354 | 7297 |
| | **L - D** | | | | | **0.058***** | | **-0.041***** | | **0.007** | | | |
| | **T-Stats** | | | | | **(6.30)** | | **(-2.85)** | | **(0.64)** | | | |

**Table 3 Cross-Sectional Regression of Local Return Comovement on Geographic Dispersion**

This table reports the regressions of monthly local return comovement on geographic dispersion measures. The dependent variable, *β(R_LOC_EW)*, is the estimated coefficient of local portfolio returns at the firm-month level, from Equation (1) using daily returns. *NSTATES* is the number of different states mentioned in the firm's 10-K filings. *LOG(1+NSTATES)* is the natural logarithm of one plus *NSTATES*. *LOCAL RANK* is the decile rank of *NSTATES* times minus one for each year-month, ranging from 0 to 1. All independent variables are lagged and described in Table A1. Fixed effects are included in different models. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| VARIABLES | | | β(R_LOC_EW) | | | |
| **NSTATES** | **-0.009*** ** | **-0.003*** ** | | | | |
| | **(-8.49)** | **(-2.82)** | | | | |
| **LOG(1+NSTATES)** | | | **-0.124*** ** | **-0.035** ** | | |
| | | | **(-8.28)** | **(-2.56)** | | |
| **LOCAL RANK** | | | | | **0.212*** ** | **0.057** ** |
| | | | | | **(8.02)** | **(2.39)** |
| AT | | -0.056*** | | -0.056*** | | -0.057*** |
| | | (-7.99) | | (-7.95) | | (-8.06) |
| MB | | -0.001 | | -0.001 | | -0.001 |
| | | (-0.46) | | (-0.43) | | (-0.43) |
| ROA | | -0.329*** | | -0.325*** | | -0.325*** |
| | | (-5.13) | | (-5.08) | | (-5.06) |
| DEBT | | 0.117*** | | 0.119*** | | 0.119*** |
| | | (3.54) | | (3.62) | | (3.61) |
| STD(EARN) | | -0.003 | | -0.003 | | -0.003 |
| | | (-0.52) | | (-0.52) | | (-0.52) |
| TOBINQ | | -0.009 | | -0.010 | | -0.010 |
| | | (-1.44) | | (-1.51) | | (-1.50) |
| ADVERTISEMENT | | 0.164 | | 0.167 | | 0.169 |
| | | (0.58) | | (0.59) | | (0.60) |
| DIV YIELD | | -0.428 | | -0.438 | | -0.434 |
| | | (-1.07) | | (-1.10) | | (-1.08) |
| NUMBER OF SHAREHOLDERS | | -0.009** | | -0.008** | | -0.008** |
| | | (-2.02) | | (-1.99) | | (-1.99) |
| IO | | 0.062* | | 0.064* | | 0.064* |
| | | (1.71) | | (1.77) | | (1.75) |
| ANALYSTS | | -0.066*** | | -0.066*** | | -0.066*** |
| | | (-4.46) | | (-4.46) | | (-4.45) |
| ANALYST DISP | | 0.096*** | | 0.095*** | | 0.095*** |
| | | (2.93) | | (2.92) | | (2.91) |
| CONSTANT | YES | YES | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES | YES | YES |
| OBSERVATIONS | 162,413 | 162,413 | 162,413 | 162,413 | 162,413 | 162,413 |
| ADJ-R2 | 0.017 | 0.036 | 0.018 | 0.036 | 0.017 | 0.036 |

**Table 4 Tests for Information Spillover**

This table reports the regression for intra-regional information spillover. The dependent variable, *β(R_LOC_EW)*, is the estimated coefficient of local portfolio returns at the firm-month level, from Equation (1) using daily returns. *PEER EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. *EA* is a dummy variable equal to one if the firm announces its annual earnings in the same month and zero otherwise. Other control variables are lagged and described in Table A1. Industry and Year-month fixed effects are included. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | β(R_LOC_EW) | | | |
| | Full Sample | | Concentrated | Dispersed |
| **EA** | **-0.029**** | **-0.030**** | **-0.075***** | **-0.006** |
| | **(-2.38)** | **(-2.48)** | **(-3.39)** | **(-0.30)** |
| **LOC_PEER EA** | **0.056***** | **0.071***** | **0.098***** | **-0.001** |
| | **(3.89)** | **(5.28)** | **(5.38)** | **(-0.04)** |
| AT | | -0.061*** | -0.064*** | -0.058*** |
| | | (-9.05) | (-5.74) | (-4.91) |
| MB | | -0.001 | 0.001 | -0.001 |
| | | (-0.44) | (0.72) | (-0.27) |
| ROA | | -0.317*** | -0.249*** | -0.305** |
| | | (-4.99) | (-3.22) | (-2.39) |
| DEBT | | 0.114*** | 0.042 | 0.187*** |
| | | (3.49) | (0.79) | (3.43) |
| STD(EARN) | | -0.003 | 0.004 | -0.005 |
| | | (-0.49) | (0.39) | (-0.72) |
| TOBINQ | | -0.009 | -0.009 | -0.052*** |
| | | (-1.41) | (-1.08) | (-3.59) |
| ADVERTISEMENT | | 0.145 | -0.132 | 0.421 |
| | | (0.52) | (-0.42) | (1.30) |
| DIV YIELD | | -0.414 | -0.750 | -0.772 |
| | | (-1.04) | (-1.24) | (-1.25) |
| NUMBER OF SHAREHOLDERS | | -0.008* | -0.011* | -0.004 |
| | | (-1.86) | (-1.67) | (-0.61) |
| IO | | 0.062* | 0.062 | -0.047 |
| | | (1.73) | (1.20) | (-0.80) |
| ANALYSTS | | -0.067*** | -0.006 | -0.105*** |
| | | (-4.55) | (-0.26) | (-5.10) |
| ANALYST DISP | | 0.090*** | 0.025 | 0.112** |
| | | (2.79) | (0.52) | (2.42) |
| CONTROL | NO | YES | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 162,413 | 162,413 | 61,266 | 50,334 |
| Adjusted R-squared | 0.016 | 0.038 | 0.026 | 0.055 |

## Table 5 Tests for Magnitude of Information Spillover

This table reports the regression for intra-regional information spillover. We first calculate the size-weighted average of absolute values of the local peers' standardized unexpected earnings in the same month as *ABS(PEER SUE). PEER SUE* is the decile score of *ABS(PEER SUE)* by each year-month, ranging from 0 to 1. *HIGH PEER SUE* is the dummy variable which equals one if the firm's *ABS(PEER SUE)* ranks in the top tercile in the same year-month and zero otherwise. Panel A reports the regression of the full sample and Panel B reports the results for high/low geographic dispersion subgroups. *CONC* is the bottom tercile group of firms ranked by *NSTATES* for each year-month. *DISP* is the top tercile group of firms ranked by *NSTATES* by each year-month. The same set of control variables in Table 7 is used in this table. Industry and Year-month fixed effects are included. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

**Panel A: Full Sample**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | β(R_LOC_EW) | | | |
| **PEER SUE** | **0.077*** ** | **0.097*** ** | | |
| | **(4.49)** | **(5.99)** | | |
| **HIGH PEER SUE** | | | **0.070*** ** | **0.087*** ** |
| | | | **(4.44)** | **(5.86)** |
| EA | -0.027** | -0.028** | -0.027** | -0.028** |
| | (-2.25) | (-2.32) | (-2.21) | (-2.27) |
| CONTROL | NO | YES | NO | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 162,410 | 162,410 | 162,410 | 162,410 |
| Adjusted R-squared | 0.016 | 0.038 | 0.016 | 0.038 |

**Panel B: By Geographic Dispersion Terciles**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | β(R_LOC_EW) | | | |
| **PEER SUE** | **0.124*** ** | **0.012** | | |
| | **(5.38)** | **(0.57)** | | |
| **HIGH PEER SUE** | | | **0.110*** ** | **0.015** |
| | | | **(5.21)** | **(0.80)** |
| EA | -0.070*** | -0.007 | -0.070*** | -0.007 |
| | (-3.17) | (-0.38) | (-3.16) | (-0.40) |
| CONTROL | YES | YES | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 61,266 | 50,334 | 61,266 | 50,334 |
| Adjusted R-squared | 0.026 | 0.055 | 0.026 | 0.055 |

## Table 6 Decomposition of Local and Industry Effects

This table reports the regressions for intra-regional information spillover with different local or industry effects for the full sample and sub-samples in Panel A and B respectively. *CONC* is the bottom tercile group of firms ranked by *NSTATES* for each year-month. *DISP* is the top tercile group of firms ranked by *NSTATES* by each year-month. The dependent variable, *β(R_LOC_EW)*, is the estimated coefficient of local portfolio returns at the firm-month level, from Equation (1) using daily returns. *PEER EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. *EA* is a dummy variable equal to one if the firm announces its annual earnings in the same month and zero otherwise. *IND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms in the same Fama-French (1997)-48 industry in the same month. *LOCAL EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same month. *LOCAL_NIND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the different Fama-French (1997)-48 industry in the same month. *NLOCAL_IND EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the different MSAs in the same Fama-French (1997)-48 industry in the same month. *NLOCAL_NIND EA* is the natural logarithm of one plus the number of annual earnings announcements for firms headquartered in the different MSAs in the different Fama-French (1997)-48 industry in the same month. Other control variables are lagged and described in Table A1. Industry and Year-month fixed effects are included. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

**Panel A Full Sample**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | β(R_LOC_EW) | | | |
| **EA** | **-0.025**** | **-0.024*** | **-0.026**** | **-0.028**** |
| | **(-1.99)** | **(-1.96)** | **(-2.12)** | **(-2.25)** |
| **LOC_PEER EA** | | | **0.056***** | **0.064***** |
| | | | **(3.81)** | **(4.66)** |
| IND EA | 0.006 | 0.005 | | |
| | (1.30) | (1.16) | | |
| LOCAL EA | 0.013 | 0.021*** | | |
| | (1.39) | (2.70) | | |
| LOCAL_NIND EA | | | 0.004 | 0.006 |
| | | | (0.51) | (0.83) |
| NLOCAL_IND EA | | | -0.007 | -0.015** |
| | | | (-0.81) | (-2.00) |
| NLOCAL_NIND_EA | | | 0.028 | -0.060 |
| | | | (0.24) | (-0.64) |
| CONTROLS | NO | YES | NO | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 162,410 | 162,410 | 162,410 | 162,410 |
| Adjusted R-squared | 0.015 | 0.037 | 0.016 | 0.038 |

**Panel B Subsample Analysis**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | β(R_LOC_EW) | | | |
| **EA** | **-0.071***** | **0.001** | **-0.071***** | **-0.003** |
| | **(-3.17)** | **(0.04)** | **(-3.17)** | **(-0.16)** |
| **LOC_PEER EA** | **0.050***** | **0.028** | **0.061***** | **0.031** |
| | **(2.73)** | **(1.08)** | **(3.37)** | **(1.38)** |
| LOCAL_NIND EA | 0.044*** | -0.043*** | 0.041*** | -0.030*** |
| | (3.51) | (-3.35) | (3.45) | (-2.78) |
| NLOCAL_IND EA | -0.010 | -0.009 | -0.017 | -0.013 |
| | (-0.71) | (-0.83) | (-1.26) | (-1.37) |
| NLOCAL_NIND_EA | -0.012 | 0.115 | -0.045 | 0.022 |
| | (-0.07) | (0.80) | (-0.30) | (0.18) |
| CONTROLS | NO | NO | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 61,266 | 50,334 | 61,266 | 50,334 |
| Adjusted R-squared | 0.017 | 0.028 | 0.027 | 0.056 |

## Table 7 Regression of Return Comovement with Local Stocks, by Geographical Dispersion and Social Capital Terciles

This table reports the mean statistics for the time-series regressions of daily excess returns. Models are estimated for each firm annually. *MKTRF* is the daily excess return of the value-weighted market portfolio. *R_LOC(EW)* is the daily return on the equally-weighted local portfolio of firms headquartered in the same MSA, excluding the firm itself. *R_NLOC(EW)* is the daily return on the equally-weighted non-local portfolio of firms headquartered in the different MSAs. *R_IND(EW)* is the daily returns on an equally-weighted portfolio of firms in the same industry (by Fama-French (1997) 48 industry), excluding the firm itself. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

| Model | Rank for GD | Rank for SC | ALPHA | T | MKTRF | T | R_LOC(EW) | T | R_IND(EW) | T | ADJ-R2 | # of F-Y OBS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LOW | LOW | 0.01% | 2.884 | 0.427 | 37.057 | 0.650 | 58.555 | . | . | 0.220 | 3680 |
| 1 | LOW | MID | 0.01% | 1.606 | 0.476 | 35.937 | 0.592 | 45.455 | . | . | 0.213 | 2790 |
| 1 | LOW | HIGH | 0.01% | 1.440 | 0.518 | 39.083 | 0.573 | 42.703 | . | . | 0.231 | 3077 |
| | | **L - H** | | | **-0.099*****<br>**(-5.34)** | | **0.077*****<br>**(4.44)** | | | | | |
| 1 | MID | LOW | 0.01% | 2.131 | 0.533 | 41.011 | 0.590 | 47.737 | . | . | 0.264 | 2686 |
| 1 | MID | MID | 0.00% | 0.752 | 0.656 | 45.997 | 0.476 | 34.264 | . | . | 0.267 | 2189 |
| 1 | MID | HIGH | 0.00% | 0.745 | 0.702 | 55.163 | 0.433 | 35.644 | . | . | 0.280 | 2457 |
| | | **L - H** | | | **-0.169*****<br>**(-9.28)** | | **0.157*****<br>**(9.08)** | | | | | |
| 1 | HIGH | LOW | 0.01% | 3.193 | 0.720 | 64.307 | 0.395 | 35.463 | . | . | 0.305 | 2571 |
| 1 | HIGH | MID | 0.01% | 1.821 | 0.792 | 66.485 | 0.332 | 28.274 | . | . | 0.299 | 2101 |
| 1 | HIGH | HIGH | 0.00% | 0.381 | 0.841 | 79.737 | 0.273 | 27.377 | . | . | 0.325 | 2608 |
| | | **L - H** | | | **-0.121*****<br>**(-7.87)** | | **0.122*****<br>**(8.14)** | | | | | |
| 2 | LOW | LOW | 0.01% | 2.022 | 0.146 | 12.694 | 0.292 | 26.767 | 0.657 | 51.775 | 0.254 | 3322 |
| 2 | LOW | MID | 0.01% | 1.495 | 0.167 | 12.356 | 0.235 | 18.517 | 0.685 | 49.045 | 0.249 | 2510 |
| 2 | LOW | HIGH | 0.00% | 1.024 | 0.187 | 13.901 | 0.210 | 16.969 | 0.699 | 52.795 | 0.267 | 2859 |
| | | **L - H** | | | **-0.041****<br>**(-2.31)** | | **0.082*****<br>**(4.96)** | | **-0.042****<br>**(-2.30)** | | | |
| 2 | MID | LOW | 0.00% | 0.999 | 0.245 | 19.889 | 0.233 | 19.651 | 0.631 | 51.748 | 0.298 | 2686 |
| 2 | MID | MID | 0.00% | -0.142 | 0.322 | 23.014 | 0.191 | 15.737 | 0.598 | 47.190 | 0.302 | 2189 |
| 2 | MID | HIGH | 0.00% | -0.078 | 0.313 | 24.466 | 0.141 | 12.749 | 0.662 | 53.251 | 0.328 | 2457 |
| | | **L - H** | | | **-0.068*****<br>**(-3.84)** | | **0.093*****<br>**(5.72)** | | **-0.031***<br>**(-1.80)** | | | |
| 2 | HIGH | LOW | 0.00% | 1.122 | 0.392 | 34.702 | 0.094 | 9.533 | 0.616 | 57.381 | 0.354 | 2571 |
| 2 | HIGH | MID | 0.00% | 0.604 | 0.389 | 33.595 | 0.073 | 7.301 | 0.642 | 54.841 | 0.351 | 2101 |
| 2 | HIGH | HIGH | 0.00% | -0.850 | 0.429 | 39.607 | 0.034 | 4.033 | 0.642 | 62.891 | 0.386 | 2608 |
| | | **L - H** | | | **-0.037****<br>**(-2.37)** | | **0.060*****<br>**(4.56)** | | **-0.026***<br>**(-1.74)** | | | |

## Table 8 Tests for Information Spillover by Geographic Dispersion and Social Capital

This table reports the regression for intra-regional information spillover by geographic dispersion and social capital. *CONC* is the bottom tercile group of firms ranked by *NSTATES* for each year-month. *DISP* is the top tercile group of firms ranked by *NSTATES* by each year-month. *HIGH_SC* and *LOW_SC* represent the top and bottom tercile of the firms in terms of the level of social capital of their headquarters by year-month. The dependent variable, *β(R_LOC_EW)*, is the estimated coefficient of local portfolio returns at the firm-month level, from Equation (1) using daily returns. *PEER EA* is the natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. *EA* is a dummy variable equal to one if the firm announces its annual earnings in the same month and zero otherwise. Other control variables are lagged and described in Table A1. Industry and Year-month fixed effects are included. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1

| | CONC | | DISP | |
|---|---|---|---|---|
| | LOW_SC | HIGH_SC | LOW_SC | HIGH_SC |
| | (1) | (2) | (3) | (4) |
| VARIABLES | β(R_LOC_EW) | | | |
| **EA** | **-0.073*** | **-0.101***** | **-0.013** | **0.016** |
| | **(-1.79)** | **(-2.85)** | **(-0.42)** | **(0.51)** |
| **PEER EA** | **0.141***** | **0.051*** | **0.038** | **-0.038** |
| | **(4.88)** | **(1.79)** | **(1.10)** | **(-1.45)** |
| AT | -0.071*** | -0.063*** | -0.062*** | -0.065*** |
| | (-3.63) | (-3.55) | (-3.12) | (-3.61) |
| MB | 0.005 | -0.002 | -0.002 | 0.002 |
| | (1.21) | (-0.62) | (-0.59) | (0.92) |
| ROA | -0.299*** | -0.209 | -0.233 | -0.579*** |
| | (-2.61) | (-1.42) | (-1.26) | (-3.13) |
| DEBT | 0.077 | 0.132* | 0.179** | 0.130 |
| | (0.83) | (1.82) | (2.12) | (1.49) |
| STD(EARN) | 0.010 | -0.005 | -0.022** | 0.007 |
| | (0.47) | (-0.37) | (-2.13) | (0.68) |
| TOBINQ | -0.011 | 0.004 | -0.054*** | -0.015 |
| | (-0.67) | (0.26) | (-2.62) | (-0.75) |
| ADVERTISEMENT | -0.085 | -0.698* | 0.275 | -0.359 |
| | (-0.17) | (-1.71) | (0.34) | (-1.12) |
| DIV YIELD | -0.410 | -0.771 | -1.124 | -0.962 |
| | (-0.35) | (-0.95) | (-0.98) | (-1.14) |
| NUMBER OF SHAREHOLDERS | -0.028** | 0.007 | -0.004 | -0.010 |
| | (-2.42) | (0.62) | (-0.35) | (-0.90) |
| IO | 0.073 | 0.115 | -0.096 | -0.036 |
| | (0.83) | (1.44) | (-1.06) | (-0.45) |
| ANALYSTS | 0.052 | -0.054 | -0.141*** | -0.045 |
| | (1.22) | (-1.52) | (-4.50) | (-1.39) |
| ANALYST DISP | 0.118 | 0.019 | 0.064 | 0.108 |
| | (1.59) | (0.24) | (0.90) | (1.17) |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 20,832 | 19,308 | 17,616 | 17,200 |
| Adjusted R-squared | 0.032 | 0.027 | 0.064 | 0.059 |

**Table 9 Robustness Tests: Dropping the Top 3 MSAs**

This table reports the robustness tests by dropping the observations of sample firms headquartered in New York-Newark-Jersey City, NY-NJ-PA, Boston-Cambridge-Newton, MA-NH, and Chicago-Naperville-Elgin, IL-IN-WI. Panel A reports the regressions of local return comovement on geographic dispersion, consistent with Table 4. Panel B reports the regressions for information spillover, consistent with Table 7.

**Panel A**

| | (1) | (2) | (3) |
|---|---|---|---|
| VARIABLES | | β(R_LOC_EW) | |
| **NSTATES** | **-0.004*** ** | | |
| | **(-4.25)** | | |
| **LOG(1+NSTATES)** | | **-0.059*** ** | |
| | | **(-4.14)** | |
| **LOCAL RANK** | | | **0.092*** ** |
| | | | **(3.75)** |
| FIRM CONTROLS | YES | YES | YES |
| CONSTANT | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES |
| OBSERVATIONS | 127,282 | 127,282 | 127,282 |
| ADJ-R2 | 0.031 | 0.032 | 0.031 |

**Panel B**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | | β(R_LOC_EW) | | |
| **EA** | **-0.055** ** | **0.008** | **-0.055** ** | **0.007** |
| | **(-2.42)** | **(0.42)** | **(-2.41)** | **(0.38)** |
| **PEER EA** | **0.161*** ** | **0.043** | **0.164*** ** | **0.046*** |
| | **(7.68)** | **(1.45)** | **(8.07)** | **(1.69)** |
| FIRM CONTROLS | NO | NO | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| OBSERVATIONS | 47,168 | 40,203 | 47,168 | 40,203 |
| ADJ-R2 | 0.018 | 0.023 | 0.025 | 0.048 |

## Table 10 Robustness Tests: Adding Regional Economic Control Variables

This table reports the robustness tests by adding additional control variables for regional economic activities. Panel A reports the regressions of local return comovement on geographic dispersion, consistent with Table 4. Panel B reports the regressions for information spillover, consistent with Table 7. *NO OF FIRMS* is the number of firms headquartered in the same MSA, scaled by 100. *INDUSTRY CONCENTRAION* is the Herfindahl index of industry concentration (by Fama-French (1997) 48 industries) in the MSA where the firm is headquartered. *COINCIDENT INDEX* is the State Coincident Indexes of the regional economic level for the state where the firm is headquartered, scaled by 100. *PERSONAL INCOME* is the per capita personal income for the firm's headquarter's MSA, scaled by 1,000. *INVESTMENT INCOME* is the per capita personal income derived from dividends, interest, and rent for the firm's headquarter's MSA, scaled by 1,000.

**Panel A**

| VARIABLES | (1) | (2) β(R_LOC_EW) | (3) |
|---|---|---|---|
| **NSTATES** | **-0.002**** | | |
| | **(-2.48)** | | |
| **LOG(1+NSTATES)** | | **-0.025**** | |
| | | **(-2.14)** | |
| **LOCAL RANK** | | | **0.046*** |
| | | | **(1.96)** |
| NO OF FIRMS | -0.003 | -0.003 | -0.003 |
| | (-0.37) | (-0.40) | (-0.37) |
| INDUSTRY CONCENTRATION | 0.544*** | 0.538*** | 0.539*** |
| | (3.95) | (3.91) | (3.90) |
| COINCIDENT INDEX | 0.052 | 0.049 | 0.051 |
| | (0.47) | (0.44) | (0.46) |
| PERSONAL INCOME | 0.006*** | 0.006*** | 0.006*** |
| | (3.51) | (3.53) | (3.52) |
| INVESTMENT INCOME | -0.012** | -0.012** | -0.012** |
| | (-2.40) | (-2.43) | (-2.42) |
| FIRM CONTROLS | YES | YES | YES |
| CONSTANT | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES |
| OBSERVATIONS | 160,718 | 160,718 | 160,718 |
| ADJ-R2 | 0.039 | 0.039 | 0.039 |

**Panel B**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | | β(R_LOC_EW) | | |
| **EA** | **-0.070***** | **-0.007** | **-0.070***** | **-0.009** |
| | **(-3.16)** | **(-0.38)** | **(-3.16)** | **(-0.49)** |
| **PEER EA** | **0.062***** | **0.009** | **0.071***** | **0.020** |
| | **(3.91)** | **(0.43)** | **(4.62)** | **(0.99)** |
| NO OF FIRMS | 0.007 | -0.031** | 0.006 | -0.026*** |
| | (0.49) | (-2.51) | (0.46) | (-2.61) |
| INDUSTRY CONCENTRATION | 0.757*** | 0.379* | 0.810*** | 0.160 |
| | (3.32) | (1.84) | (3.67) | (0.87) |
| COINCIDENT INDEX | 0.405* | -0.022 | 0.308 | -0.285* |
| | (1.95) | (-0.12) | (1.59) | (-1.90) |
| PERSONAL INCOME | 0.009*** | -0.001 | 0.009*** | 0.001 |
| | (3.85) | (-0.59) | (4.29) | (0.47) |
| INVESTMENT INCOME | -0.020** | -0.004 | -0.021*** | -0.006 |
| | (-2.48) | (-0.56) | (-2.71) | (-0.93) |
| FIRM CONTROLS | NO | NO | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| OBSERVATIONS | 60,506 | 49,825 | 60,506 | 49,825 |
| ADJ-R2 | 0.030 | 0.056 | 0.032 | 0.057 |

## Appendix A

### Table A1 List of Variables

| Variables | Description | Source |
|---|---|---|
| β(R_LOC_EW) | Estimated coefficient on local portfolio return at firm-month level, estimated from Equation (1) using daily returns. | CRSP |
| AT | Natural logarithm of the total asset (AT). | COMPUSTAT |
| MB | Market-to-book equity ratio (PRCC_F*CSHO/CEQ). | COMPUSTAT |
| ROA | Earnings before interest, taxes, depreciation, and amortization (EBITDA) over total assets (AT). | COMPUSTAT |
| DEBT | Total outstanding debt (DLC+DLTT) over total assets (AT). | COMPUSTAT |
| STD(EARN) | Standard deviation of income before extraordinary items (IB) per share (CSHO) using a five-year rolling window. | COMPUSTAT |
| TOBINQ | The market value of assets divided by the book value of Assets and is empirically estimated following Kaplan and Zingales (1997) and Gompers, Ishii, and Metrick (2003). | COMPUSTAT |
| ADVERTISEMENT | Advertising expenditure (XAD) over total assets (AT) and we set the missing value to zero. | COMPUSTAT |
| DIV YIELD | Annual cash dividend payout (DV) over the market capitalization (PRCC_F*CSHO) | COMPUSTAT |
| NUMBER OF SHAREHOLDERS | Natural logarithm of the number of shareholders (CSHR). | COMPUSTAT |
| IO | The percentage of outstanding shares owned by institutional investors. | THOMSON REUTERS 13/F |
| ANALYSTS | Natural logarithm of one plus the number of analysts following. | I/B/E/S |
| ANALYST DISP | Standard deviation of earnings forecasts (STDEV) scaled by the absolute value of the mean earnings forecast (MEANEST). | I/B/E/S |
| NSTATES | Number of different states mentioned in firm's 10-K filings. | 10-K FILINGS |
| LOG(1+NSTATES) | Natural logarithm of one plus the *NSTATES.* | 10-K FILINGS |
| LOCAL RANK | Decile rank of *NSTATES* * ( -1) by each year-month, ranging from 0 to 1. | 10-K FILINGS |
| EA | Dummy variable equal to one if the firm announces its annual earnings in the same month and zero otherwise. | COMPUSTAT |
| PEER EA | Natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| RAW PEER EA | The number of annual earnings announcements for other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| IND EA | Natural logarithm of one plus the number of annual earnings announcements for other firms in the same Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| LOCAL EA | Natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the same month. | COMPUSTAT |
| LOCAL_NIND EA | Natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the same MSA in the different Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| NLOCAL_IND EA | Natural logarithm of one plus the number of annual earnings announcements for other firms headquartered in the different MSAs in the same Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| NLOCAL_NIND EA | Natural logarithm of one plus the number of annual earnings announcements for firms headquartered in the different MSAs in the different Fama-French (1997)-48 industry in the same month. | COMPUSTAT |
| SUE | The difference between actual EPS from IBES and the median of most recent analysts' forecasts, divided by the stock price at the fiscal year end (PRCC_F). | COMPUSTAT, I/B/E/S |
| ABS(PEER SUE) | The size-weighted average of absolute values of the local peers' standardized unexpected earnings (*SUE*) in the same month. | COMPUSTAT, I/B/E/S |
| PEER SUE | Decile score of *ABS(PEER SUE)* by each year-month, ranging from 0 to 1. | COMPUSTAT, I/B/E/S |
| HIGH PEER SUE | Dummy variable which equals to one if the firm's ABS(PEER SUE) ranks in the top tercile in the same year-month and zero otherwise. | COMPUSTAT, I/B/E/S |
| NO OF FIRMS | Number of firms headquartered in the MSA, scaled by 100. | CRSP |
| INDUSTRY CONCENTRATION | The Herfindahl index of industry concentration (by Fama-French (1997) 48 industries) in the MSA | CRSP |
| COINCIDENT INDEX | The State Coincident Indexes of the regional economic level for the state where the firm is headquartered, scaled by 100. | THE FEDERAL RESERVE BANK OF PHILADELPHIA |
| PERSONAL INCOME | Per capita personal income for the firm headquarter's MSA, scaled by 1,000. | The Regional Economic Accounts by |

| | | |
|---|---|---|
| INVESTMENT INCOME | Per capita personal income derived from dividends, interest, and rent for the firm headquarter's MSA, scaled by 1,000. | U.S. Bureau of Economic Analysis The Regional Economic Accounts by U.S. Bureau of Economic Analysis |

**Table A2 Descriptive Statistics by GD Terciles**

This table reports the descriptive statistics for the variables used in the cross-sectional regressions by the tercile of firms' geographical dispersion. All continuous variables are winsorized at 1% and 99%. Detailed descriptions of variables are provided in Table A1

| | CONC | | | | MID | | | | DISP | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (2) - (10) |
| **VARIABLES** | **N** | **MEAN** | **MEDIAN** | **SD** | **N** | **MEAN** | **MEDIAN** | **SD** | **N** | **MEAN** | **MEDIAN** | **SD** | |
| β(R_LOC_EW) | 61,269 | 0.194 | 0.106 | 1.221 | 50,807 | 0.129 | 0.055 | 1.066 | 50,337 | 0.010 | -0.025 | 0.902 | 0.184 |
| NSTATES | 61,269 | 6.217 | 6.000 | 1.644 | 50,807 | 11.360 | 11.000 | 1.735 | 50,337 | 22.530 | 20.000 | 7.045 | -16.313 |
| LOG(1+NSTATES) | 61,269 | 1.788 | 1.792 | 0.293 | 50,807 | 2.419 | 2.398 | 0.150 | 50,337 | 3.071 | 2.996 | 0.287 | -1.283 |
| LOCAL RANK | 61,269 | 0.879 | 0.889 | 0.110 | 50,807 | 0.497 | 0.444 | 0.115 | 50,337 | 0.132 | 0.111 | 0.108 | 0.747 |
| AT | 61,269 | 6.886 | 6.741 | 1.806 | 50,807 | 7.681 | 7.514 | 1.732 | 50,337 | 8.853 | 8.816 | 1.794 | -1.967 |
| MB | 61,269 | 3.715 | 2.756 | 5.326 | 50,807 | 3.338 | 2.384 | 4.714 | 50,337 | 2.799 | 2.087 | 3.920 | 0.916 |
| ROA | 61,269 | 0.106 | 0.133 | 0.188 | 50,807 | 0.144 | 0.140 | 0.126 | 50,337 | 0.131 | 0.125 | 0.086 | -0.025 |
| DEBT | 61,269 | 0.186 | 0.116 | 0.224 | 50,807 | 0.253 | 0.229 | 0.218 | 50,337 | 0.295 | 0.268 | 0.205 | -0.109 |
| STD(EARN) | 61,269 | 0.948 | 0.546 | 1.293 | 50,807 | 1.197 | 0.697 | 1.544 | 50,337 | 1.425 | 0.831 | 1.749 | -0.477 |
| TOBINQ | 61,269 | 2.488 | 1.975 | 1.604 | 50,807 | 2.037 | 1.614 | 1.274 | 50,337 | 1.594 | 1.362 | 0.798 | 0.894 |
| ADVERTISEMENT | 61,269 | 0.015 | 0.000 | 0.036 | 50,807 | 0.015 | 0.000 | 0.035 | 50,337 | 0.009 | 0.000 | 0.022 | 0.006 |
| DIV YIELD | 61,269 | 0.009 | 0.000 | 0.016 | 50,807 | 0.011 | 0.005 | 0.015 | 50,337 | 0.016 | 0.012 | 0.017 | -0.007 |
| NUMBER OF SHAREHOLDERS | 61,269 | 0.141 | -0.038 | 2.272 | 50,807 | 0.703 | 0.743 | 2.292 | 50,337 | 1.423 | 1.586 | 2.428 | -1.282 |
| IO | 61,269 | 0.741 | 0.784 | 0.225 | 50,807 | 0.776 | 0.814 | 0.201 | 50,337 | 0.776 | 0.794 | 0.178 | -0.035 |
| ANALYSTS | 61,269 | 2.104 | 2.079 | 0.678 | 50,807 | 2.216 | 2.197 | 0.680 | 50,337 | 2.411 | 2.485 | 0.620 | -0.307 |
| ANALYST DISP | 61,269 | 0.060 | 0.018 | 0.149 | 50,807 | 0.058 | 0.015 | 0.159 | 50,337 | 0.057 | 0.016 | 0.152 | 0.004 |
| EA | 61,269 | 0.084 | 0.000 | 0.277 | 50,807 | 0.083 | 0.000 | 0.277 | 50,337 | 0.083 | 0.000 | 0.276 | 0.001 |
| PEER EA | 61,269 | 0.301 | 0.000 | 0.597 | 50,807 | 0.207 | 0.000 | 0.497 | 50,337 | 0.163 | 0.000 | 0.440 | 0.138 |

**Table A3 Cross-Sectional Regression of Market and Industry Beta on Geographic Dispersion**

This table reports the regressions of monthly market beta or industry beta on geographic dispersion measures. The dependent variable, *β(MKTRF),* is the estimated coefficient of market excess returns at the firm-month level, from Equation (1) using daily returns. β(R_IND_EW) is the estimated coefficient of industry returns (by Fama-French (1997) 48 industries) at the firm-month level, from Equation (1) using daily returns *NSTATES* is the number of different states mentioned in the firm's 10-K filings. *LOCAL RANK* is the decile rank of *NSTATES* times minus one for each year-month, ranging from 0 to 1. The same set of control variables in Table 4 is included. All independent variables are lagged and described in Table A1. Fixed effects are included in different models. Standard errors are clustered at the firm level. T-stats are reported in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | β(MKTRF) | | β(R_IND_EW) | |
| **LOCAL RANK** | **-0.065*** ** | **-0.065*** ** | **0.029** | **0.029** |
| | **(-2.77)** | **(-2.78)** | **(1.04)** | **(1.03)** |
| FIRM CONTROLS | YES | YES | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR FE | YES | YES | YES | YES |
| MONTH FE | YES | NO | YES | NO |
| YEAR-MONTH FE | NO | YES | NO | YES |
| OBSERVATIONS | 162,413 | 162,410 | 162,413 | 162,410 |
| ADJ-R2 | 0.036 | 0.038 | 0.049 | 0.050 |

**Table A4 Robustness Test: Alternative PEER Event Measures**

This table reports the robustness tests by using alternative events. The dependent variable, *β(R_LOC_EW)*, is the estimated coefficient of local portfolio returns at the firm-month level, from Equation (1) using daily returns. *PEER REVISION* is the natural logarithm of one plus the number of events when other firms headquartered in the same MSA in the same Fama-French (1997)-48 industry in the same month experience one analysts' recommendation revision. *REVISION* is a dummy variable equal to one if the firm receives the analysts' recommendation revisions in the same month and zero otherwise.

**Panel A Full Sample**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | | β(R_LOC_EW) | | |
| **REVISION** | **-0.108*** ** | **-0.014*** | | **-0.018**** |
| | **(-11.21)** | **(-1.82)** | | **(-2.29)** |
| **PEER REVISION** | **0.076*** ** | | **0.087*** ** | **0.087*** ** |
| | **(5.50)** | | **(7.00)** | **(7.02)** |
| CONTROL | NO | YES | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| Observations | 162,410 | 162,410 | 162,410 | 162,410 |
| Adjusted R-squared | 0.019 | 0.037 | 0.039 | 0.040 |

**Panel B Sub-Sample Analysis**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | | β(R_LOC_EW) | | |
| **REVISION** | **-0.083*** ** | **-0.086*** ** | **-0.010** | **-0.015** |
| | **(-5.14)** | **(-6.30)** | **(-0.72)** | **(-1.39)** |
| **PEER REVISION** | **0.101*** ** | **0.017** | **0.112*** ** | **0.032*** |
| | **(5.96)** | **(0.74)** | **(6.88)** | **(1.77)** |
| CONTROL | NO | NO | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| OBSERVATIONS | 61,266 | 50,334 | 61,266 | 50,334 |
| ADJ-R2 | 0.019 | 0.028 | 0.029 | 0.056 |

**Table A5 Robustness Tests: Dropping Observations in January, February, and March**

This table reports the robustness tests by dropping observations in January, February, and March. Panel A reports the regressions of local return comovement on geographic dispersion, consistent with Table 4. Panel B reports the regressions for information spillover, consistent with Table 7.

**Panel A**

| | (1) | (2) | (3) |
|---|---|---|---|
| VARIABLES | | β(R_LOC_EW) | |
| **NSTATES** | **-0.003*****<br>**(-3.31)** | | |
| **LOG(1+NSTATES)** | | **-0.042*****<br>**(-3.00)** | |
| **LOCAL RANK** | | | **0.070*****<br>**(2.89)** |
| FIRM CONTROLS | YES | YES | YES |
| CONSTANT | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES |
| OBSERVATIONS | 122,364 | 122,364 | 122,364 |
| ADJ-R2 | 0.038 | 0.038 | 0.038 |

**Panel B**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | CONC | DISP | CONC | DISP |
| VARIABLES | | β(R_LOC_EW) | | |
| **EA** | **-0.087***<br>**(-1.89)** | **-0.069**<br>**(-1.62)** | **-0.070**<br>**(-1.50)** | **-0.076***<br>**(-1.82)** |
| **PEER EA** | **0.142*****<br>**(4.41)** | **-0.022**<br>**(-0.60)** | **0.156*****<br>**(4.98)** | **0.020**<br>**(0.60)** |
| FIRM CONTROLS | NO | NO | YES | YES |
| CONSTANT | YES | YES | YES | YES |
| INDUSTRY FE | YES | YES | YES | YES |
| YEAR-MONTH FE | YES | YES | YES | YES |
| OBSERVATIONS | 46,133 | 37,907 | 46,133 | 37,907 |
| ADJ-R2 | 0.026 | 0.055 | 0.028 | 0.056 |