

# **Geographic Proximity of Institutional Investors and Payout Policy**

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**WORKING PAPER**

This version: August 22<sup>nd</sup>, 2014

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\* We thanks Norli and his co-author for the US state count data that we use in this paper.

# Geographic Proximity of Institutional Investors and Payout Policy

## Abstract

This paper studies the role of the geographic proximity of institutional investors on corporate payout policy within the U.S. context. We find that local and non-local institutional investors have different preferences for payout policy. The evidence shows that dividend payout is important for non-local institutions, but not for local institutions. Furthermore, from the firm perspective, local institutional ownership is found to be used as an alternative quality and performance signal rather than the payment of costly dividends.

When using the number of states that a firm is doing business in to classify samples firm into truly-local or geographically-dispersed firm categories, we find that local institutions prefer the former while non-local institutions have a preference for the latter firm category. This finding is consistent with the notion that local institutions have more information advantage in firms that are located in the same state as their headquarters and are not geographically dispersed, and non-local institutions invest more in geographically dispersed firms in order to reduce the level of information asymmetry and maintain a better diversified investment portfolio.

After the information shock created by the passage of the 2000 Fair Disclosure Regulation, we find that non-local institutions reduce their preference for dispersed firms paying relatively higher dividends. Dispersed firms with higher non-local institutional holdings are also identified as paying lower dividends after this regulatory change to the information environment. In contrast, local institutions prefer dispersed firms to pay higher dividends. This suggests that firms paying relatively higher dividends and/or geographically dispersed firms are selected by non-local institutions to reduce information asymmetry; while local institutions have information advantage in relation to truly local firm investment and they choose dividends as a compensation for the higher cost of monitoring when invest in geographically dispersed firms.

*JEL classification:* G11, G14, G35 .....

*Keywords:* Dividend policy, institutional investors, geographic dispersion.....

## **1. Introduction**

An emerging strand of the literature shows the trend in favour of geographic proximity. From the investor side, Baik et al. (2010) examine informational advantages of local and non-local institutional investors and find that both the level and change in local institutional ownership can predict future stock returns. Chhaochharia et al. (2012) show that local institutional investors are effective monitors of corporate behaviour, and firms with higher local ownership have better internal governance and are more profitable. Although, there has not been research on the impact of local or non-local institutional investors on firm payout policy, Becker et al. (2011) identify the effect of dividend demand on corporate payout policy, exploiting demographic variation of retail investors and senior investors. Their study is consistent with the perception that investor base affects corporate policy choices. From the firm perspective, John et al. (2011) study the impact of geography on agency cost and firm dividend policies, and conclude that remotely located firms pay higher dividends. Loughran and Schultz (2005) explore the impact of geographic location on liquidity for rural and urban-based companies. Their paper finds that rural firms “trade much less, are covered by fewer analysts, and are owned by fewer institutions than urban firms”. Loughran and Schultz (2006) test the hypothesis that “information asymmetries will be higher for rural firms, with few nearby investors, than for urban firms, with many nearby investors”. Their research finds that, compared to similar urban firms, rural firms “wait longer to go public, are less likely to conduct seasoned equity offerings, and have more debt in their capital structure”. Garcia and Norli (2012), with another approach, use the state name counts from annual reports filed with the Securities and Exchange Commission as the proxy to classify truly local firms and geographically dispersed firms. Their study shows that stocks of truly local firms have higher returns compared to those of geographically dispersed firms, and support the view that “lower investor recognition for local firms results in higher stock returns to compensate investors for insufficient diversification. Gao et al. (2008), on the contrary, find that geographically dispersed firms experience value discount compared to geographically concentrated ones. These two studies, however, imply that geographic dispersion needs thoughtful consideration in determining corporate policies, and may have an important impact on institutional holdings.

Our study investigates the association between geographic proximity of institutional investors and corporate payout behaviour, taking into account the geographic dispersion of the firms. To the best of our knowledge, this research is the first to study the relation between institutions and firms' payout policies within the context of geographical proximity between the firms and their institutional investors. The impact of the firms' geographic dispersion on payout policy and institutional holdings, and on the relation between these two, reveals better understanding about firms' and institutional investors' behaviour.

In our research, informational advantages of institutional investors will be examined in two ways. Firstly, institutions may possess skills to choose a stock that meets their preferences. In particular, dividend clienteles of institutional investors may attract them toward payout policies of firms in different levels of geography dispersion, or firms with different geographic distance to their locations. Secondly, institutional investors have the necessary abilities to monitor firm's managerial decisions. From this aspect, institutions may have an impact on firm payout policy (associated with agency cost and catering theory). The impact (if any) is expected to vary, depending on the geographic proximity between institutions and the firms, where the local investors are expected to have better access to the firm's information. The firms themselves can also use institutional holdings as a signal of the firms' performance and prospects, instead of costly dividends. Therefore, this study will test for the existence of two way relations between institutional ownership and payout policy, using geographic proximity of institutional investors and the firm's geographical dispersion as measures of information asymmetry.

Why is this topic important? Local bias of investment is apparent and, also, there is a concentration of both firms and institutional investors in the central/urban areas. Literature has proven that institutions may choose the firms they invest in based on their payout policies, and they may also have some effects on the firms' payout policies if they elect to involve themselves in managerial decisions. Firms with higher institutional holdings, themselves, may reduce the use of costly dividends as a signal about the quality of the firm and its prospect (information content of investors). When geographic proximity between investors and the firms, as long as the location of the firms and the investors are taken into account, representing different levels of information asymmetry among investors, and between investors and the firms, we get to know better about information

content of institutional ownership and dividend payment. Due to the lack of data to identify the central/remote location of the firms, we instead use firms' geographical dispersion as an alternative measure of information asymmetry. We also examine the impact of the 2000 Fair Disclosure Regulation in our analysis, based on the expectation that the introduction of the Regulation generated an exogenous shock to the information environment, resulting in some changes in the relation between institutional holdings (especially with the different feature of local and non-local institutions) and firm payout policies, and the expectation that the effects are likely to differ for truly local firms and geographically dispersed firms. Therefore, our analyses and the outcomes will lead to important policy recommendations regarding dividend and geographic dispersion policies of the firms.

The findings of our research are as followed:

Firstly, dividend payout policy matters to non-local institutional holdings, but is irrelevant to local institutional ownership. Non-local institutions prefer to invest in firms which pay dividends and the firms that pay fewer dividends. Local institutions are indifferent to the decision of firms to pay or not pay dividends, and the level of dividend payment.

Secondly, the propensity of firms to pay dividend is negatively related to the magnitude of local institutional ownership, but positively related to non-local institutional holdings. This result confirms that a local institutional holding is employed by firms as an alternative signal about their future operations and prospects, instead of the payment of dividends. Firms, however, pay dividends to attract more non-local shareholders.

Thirdly, there is evidence that local institutional shareholders prefer local firms while non-local counterparts prefer dispersed firms, and local institutions require dispersed firms to pay more dividends. The above mentioned preference of non-local institutional investors is stronger for firms that are included in S&P indices. The 2000 Fair Disclosure Regulation results in institutions, in general, preferring more geographic dispersed firms, but not the firms which pay higher dividends. This confirms the information advantage of local institutions when they invest locally; and dividends are considered as a mean to reduce asymmetric information when institutions choose to invest out of their state of headquarter.

Our research notably contributes to the literature as it identifies the information content of dividend and institutional holdings and specially, in this case, of local

institutional ownership. The results of the analysis conducted are consistent with the notion that local investors hold or trade local stocks which they have more information advantage, while non-local investors prefer geographic dispersed firms which they are able to obtain more information about, or which facilitates a more diversified investment portfolio across geographic areas or industries. Institutional holdings therefore can be used as an alternative to dividend payment. Moreover, the research shows that the 2000 Fair Disclosure Regulation helped to reduce the information disadvantage of non-local investors, making it more favourable for institutions to invest in other firms that are not headquartered in their state of domicile.

## ***2. Literature Review***

Our research is based on three sets of literature. The first set examines the geographic proximity and information advantages of investors, and institutional investors in particular. The second set explores the impact of geography on firm dividend policy. The third one investigates the relation between institutional holdings and firm payout.

Firstly, prior literature demonstrates significant information advantages for investors who are located near firms relative to non-local investors, and geographic proximity can serve “as a good proxy for the measure of the extent of private information held by investors” (see Baik et al. (2010) for a brief overview of this literature). Coval and Moskowitz (1999) find that investors have a preference for investing close to home, and that this is true not only for international investment portfolios but also for portfolios of domestic stocks. Particularly, their research documents that investment managers exhibit a strong preference for locally headquartered firms, and especially small and highly-levered companies. They conclude that: “This suggests that asymmetric information between local and non-local investors may drive the preference for geographically proximate investments”. In a later paper, Coval and Moskowitz (2001) find that fund managers earn substantial abnormal returns in nearby investments. They also evidence that the extent to which a firm is held by nearby investors is positively related to its future expected return, suggesting that investors trade local securities at an informational advantage. Teo (2009) investigates the link between funds’ proximity to their primary investment markets and hedge fund risk-adjusted returns. Their study shows that funds that have a physical presence (head office or research office) in their main investment region outperform other funds on a risk-adjusted basis by, on average, 3.72% per year. The local information

advantage is prevalent in all major geographic regions, and is strongest for Emerging Market funds and funds holding illiquid securities. Malloy (2005) provides evidence that geographically proximate analysts are more accurate than other analysts, and the impact on price of local analysts' forecast is strongest among firms located in small cities or remote areas. The results suggest that geographically proximate analysts possess information advantage over other analysts, "and this advantage translates into better performance". Ivković and Weisbenner (2005) find that households (retail investors) exhibit a strong preference for local investments, and, on average, local holdings generate 3.2% higher returns relative to non-local holdings. The authors also discover that excess returns to investing locally are even larger among stocks that are not in the S&P 500 index (firms which may have the largest information asymmetries between local and non-local investors). Kang and Kim (2008) examine the importance of geographic proximity in corporate governance and target returns in block acquisitions. They find that block acquirers have a strong preference for geographically proximate targets, and acquirers that purchase shares in such targets are more likely to engage in post-acquisition governance activities than are remote block acquirers. In addition, the targets of these acquirers realise higher returns and better post-acquisition operating performance than do targets of other types of acquirers, "particularly when they face greater information asymmetries". Of our interest, there has not been any research on the relation between institutional holdings and geographic dispersion of the firms. According to Garcia and Norli (2012), lower investor recognition for local firms results in higher stock returns to compensate investors for insufficient diversification. Dispersed firms, therefore, may provide investors with better diversification on their investment portfolio. Our analysis provides evidence about this relation.

Secondly, firms' location does have an effect on their payout policy. John et al. (2011) argue that remote firm location increases the cost for shareholders in monitoring and overseeing management. They find that remotely-located firms pay higher dividends, and the effect of remote location on dividends is strongest for firms with limited growth opportunities and higher free cash flows. According to Loughran and Schultz (2005), rural stocks are less liquid than urban stocks, and are followed by fewer analysts and held by fewer institutions. The authors' hypotheses are based on the superior access to information of local firms that create the investors' bias toward local firms. The superior access can be

in the form of communication with employees and customers, media coverage of local companies to many investors in urban areas, and the concentration of brokers, institutional investors, and investment bankers in urban areas. All of these lead us to understand that, firms in urban areas, and firms that are located near investors, will have less information asymmetry and attract more investors; in contrast, firms that are located far away from their investor base or in rural areas need to pay higher dividends to provide signals about firms' prospects and reduce information asymmetry (also agency cost). Loughran and Schultz (2006) use firm location as a proxy for information asymmetry. Their study finds that "rural firms have to wait longer to go public, are less likely to conduct seasoned equity offerings, and have more debt in their capital structure than otherwise similar urban firms". This result is consistent with the hypothesis that information asymmetry between rural firms and investors is high. Garcia and Norli (2012) use a different approach toward firm location. In their research, geographic dispersion of firms plays a role in determining stock returns. They find that "stock of truly local firms have returns that exceed the return on stocks of geographically dispersed firms by 70 basis points per month". They claim that the findings "are consistent with the view that lower investor recognition for local firms results in higher stock returns to compensate investors for insufficient diversification". Gao et al. (2008) find that "the valuation difference between non-geographically dispersed firms with strong and weak corporate governance is much smaller than that between their geographically dispersed counterparts". This means that the impact of weak corporate governance on firm valuation is stronger in geographically dispersed firms "because distance and corporate structural complexity mitigate the effectiveness of external and internal monitoring mechanisms". The advantage of diversified investment in dispersed firms versus the disadvantage of inefficient monitoring promise a complex investment mechanism of institutional investors in geographically dispersed firms.

Thirdly, payout policy does affect institutional holdings. Though Brav et al. (2005) report that "executives make no effort to use payout policy as a tool to alter the proportion of institutional investors among their investors", firms need to take into account institutions' demand when forming their payout policy, especially when firms believe that institutional investors can help to increase firm value. At the extreme, firms may be forced to follow some patterns of payout that best suit the desire of those large strategic shareholders. On the other hand, institutional investors may choose the firms that have



payout policies that are suitable to their requirements and characteristics. This two-way relation have been examined thoroughly by Grinstein and Michaely (2005) with the preference of institutions identified as being towards the firms that elect to pay dividends and undertake share repurchases. The study also demonstrates that, of firms electing to pay dividends, institutions prefer firms that pay fewer dividends. However, their study fails to prove that higher institutional holdings cause firms to increase/alter their dividends, repurchases, or total payout. Short et al. (2002), in contrast, find a positive relation between institutional holdings and dividend payout ratio. Although their research is based on UK data, which has a different institutional and taxation-based context to the US market, they do provide some explanations about the relation that is relevant to the information content of dividends and institutional investors. In particular, they suggest that “dividends may be used as a mechanism to reduce agency problems existing between shareholders and managers”; and “dividend payment may be used to signal future prospects of the firms”, given the presence of information asymmetries existing between shareholders and managers. Zeckhauser and Pound (1990) propose signalling theory where firms can use institutional holdings as an alternative signal of firms’ future prospects instead of costly dividends when they are young or in their growth phase. This results from the argument that institutional investors have better access to, or are better at interpreting, information about firms’ performance and prospects. However, Gompers and Metrick (2001) find that only aggregate institutional ownership is a predictor for future returns, while the change in aggregate institutional ownership is not. This evidence is interpreted in term of the return forecasting power of institutional investors coming from a demand shock rather than their informed trading. In contrast, Baik et al. (2010) find that both the level of, and the change in, local institutional ownership predict future stock returns, particularly for firms with high information asymmetry.

Given that geographical proximity and geographic dispersion are representation of different levels of information asymmetry, associated with firms to investors (institutional investors in our research), we expect our research to provide a better understanding about the relation between institutions and firms’ dividend payout policy.

### **3. Hypothesis Development**

#### *3.1. Effects of dividends on institutional ownership*

According to Grinstein and Michaely (2005), institutional investors prefer the firms who pay, and among them, prefer the ones which pay fewer dividends. Since it is harder for non-local investors to obtain access to the firms' information regarding their performance and prospects, non-local investors may require the firms to pay dividends, and to pay higher dividends in order to reduce agency problems, and also to cover their higher costs of overseeing and monitoring. The following hypothesis can, therefore, be proposed:

*H1: The preferences for dividends paying stocks should be stronger for non-local institutional investors than local institutional investors.*

This means we expect that (i) the signs of the coefficient between dividend payout ratio and local holdings and non-local holdings are both negative (or maybe positive in the case of non-local holdings), but the absolute value will be smaller for non-local institutions than local institutions, and (ii) the signs of the coefficient between dividend pay/not pay dummy and local holdings and non-local holdings are both positive (or at least positive in the case of non-local institutions), but the coefficient value will be greater for non-local institutions than local institutions.

The study by Garcia and Norli (2012) agrees with the view that "lower investor recognition for local firms results in higher stock returns to compensate investors for insufficient diversification". From the information perspective, we believe that local investors have a greater information advantage in truly local firms, while non-local investors may have better information about the firms when they are more geographically diverse. From managing perspective, it would be harder for local investors if they want to oversee and manage the firms when they become more geographically disperse, they may require higher dividends to compensate for higher overseeing cost. On the other hand, non-local institutions, more geographically dispersed firms may imply better overseeing mechanism due to better information available; therefore, institutions may prefer more geographically dispersed firms to pay fewer dividends. The following relation is expected:

*H2A: Local institutional investors prefer truly local firms while non-local investors prefer geographically dispersed firms.*

*H2B: Local institutional investors prefer geographically dispersed firms to pay more dividends. Non-local institutional investors prefer geographically dispersed firms to pay fewer dividends.*

### *3.2. Effects of institutional ownership on dividends*

Zeckhauser and Pound (1990) propose signalling theory where firms can use institutional holdings as an alternative signal of firm future prospects instead of costly dividends. This suggests that dividends will be negatively correlated with institutional holdings. This is true in the case of local-institutional holdings, with the belief that local investors have better access to firms' information. Non-local investors may still ask for dividend payment in order to reduce information asymmetry between them and the firms. On the other hand, although Grinstein and Michaely (2005) fail to find any impact of institutional ownership on payout, when taking into account the geographic dispersion of the firms, we believe that since institutions, in general, prefer the firms which pay less dividends, they may be able to force the firms to lower their dividend payment if they hold a large stake in the firms or if they are involved in management. Different dispersion levels are representation of different levels of information advantage or disadvantage, and therefore, we potentially expect firm geographic dispersion to be associated with dividend payouts. For non-local investors, they may wish the firms to pay higher level of dividends (compared to local investors) to compensate for their information disadvantage. The following hypothesis results:

*H3A: The propensity of the firm to pay dividend is negatively related to local-institutional ownership but positively related to non-local institutional ownership.*

*H3B: The dividend payout ratio is lower in firms with higher local institutional ownership than firms with higher non-local institutional ownership.*

We expect the sign of the coefficient between local institutional holdings and dividends to be negative; and the sign of the coefficient between non-local institutional holdings and dividends to be less negative or probably positive.

John et al. (2011) find that remotely located firms set significantly higher dividends; they also have a higher share of dividends in overall payout. As we can easily see, remotely located firms make it more difficult for investors to access information about firms' performance and prospects. Moreover, firm remoteness also involves more cost for

investors who wish to monitor or oversee the firms' operation. In term of access to information, more geographically dispersed firms also make it more difficult for local investors in monitoring while the impact to non-local investors is harder to predict as it depends on the location, and ability to get information, of those investors, which we do not have sufficient data to work out.

The following hypothesis forms:

*H4: Dividends will be higher in geographically dispersed firms with higher local institutional holdings.*

This means, we expect that the sign of the coefficient between the interaction of local institutional holdings and geographical dispersion on dividend payout is positive.

### *3.3. Effects of Regulation Fair Disclosure (Reg FD) and Sarbanes-Oxley Act (SOX) on institutional holdings and dividend payout relation*

Bernile et al. (2012) find that, following regulatory changes (Regulation Fair Disclosure and the Sarbanes-Oxley Act), "the local bias and local informational advantage of institutional investors around corporate headquarters declines sharply as their selective access to private information is curtailed".

We expect that the Regulation Fair Disclosure (Reg FD) 2000, which was designed to curb selective disclosure of information to market participants and mandated the disclosure of all material information to all investors at the same time, can be used as an exogenous shock to the information advantages of local institutional investors. We expect that local institutional holdings will decrease while non-local institutional ownership will comparatively increase after the 2000 Fair Disclosure Regulation. Moreover, the decrease of local institutional holdings will be lower in firms of higher geographical dispersion levels, and the increase of non-local institutional holdings will be higher in the case of firms with higher geographical dispersion.

– Impact of dividends on institutional holdings.

As we expect that investors (at least non-local institutional investors) will require lower dividends after the 2000 Regulation due to the reduced information asymmetry, we hypothesize that:

*H5: Both local and non-local investors will have weaker desire for dividend payment, and weaker desire for higher dividends in geographically dispersed firms after 2000*

*regulation, and the effect should be stronger for non-local holdings (the one which benefit the most from the Regulation) than for local holdings.*

– Impact of institutional holdings on dividends.

The 2000 Regulation imposes more disclosure responsibility on the firms, at least to their non-local investors, and information asymmetry between firms and non-local investors should reduce as a result. We expect that firms will pay fewer dividends (than previously) as dividends may have been used as a tool to reduce information asymmetry or agency cost between the firms and their shareholders, or investors may influence the firms to pay lower dividend as they have better information access to firms' prospects.

*H6A: The coefficient between dividend payout ratio and institutional holdings will be more negative after the 2000 Fair Disclosure Regulation.*

In term of geography, if firms are more geographical dispersed, they are expected to pay higher dividend to compensate local investors with the cost of overseeing and monitoring due to the lack of, or more difficult access to, information about their operations. However, after the introduction of the 2000 Regulation, non-local investors may expect lower dividends (compared to before 2000) as information become equally available regardless firms' geographic dispersion. This depends somewhat on investors' motivation. If they demand dividends for income reasons rather than to resolve agency problems, then it is less obvious that there should be a difference response from investors between truly local or dispersed firms.

*H6B: The coefficient between the interaction of dividend payout ratio and geographic dispersion, and the non-local institutional holdings will be more negative after the 2000 Fair Disclosure Regulation.*

#### **4. Data and Methodology**

In our research, geographic proximity is used as a measure of information asymmetry between informed and uninformed investors. By that, following both Coval and Moskowitz (2001) and Baik et al. (2010), we use the fraction of a stock's shares held by local institutional investors as a measure of the information asymmetry. There are two ways we can define "local" institutional investors in the literature, either using a state identifier, or using physical distance. Due to the lack of information on the detailed location of investors and the firms, we use only the state identifier approach in our analyses. Follow Baik et al. (2010), local institutional investors are investors who are located within the

same state as the firm's headquarters. By this classification, local institutional investors are the ones who locate in the same state as the firm of their investment; and non-local institutional investors are the ones who are located in a different state to that of the firm they invest in (we use firm's headquarters and investor's headquarters as proxy for location).<sup>2</sup>

Moreover, the geographic dispersion of the firm will also be taken into account with regards to monitoring and overseeing costs. Prior literature has documented that information advantages of local institutional investors over non-local investors are expected to be greater in rural areas compared to urban or big cities. The information advantage of local or non-local investors across firms with different geographic dispersion, however, is harder to predict and examine due to different firms' structure (industrially and/or geographically diverse) and the different determinants used by investors when they construct their portfolios. We attempt to identify a mechanism underlying this relation.<sup>3</sup>

We also test the impact of the 2000 Fair Disclosure Regulation in our analysis where we believe that the introduction of the Regulation altered the information advantage of local investors, and might result in some changes in the relation between institutional holdings and firm payout policies. As both dividends and the existence of institutional holdings may be seen as effective ways to reduce information asymmetry, the changes in dividend payout policy and institutional holdings are expected to be different for geographically concentrated or geographically dispersed firms.

#### *4.1. Sample selection*

The initial sample includes all firm years with data for institutional holdings and locations of institutional investor headquarters for the period from 1997-2010. We obtain the data from Thomson Reuters (which gather the information from institutional 13F

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<sup>2</sup> Baik, B., Kang, J. K. and Kim, J. M. (2010) 'Local institutional investors, information asymmetries, and equity returns', *Journal of Financial Economics*, 97(1), 81-106. use only the state identifiers, not the distance between the firm and the investor as the measure of geographic proximity since the change in local ownership using physical distance is small and economically insignificant in their sample (they use quarterly data). "State also represents the boundary of economic interactions and is an appropriate geographically unit for measuring the informational advantage of local investors".

<sup>3</sup> An alternative proxy for geographic dispersion is the Herfindahl index (equal as the sum of all square value of the weighted count for each states that are mentioned in a firm's annual report). We present the outcome of our analysis using this proxy in our Robustness Analysis.

filings).<sup>4</sup> Institutions who exercise investment discretion over \$100 million or more of funds must report to the Securities and Exchange Commission (SEC) information regarding holdings of more than 10,000 shares or investments valued in excess of \$200,000. Following Yan and Zhang (2009) and Baik et al. (2010), we exclude those observations with total institutional ownership greater than 100%. We choose 1997 to start our analysis since our data on the location of institutional investors only reliably available from this year.<sup>5</sup>

Data on locations of firm headquarters, firms' dividend payment and other firm characteristics are collected from the Compustat and CRSP database.<sup>6</sup> Where appropriately applicable, the data will be winsorized at the 1% and 99% values.

Similar to Baik et al. (2010), our sample excludes cases in which either firms or institutional investors are from foreign countries, and also excludes financial firms (SIC 6000-6999) and utilities (SIC 4900-4999). Consistent with DeAngelo et al. (2006), firms with missing data on total assets, dividends and earning items in a given year are removed from the sample.<sup>7</sup>

Our data then be merged with the data on firms' geographic dispersion that is provided by Garcia and Norli (2012). A brief explanation on the data will be provided in Appendix 2. Since this data is only available for the period 1994-2008, and we use one year forward value for institutional holdings and dividends in our analyses, we end up our sample with **26,387** firm-year observations for the period from **1997 to 2007**.<sup>8</sup>

#### 4.2. Variable definition

In our research, *Local\_IOR* is the proportion of outstanding shares held by local institutional investors while *Nonlocal\_IOR* is the proportion of outstanding shares held by non-local institutional investors. *Totalholding* is the proportion of outstanding shares held by all reporting institutional investors, equals the sum of *Local\_IOR* and *Nonlocal\_IOR*.

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<sup>4</sup> Kang and Kim (2008) use the SDC database to obtain the location of acquirers and target firms (COMPUSTAT).

<sup>5</sup> Grinstein, Y. and Michaely, R. (2005) 'Institutional holdings and payout policy', *The Journal of Finance*, 60(3), 1389-1426. find that payout policy affects institutional holdings in US market. Their data cover 1986-1997.

<sup>6</sup> Baik et al. (2010) use Compact Disclosure database to search for location of firm headquarters.

<sup>7</sup> We do also our robustness test analysis for only firms with total assets above \$20 million, as some of the studies in the literature have done.

<sup>8</sup> In the literature, to avoid distance outliers, cases in which either firm or institutional investors are located in Alaska, Hawaii, Puerto Rico, or the Virgin Islands are omitted. However, as we use state count as our proxy for geographic dispersion, we still keep observations in Alaska and Hawaii in our analysis.

Dividend payout ratio (*Dividend*) is defined as the annual dividends (annual dividends paid on common stocks), divided by total assets.

Pay or not pay dividend (*dv\_pay*) is a dummy variable, takes the value of one (1) if the company paid dividends in that particular year, and zero (0) otherwise.

*Count* is the proxy for geographic dispersion of the firms, equals to the number of states that are mentioned in a firm's annual report.

Apart from the main variables of interest that we mention above, the following variables are used as determinants of either institutional holdings and/or payout (dividend payout ratio and decision to pay or not to pay dividends) as suggested by the related literature:

Firm *Size* measured as the asset value (NYA) percentiles for firms listed on NYSE following DeAngelo et al. (2006); other proxies for Size are used for robustness analyses, including the logarithm of the book value of the total asset [Log(TA)], the logarithm of sales<sup>9</sup> [Log(Sales)], and the equity value (NYE) percentiles for firms listed on NYSE.

*Profitability* using the return on assets ratio (ROA) measured by the ratio of earnings before interest and taxes to total assets.<sup>10</sup>

*Leverage* measured as the total equities to the total assets ratio (TE/TA) following DeAngelo et al. (2006). The logarithm of the ratio of the book value of long term debt to total assets<sup>11</sup> is used as the other proxy for Leverage as used in Grinstein and Michaely (2005) for our robustness test.

*Growth* measured as the logarithm of the market to book ratio, which is calculated as the ratio of the market value of equity plus the book value of total assets minus the book value of equity to the book value of total assets [Log(M/B)]. DeAngelo et al. (2006) also suggest other proxies for growth as measured by the sales growth rate (SGR), and asset growth rate (AGR), which do not change our analysis outcomes.

*Cash* balance measured as the ratio of cash and marketable securities to total assets.

*SP* is the dummy variable for S&P index inclusion, takes the value of 1 if the firm's stock is included in S&P index constituents, and 0 otherwise.

*beta* coefficient taken from CRSP, control for firm's risk;

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<sup>9</sup> Since literature has proven the relation between institutional holdings and firm size, apart from the common proxies for firm size: logarithm value of market capitalization, logarithm value of book value of total assets, Grinstein and Michaely (2005) use log sales to control for size.

<sup>10</sup> We also run the analysis with profitability as measured by the ratio of earnings before interests and taxes to total number of share outstanding (EPS) for robustness test. The interpretation remains unchanged.

<sup>11</sup> We also use TE/TA as another proxy for leverage (follow DeAngelo (2006)) in some of our estimations.



*adjustedreturn* is the firm's annual adjusted return measured as the difference between the return on the stock and the beta return on the stock in a given year<sup>12</sup>; and industry as 1 digit SIC codes.

*Lifecycle* is measured by the ratio of earned equity relative to common equity (RE/TE), other proxy for Lifecycle is RE/TA.

*Age* represents firm Age, based on the duration from the year that firm price data became available in CRSP to the year of a particular observation.

Our study also uses the dummy variables for geographic dispersion quintiles and interaction variables between IOR and Dividend with Count or its dispersion quintile values. Every year in the sample, firms are grouped into five different quintiles of Count ( $D_i$ ). The interaction variables include IOR\*Count, Dividend\*Count, Repurchase\*Lifecycle, IOR\* $D_i$ , Dividend\*  $D_i$ ,  $dv\_pay$ \*  $D_i$ . The summary of variable definitions is provided in the Appendix 1.

#### 4.3. Summary statistics and sample description

Table 1 presents the descriptive statistics summary for variables used in this research. Table 1 Panel A reports the distributions of variables while Table 1 Panel B documents the mean values of the variables based on geographic dispersion quintiles. In each year, we sort the firms according to their geographic dispersion value (Count) and group them into dispersion quintiles. As we can see from the Table 1 Panel B, *Nonlocal\_IOR*, *Total\_IOR*, *NYA (Size)*, *Profitability*, *Lifecycle* increase with the value of dispersion quintiles. *Dividend* and *dv\_pay* experience the same pattern, but only from dispersion quintile 2. This may imply that firms in dispersion quintile 1 (lowest dispersion level), in fact, have slightly higher propensity to pay dividends and higher dividend payout ratio, compared to firms in dispersion quintile 2 (more geographically dispersed firms), on average. Interestingly, *Local\_IOR* seems not depend on geographic dispersion level.

[Table 1 about here]

*Growth*, *Cash* and *Leverage* show a small decreasing trend over dispersion levels.

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<sup>12</sup> Following Grinstein and Michaely (2005), our annual adjusted return is calculated as the company's stock return, adjusted by the return given by the CAPM using company beta (from CRSP), 10 year treasury bond yield, and the realised return on the S&P 500 index in that year.

We further examine the effect of firms' geographic dispersion on institutional holdings and dividend policy by a non-parametric test in Table 2.

[Table 2 about here]

In Panel A of Table 2, we separate the firms into dividend paying firms (*Paying firms*) and non-dividend paying firms (*Non-paying firms*) and also in five different dispersion quintiles (*Count\_quintiles*). The data show that local institutional investors do not have a specific preference for dividend payments but non-local institutions prefer dividend paying firms over non-dividend paying firms, with local institutional holdings are always higher in paying firms compared to non-paying firms (the result holds for all dispersion quintiles, and is significant at 1% level). Moreover, non-local institutions own higher percentage of share-outstanding in firms with higher geographic dispersion.

In Table 2, Panel B, we carry out the test of difference in institutional holdings and dividend payout ratio between the two groups: truly local firms or geographically concentrated firms (firms belong to the first geographic dispersion quintile) and the geographically dispersed firms (firms belong to the highest geographic dispersion quintile). The results show that, *Dividend* (dividend payout ratio) and *Nonlocal\_IOR* (non-local institutional holdings) are significantly higher in geographically dispersed firms, compared to the other group. *Local\_IOR* (local institutional holdings) seems to be higher in truly local firms, however the t-test and the rank-sum test do not provide consistent outcome for this conclusion.

#### 4.4. Methodology

Since our study will test the two-way relation between institutional holdings and firm dividend payout ((i) institutional investors affect payout, and (ii) payouts affect institutional holdings), we employ the following methodologies.

– Panel data (fixed effect) regressions with standard errors clustered by firms, Cross-sectional (OLS with standard error clustered by firm and year), and the Fama-McBeth method to test separately the impact of dividend payout on local and non-local institutional holdings, and the impact of local/non-local institutional holdings on payout. Where the dummy variable of pay/not pay dividend is dependent variable, we use the random effect logit model estimation. The results of panel data fixed effect models are presented in the main analyses as they are the most conservative representations for the

outcomes. The results of the other models are also presented after that, but in a shorter form, for robustness purpose. The impact of geographic dispersion will be tested by the Count variable (number of states that are mentioned in the firms' annual report), or by the five different dummy variables, representing the dispersion quintile that a firm belong to in a particular year.<sup>13</sup> The impact of the interaction between geographic dispersion variables and the variables of main interest (payout and institutional holdings) will also be examined.

– Our estimations are based on the following linear regressions:

$$IOR_{i,t+1} = \alpha + \beta_1.Dividend_{i,t} + \beta_2.dv\_pay_{i,t} + \beta_3.Count_{i,t} + \beta_4.\sum dv\_pay_{i,t} \times Count_{i,t} + \beta_5.\sum Dividend_{i,t} \times Count_{i,t} + \delta_{it} [Control\ Variables_t] + \varepsilon_{it} \quad (1)$$

$$Dv\_pay_{i,t+1} = \alpha + \beta_1.IOR_t + \beta_2.Count_{i,t+1} + \beta_3.\sum IOR_{i,t} \times Count_{i,t+1} + \delta_{it} [Control\ Variables_{t+1}] + \varepsilon_{it+1} \quad (2)$$

$$Dividend_{i,t+1} = \alpha + \beta_1.IOR_t + \beta_2.Count_{i,t+1} + \beta_3.\sum IOR_{i,t} \times Count_{i,t+1} + \delta_{it} [Control\ Variables_{t+1}] + \varepsilon_{it+1} \quad (3)$$

When the Dividend Payout Ratio is the dependent variable of interest, we introduce also the panel Tobit model (left censored at the value of zero) to take into account the bias in the sample where many of the firms do not pay dividends.

– Simultaneous equation model system (overcome endogeneity problem and determine the causation between institutional holdings and dividend payout ratio) to test simultaneously the effect of institutional holdings on payout and the impact of payout on institutional ownership, controlling for other firm characteristics, taking into account local and non-local features of institutions, and geographic dispersion of the firms (in this case, the lag value of payout and institutional holdings will be used as IV for the equations following Grinstein and Michaely (2005)).

$$IOR_{i,t+1} = a_{0t+1} + a_{1t+1} IOR_{i,t} + b_{1,t+1} Dividend_{i,t} + \psi_{t+1} f_i + u_{it+1} \text{ and}$$

$$Dividend_{i,t+1} = c_{0t+1} + c_{1t+1} IOR_{i,t} + d_{1,t+1} Dividend_{i,t} + e_{t+1} g_i + v_{it+1}$$

The factors  $f_i$  and  $g_i$  are latent firm-fixed effects, and  $\psi_t$  and  $e_t$  are latent time coefficients

As we mentioned previously, Regulation Fair Disclosure (Reg FD) 2000 will be used as a natural experiment representing an exogenous change in the information advantages

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<sup>13</sup> Robustness tests are carried out for all of our analyses using the Herfindahl Index, instead of the state count variable.

of local institutional investors (not non-local). A dummy variable for this change will be included in our analyses.

## **5. Empirical analysis and results**

### *5.1. Determinants of institutional holdings*

The purpose of this sub-section is to test whether dividend payout policy and the firms' geographic dispersion affect institutional holdings as a whole, or local institutional holdings and non-local institutional holdings in particular.

We start with a nonparametric description and analysis on the whole 26,387 firm-year observations. In Table 1, Panel B that we mentioned earlier, for every year, we separate the sample into geographic dispersion quintiles, which show the level of firms' geographic dispersion. On average, the firms in the first dispersion quintile in our sample do business in less than 3 states, and are termed "the truly local firms". The firms in the fifth dispersion quintile do business in 22 states, and are referred to as "geographically dispersed firms". One remarkable fact is that 80% of the firms do business in less than 10 states, which is much lower than the number of states that an average "geographically dispersed firms" operate in.

The data in Panel A Table 2 shows that, in general, local holdings do not differ in dividend paying firms or non-dividend paying firms. However, non-local investors prefer the firms which pay dividends and prefer the firms with more geographical dispersion. The trend of higher institutional ownership in more dispersed firms holds for only non-local institutional holdings. Probably this fact relates to firm size, as geographically dispersed firms are normally bigger in size, and may attract more institutional investors due to their scale of investments. However, local institutional holdings are highest at geographic dispersion quintile 3, not at the other quintiles, implying their preference for truly local or less geographically dispersed firms.

Panel B in Table 2 introduces the test of difference across the 2 groups (1) Truly local firms (dispersion quintile 1) and (2) Geographically Dispersed Firms (dispersion quintile 5) for the 3 main dependent variables of our interest. The results show that, in general, truly local firms have lower dividend payout ratio compared to geographically dispersed firms. The levels of local institutional holdings are not different across these 2

groups, while non-local institutional holdings are significantly higher in geographically dispersed firms.

To further discover the impact of dividend payout and geographic dispersion on institutional holdings, taking into account other firms' characteristics, we estimate the regression models where the dependent variable is Institutional Holdings (IOR) at time  $t+1$ . Institutional Holdings include Local institutional holdings (*Local\_IOR*), Non-local institutional holdings (*Nonlocal\_IOR*), and Total institutional holdings (*Totalholding*). The independent variables are the dividend payout ratio (*Dividend*), dummy variable for pay or not pay a dividend (*dv\_pay*), Count (either in the form of a continuous variable, ie. the number of states that are mentioned in a firm's annual report in a given year; or the five different dummy variables, representing the five different dispersion quintiles). Control variables include the firms' Size (*NYA*), *beta*, Growth ( $\log(M/B)$ ), *adjustedreturn*, EBIT/Total assets (*Profitability*), firm *Age*, RE/TE (*Lifecycle*) at the end of year  $t$ , and the firm *Industry* (similar to variables used by Grinstein and Michaely (2005) with the addition of *Lifecycle* and *Age* that we expect to have an important impact on our dependent variables) – Detail definition of all the variables can be found in Appendix 1.

[Table 3 about here]

Table 3 presents the results of the firm fixed effect regression analysis (Column 1-4), the OLS with standard error clustered by firm and year (Column 5-6), and the Fama McBeth models (Column 7-8) with Local holdings, Non-local holdings and Total holdings as the dependents respectively in Panel A, Panel B, and Panel C.

The baseline regressions in Column 1 of all Panels show that institutional investors do not prefer the firms which pay higher dividends. Parallel with the data in Table 2 Panel A, *Local\_IOR* is negatively associated with the decision of the firms to pay or not pay dividends (*dv\_pay*), while *Nonlocal\_IOR*, on the other hand, is positively related with this decision.<sup>14</sup>

The impacts on *Totalholding* of all independent variables are similar to the results for the *Nonlocal\_IOR* variable, as non-local institutional holdings account for the large proportion of the total institutional holdings.

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<sup>14</sup> Although the coefficients are not significant in the fixed effect models.

The results indicate that, non-local institutions prefer the firms which pay dividends to reduce agency costs while local investors, with their information advantage, do not exhibit a similar preference, support our Hypothesis 1 (H1).

Columns 2-4 show the impact of the firms' geographic dispersion on institutional holdings, with the number of counted states (*Count*) used as the proxy for geographic dispersion in Column 2 and the *Count* quintiles (or the geographic dispersion quintiles) are used in Column 3-4. In these regressions, *Count* does not have a substantial individual impact on local institutional holdings (insignificant in the fixed effect model, and slightly negative and significant in the OLS and FMB regression), but positively affect non-local institutional holdings. Moreover, the coefficients on the interaction term *Dividend\*Count* in Columns 2, 5 and 7 (insignificant in Panel A for local institutional holdings, and negative in Panel B for non-local institutional holdings) indicate that higher dividends are associated with lower non-local institutional ownership if the firms become more geographically dispersed. These results are consistent with the belief that geographic dispersion implies more risk or more cost to local institutions but less cost or less information asymmetry to non-local counterparts.

In Columns 4, 6 and 8, instead of the *Count* variable, we use five different dummy variables representing geographical dispersion quintile levels. In general, non-local institutional holdings are higher at dispersion quintiles 3, 4 and 5, while no trend can be seen for local institutional holdings. The interaction terms *Dividend\*D<sub>i</sub>* is negative and significant (at least at 10% level) for non-local institutional holdings at dispersion quintile 5. These results show that non-local investors prefer increasingly geographically dispersed firms but not geographically dispersed firms which pay higher dividends (Support our Hypothesis 2). We can explain these findings based on the greater geographic dispersion of the firms, the better non-local investors can get to know about and invest in the firms. However, institutional investors do not like firms to pay high dividends if they have enough access to the firms' information; probably they prefer the firms to use their earnings for further growth investment. For local investors, the relation is not consistently significant using different models.

Important determinants of institutional holdings, which significantly and positively affect institutional ownership, are firm *Growth* and *Profitability*. Interestingly, *Size (NYA)*, *Leverage (TE/TA)*, *beta* and *adjustedreturn*, *Lifecycle* and *SP500* are important drivers for

non-local institutional holdings, but not for local institutional holdings. This reveals that these factors are important to non-local investors, but not to local shareholders. The positive impact of SP on non-local ownership show that with non-local investors, the firms that are included in the S&P indices are more attractive as they have less information asymmetry than the other firms.

In summary, non-local institutions have a preference for dividend-paying firms while local institutions do not. However, both types of holdings prefer firms which pay fewer dividends. Non-local institutions also prefer more dispersed firms, but not those exhibiting higher dividend payments, and other firms' characteristics which can reduce their information disadvantage.

## 5.2. Determinants of decision to pay Dividend

In this part, we examine the determinants of propensity of the firms to pay dividends.

As can be seen from Figure 1, number of non-dividend paying firms is always higher than that of dividend paying firms in each geographic dispersion quintile. However, at dispersion quintile 4 and 5, the proportion of dividend-paying firms increase, compared to the other 3 dispersion level, implying that geographically dispersed firms seem to have higher propensity to pay dividends.

[Figure 1 about here]

We report in Table 4 the random effect panel logit model (Column 1-5) and the Fama-McBeth regressions (Column 6-10) in this sub-section to identify the determinants of the decision of the firms to pay a dividend. In our analyses, the dummy variable indicating payment or non-payment of dividends (*dv\_pay*) is used as the dependent variable; with Size (*NYA*), Growth (*Log(M/B)*), Leverage (*TE/TA*), Cash, Profitability, Age, SP and Lifecycle (*RE/TE*) included as explanatory variables. Institutional ownership (*Local\_IOR*, *Nonlocal\_IOR* and *Totalholding*) and *Count* are the main independent variables of interest.

The results from Table 4 Panel A indicate that, local institutional holdings have a negative impact on *dv\_pay*, meaning that the propensity of the firms to pay dividends is lower when they have higher local institutional ownership, consistent with our Hypothesis 3 (H3A). This is consistent with the notion that firms may use local institutional holdings as an alternative signal about the firms' performance and prospects, instead of signalling

through dividend payment). We do not think local institutions influence firms not to pay dividends as it is inconsistent with the results in the previous part where local investors do not have an investment preference for dividend paying or not paying firms.

Consistent with previous studies, Size (*NYA*), Growth (*Log(M/B)*), Leverage (*TE/TA*), *Lifecycle* and *Age* are positively associated with the propensity to pay dividends.

We test the impact of *Count* on *dv\_pay* in the same regressions as above but present separately the outcome in Panel B of Table 4 (Columns 2-3 and 7-8), and the relationship between dispersion dummies and the *dv\_pay* variable in Columns 4-5 and Column 9-10. In both approaches, *Count* is positively related to *dv\_pay*, implying that propensity of firms to pay dividends are higher in geographically dispersed firms. The positive interaction of *Local\_IOR\*Count* variable and the insignificant interaction of *Nonlocal\_IOR\*Count* variable show that local institutional investors may require firms to pay dividends if firms become more geographically dispersed. This can be understood as, in general, more dispersed firms have a higher probability to pay dividends, and dispersed firms with higher institutional ownership are more likely to pay dividends as a means of reducing information asymmetry.

In Column 4-5 and 9-10, due to the conflicting signs of the coefficients for the five dispersion dummies and their interaction with Institutional Holdings variables in our models, we cannot draw any explicit conclusion about the impact of different levels of dispersion on the firms' decision to pay dividends. However, we can see a pretty consistent pattern appears to be shown by the dispersion dummies: negative coefficients for lower quintiles and positive coefficients for the higher quintiles. These results are consistent with the probability of dividend payment increasing as firms become increasingly geographically dispersed.

In summary, the results suggest that local institutional holdings can be used as an alternative signal by the firms about their performance and prospects, instead of the costly dividends. Non-local holdings, in contrast, increase the propensity of firms to pay dividends. We need to work out firms pay dividends to attract non-local institutional investors or non-local institutions exercise their monitoring role to force the firms to pay dividends in the later part using simultaneous equation.



### 5.3. Determinants of Dividend Payout Ratio

In this part, we examine the impact of institutional holdings and geographic dispersion on dividend payout ratio.

Referring back to the non-parametric descriptive analysis in Table 1 Panel B, the dividend payout ratio is highest at the dispersion quintile 5, but we do not see a consistent trend in dividend payout ratios across the different levels of geographic dispersion (Similar to the illustration in Figure 2 below). Besides that, non-local institutional holdings and total institutional holdings illustrate an increasing pattern along the dispersion levels, but this is not the case for local institutional ownership.

[Figure 2 about here]

We carry out regressions based on the firm fixed effect model with standard error clustered by firm, the OLS two-way clustered standard error model, the Fama-McBeth model, the OLS Tobit model and the panel Tobit model (both left censored at the left value equal to 0 as many firms in our sample do not pay dividends). The outcomes of the fixed effect model analyses are presented in Panel A of Table 5, and the comparison results across the other four above-mentioned models are presented in Panel B of Table 5. Time trend in Dividend Payout Ratio is presented in Figure 3 where *Dividend* had the lowest value during 2001-2002 period and kept a rising trend after that till 2007.

[Figure 3 about here]

In Table 5, similar to the prior literature, we cannot find any significant impact of institutional holdings (both local and non-local holdings) on the dividend payout ratio, different with what we expect in Hypothesis 3 (H3B). The variables which consistently and significantly, across all models, affect payout ratio are *Growth*, *Profitability* and *Age*.

[Table 5 about here]

The *Count* variable has a negative impact on *Dividend* in the firm fixed effect models (Column 3 Panel A2) and the two Tobit model approaches (Column 5 and 7 Panel B), and not significant in the OLS and FMB regression. This results show that, more geographically dispersed firms tend to pay lower dividend payout ratio. However, the interaction *Count\*IOR* variable does not show any consistent or significant impact on the dividend payout ratio.

The negative signs of D2, D3, and D4 coefficient on dividend payout ratio in all of our models (either significant or not) can be interpreted as more dispersed firms tending to have lower dividend payout ratios, but not firms in D5 (highest dispersion quintile) – firms in this quintile seem to be very big incorporations which diversify their operation across different industries or sectors, and have many branches in different geographical areas.

In summary, except Hypothesis H3A on determinants of *dv\_pay*, our empirical research does not support our hypothesis 3 (H3B) and hypothesis 4 (H4) on the effect of local or non-local institutional holdings, and geographic dispersion on *Dividend*.

#### 5.4. The impact of the 2000 Fair Disclosure Regulation

The 2000 Fair Disclosure is expected to reduce information asymmetry to investors, especially non-local shareholders. We examine the effect of this Regulation on Institutional Holdings (Local and Non-local institutional holdings separately), and on Dividend Payout Policy.

We report the outcomes (using DM as a dummy variable for post-2000 period) on institutional holdings (Panel A), *dv\_pay* (Panel B) and the dividend payout ratio (Panel C) of Table 6 below. Panel A focuses on institutional holdings, includes the *Local\_IOR* (Column 1-2), *Non-local\_IOR* (Column 3-4), and *Totalholding* (Column 5-6). We use the firm fixed effect models (Column 1, 3, 5) and the OLS with clustered standard error (Column 2, 4, 6) in Panel A. Panel B examines the effect of 2000 Regulation on *dv\_pay*, using the panel logit. Panel C test the impact of the 2000 Regulation on dividend payout ratio, using 4 different approaches.

[Table 6 about here]

We include the dummy variable (DM), with DM equal to 1 if the observations belong to the post 2000 Regulation period, and 0 otherwise.

The data in Panel A of Table 6 show that institutional holdings increase significantly after 2000. The negative sign for the interaction term *Dividend\*Count\* DM* demonstrates that the level of both local and non-local institutional holdings are associated with lower dividends if firms are more dispersed after 2000 where the information asymmetry was curtailed. This means institutional holdings become more “dividend-adverse” in geographically dispersed firms after 2000, which is consistent with the notion that the

degree of information asymmetry reduced when the firms were required to disclose all material information at the same time to all investors by the Regulation, and lower Dividends were demanded by shareholders (both local and non-local institutions), the effect is stronger in geographically dispersed firms which seem to be harder for shareholders to get information about the firms and operation.

The interaction  $Count*DM$  is significantly positive in Column 3-4, and insignificantly negative in Column 1-2, implying that, after the 2000 Regulation, non-local institutional holdings have higher preference for more dispersed firms.

Panel B of Table 6 evidence a negative relation of  $Nonlocal\_IOR*DM$  with  $dv\_pay$ , implying that higher non-local institutional holdings are associated with lower propensity to pay after 2000 (negative and significant coefficient), which is consistent with our expectation that, with the promulgation of the 2000 Regulation, non-local investors face less information asymmetry and, therefore, have less of an incentive to encourage firms to pay dividends than they did before the event. On the other hand, the  $Local\_IOR*DM$  interaction term is positive, but not significant – this result, however, implies about the decrease of their information advantage after the 2000 Regulation also where firms may need to pay dividends under the pressure from their local shareholders. Other interaction terms like  $Count*DM$ ,  $Local\_IOR*Count*DM$  or  $Nonlocal\_IOR*Count*DM$  are not significant so that we cannot draw any other conclusion.

In Panel C of Table 6, we base our interpretation of the outcomes on the two tobit models, which are considered better to capture the change in dividend payout ratio where lot of firms in our sample do not pay dividends. In Column 6 and 8 of Panel C2, Count has a negative and significant relation with Dividends, revealing that more geographically dispersed firms pay less dividends.  $Nonlocal\_IOR*Count$  coefficient is positive while  $Nonlocal\_IOR*Count*DM$  is negative, which means that, in general, higher non-local institutional holdings in more geographically dispersed firms are associated with higher dividend payout but this relation becomes weaker after 2000.

The negative sign of  $Nonlocalholding*DM$  are consistent with what we hypothesize, where non-local institutions require lower dividends due to the enhanced information environment that they experience after the introduction of the 2000 Regulation.

### *5.5. Simultaneous Equation.*

To address endogeneity issues associated with the causal effect between Institutional Holdings and Dividend Payout Ratio, and also the autoregressive relation in dividend payout ratio and institutional holdings over time, we introduce a simultaneous equations regression model with lagged values of dependent variables used as instrument variables to control for the assumed endogeneity.

In general, the regressions in Table 7 provide the same outcomes with some minor differences compared to the single model regressions we have estimated in previous parts.

Firstly, non-local institutions prefer the firms which pay dividends; whereas the opposite can be seen for local institutions. In these specifications, non-local institutional holdings are negatively related to dividend payout ratio, but local institutional holdings are not significantly associated (in previous models, they are also negatively linked). This outcome seems more reasonable in the context that the decision of the firm to pay or not to pay dividends is not important to local institutions, and therefore the level of dividend payout is probably irrelevant.

Secondly, dividend payout ratios are significantly and negatively related to non-local institutional holdings, but at a less significant level for local institutional holdings. This result differs from the single regressions models where institutional holdings have no significant relation with dividend payout level. However, it confirms that institutional holdings (in this case, non-local institutional holding) can be an alternative signal from the firms about their operation and prospects, instead of the use of dividends.

Thirdly, geographic dispersion has an impact on institutional holdings, but not on dividend payout ratio. In particular, local institutions have higher preference for local firms, while non-local institutional holdings are higher in geographic dispersed firms. This is consistent with the notion that local investors hold or trade local stocks which they have greater information advantage, while non-local investors prefer geographically dispersed firms which they are able to obtain more information about, or which will allow them to develop a diversified investment portfolio across geographic areas or industries. Non-local institutions prefer firms that are more geographically dispersed but not geographically dispersed firms that pay higher dividends. Again, the preference for lower dividend payment of institutional investors is apparent, given that they have sufficient information about the firms of their investment. As suggested by the literature, dividends can help

reduce agency cost, and/or also meet the “prudent rule” of institutional investors who are required to obtain a certain level of stable income.

In summary, local and non-local institutions have different appetite for dividend payment made by the firms of their investment, depending on the information advantage that they have. They also prefer different level of geographic dispersion of the firms, where local institutions have higher preference for truly local firms and non-local institutions choose to invest more in geographically dispersed firms. This confirms that local investors have higher information advantage in local firms and non-local institutions choose more dispersed firms in order to reduce the information asymmetry that they face when invest in non-local enterprises. The 2000 Regulation help to reduce information disadvantage of non-local investors, making it more favourable for institutions to invest in other firms that are not headquartered in their states of domicile.

#### *5.6. Robustness Tests*

We repeat our analyses using Herfindahl index as another proxy for geographic dispersion. Explanation for Herfindahl index is included in Appendix 2 with higher value of Herfindahl index represents for truly local firms, and vice versa.

We present the outcomes on the determinants of dividend payout ratio in Table 8, and of Institutional Holdings in Table 9.

Our robustness tests confirm our previous finding.

## **6. Conclusion**

This study examines the relation between dividend payout policy and institutional holdings of local and non-local institutions. It reveals that dividend payout policy does matter to non-local institutional ownership, but irrelevant to local institutional holdings. Moreover, firms use local institutional holdings instead of dividend to signal about their performance and prospect.

We use the data on states count to identify firms' geographic dispersion and test the effect of geographic dispersion on dividend payout, institutional holdings, and the relation between them. The research shows that, geographic dispersion does not have significant impact on payout, but local institutions seem to prefer truly local firms while non-local institutions prefer more geographically dispersed firms, and the firms that are included in S&P indices.

The introduction of the 2000 Fair Disclosure Regulation does, in fact, help to reduce information asymmetry for non-local investors, and also boost the investment in more dispersed firms of local investors. In this environment, dividends are less required by both local and non-local institutions.

Overall, the results suggest that local institutions possess information advantage about local-firms, and non-local institutions invest in geographically dispersed enterprises to have better access to the firms' information. Dividends are used to reduce information asymmetry to investors.

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**Table 1: Descriptive Statistics**

The data consist of publicly held US firms between 1997 and 2007 with institutional holdings and investors' location except utility and financial companies. Panel A reports the descriptive statistics of the variables used in the study. Panel B provides the sample statistics by geographic dispersion quintiles (count\_quintiles). In the table, firms in the sample are divided annually into five different quintiles of geographic dispersion (proxy by Count, equal to the number of states that are mentioned in the firms' annual report). The symbols \*\*\* denote significance at the 1% level. Details of the variable definitions are provided in Appendix 1.

<b>Panel A: Key Variable Statistics</b>						
<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>p25</i>	<i>Median</i>	<i>p75</i>	<i>N</i>
<i>Local_IOR</i>	4.635%	8.209%	0.000%	0.799%	5.949%	26,387
<i>Nonlocal_IOR</i>	41.150%	29.235%	13.646%	40.175%	65.269%	26,387
<i>Total_IOR</i>	45.673%	30.764%	16.627%	45.988%	72.420%	26,387
<i>Dividend_</i>	0.541%	1.370%	0	0	0.098%	26,387
<i>dv_pay</i>	0.253	0.435	0	0	1	26,387
<i>NYA</i>	0.221	0.279	0.010	0.070	0.360	26,387
<i>Growth</i>	6.957	1.276	6.268	7.036	7.778	26,387
<i>Leverage</i>	0.496	0.336	0.351	0.535	0.728	26,387
<i>Lifecycle</i>	-0.673	6.114	-0.601	0.258	0.726	26,387
<i>Age</i>	14.555	14.564	5	10	20	26,387
<i>Cash</i>	0.219	0.242	0.030	0.117	0.340	26,387
<i>Profitability</i>	-0.018	0.286	-0.036	0.061	0.119	26,387
<i>Count</i>	8.113	8.183	3	5	10	26,387

<b>Panel B: Key Variable Statistics by Geographic Dispersion</b>														
<i>Count_</i>	<i>Count</i>	<i>Local_IOR</i>	<i>Nonlocal_IOR</i>	<i>Total_IOR</i>	<i>Dividend</i>	<i>dv_pay</i>	<i>NYA</i>	<i>Growth</i>	<i>Leverage</i>	<i>Lifecycle</i>	<i>Age</i>	<i>Cash</i>	<i>Profit-</i>	<i>N</i>
<i>quintiles</i>		<i>(%)</i>	<i>(5)</i>	<i>(%)</i>	<i>(%)</i>								<i>ability</i>	
1	2.204	4.734%	33.018%	37.663%	0.510%	0.200	0.135	7.118	0.537	-0.964	13.677	0.287	-0.071	7,332
2	4.278	4.840%	37.490%	42.246%	0.448%	0.190	0.158	7.020	0.512	-1.271	13.642	0.266	-0.058	5,003
3	6.097	4.955%	39.147%	44.023%	0.471%	0.218	0.191	6.935	0.510	-0.745	13.441	0.220	-0.028	4,481
4	9.185	4.567%	45.587%	49.991%	0.602%	0.292	0.266	6.829	0.465	-0.392	15.379	0.180	0.018	4,567
5	21.42	4.061%	54.467%	58.371%	0.689%	0.391	0.394	6.798	0.435	0.160	17.000	0.105	0.078	5,004

**Table 2: Effect of Firms' Geographic Dispersion**

The data consist of publicly held US firms between 1997 and 2007 with institutional holdings and investors' location except utility and financial companies. In the table, firms in each group are divided annually into five different quintiles of geographic dispersion (proxied by Count, equal to the number of states that are mentioned in the firms' annual report). Panel A classified firms into groups of Paying Firms (which pay dividends), and Non-paying Firms (which do not pay dividends), showing the tests for difference between the payer group and non-payer group in Local institutional holdings and Non-local institutional holdings. Panel B illustrates the difference in Dividend Payout Ratio, Local institutional holdings, Non-local institutional holdings between "truly local firms" (belong to the dispersion quintile 1), and "geographically dispersed firms" (belong to the dispersion quintile 5). The symbols \*\*\* denote significance at the 1% level. Details of the variable definitions are provided in Appendix 1.

<b>Panel A: Local and Non-local Holdings (mean value) by geographic dispersion and pay/not pay</b>						
<i>Count_ quintiles</i>	<i>Variables</i>	<i>Non-paying firms (%)</i>	<i>Paying firms (%)</i>	<i>Total (%)</i>	<i>Test for difference</i>	
					<i>ttest</i>	<i>Ranksum Test</i>
1	<i>Local_IOR</i>	4.725	4.771	4.734	-0.185	-4.064***
	<i>Nonlocal_IOR</i>	30.148	44.461	33.018	-18.000***	-18.614***
	<i>N</i>	5,862	1,470	7,332		
2	<i>Local_IOR</i>	4.883	4.653	4.840	0.789	-4.509***
	<i>Nonlocal_IOR</i>	34.801	48.960	37.490	-13.909***	-14.616***
	<i>N</i>	4,053	950	5,003		
3	<i>Local_IOR</i>	5.032	4.681	4.955	1.152	-5.515***
	<i>Nonlocal_IOR</i>	35.565	51.995	39.147	-16.533***	-16.825***
	<i>N</i>	3,504	977	4,481		
4	<i>Local_IOR</i>	4.758	4.102	4.567	2.458	-7.489***
	<i>Nonlocal_IOR</i>	41.239	56.147	45.587	-16.411***	-16.196***
	<i>N</i>	3,235	1,332	4,567		
5	<i>Local_IOR</i>	3.968	4.206	4.061	-1.084	-10.748***
	<i>Nonlocal_IOR</i>	50.981	59.904	54.467	-11.280***	-9.613***
	<i>N</i>	3,049	1,955	5,004		
Total	<i>Local_IOR</i>	4.700	4.442	4.635	2.221	-14.257***
	<i>Nonlocal_IOR</i>	37.114	53.047	41.150	-39.634***	-39.967***
	<i>N</i>	19,703	6,684	26,387		

<b>Panel B: Difference between Truly local firms and Geographically dispersed firms</b>			
<i>Items</i>	<i>Dividend</i>	<i>Local_IOR</i>	<i>Nonlocal_IOR</i>
Geographically dispersed firms	0.689%	4.061%	54.467%
Truly local firms	0.510%	4.734%	33.018%
Diff t-test	7.077***	-4.494***	42.124***
Ranksum test	20.142***	2.120**	39.509***

**Table 3: Determinants of Institutional Holdings**

This table reports the effect of dividend policy (pay or not pay decision, and the level of dividend payment), and geographic dispersion, on institutional holdings, using the firm fixed effect models with standard error clustered by firm, (Column 1-4), the OLS estimations with standard error clustered by firm and by year (Column 5-6), and the Fama McBeth approach (Column 7-8). Panel A focuses on Local institutional holdings, Panel B on Non-local institutional holdings, and Panel C on Total institutional holdings. Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location. Details of the variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

<b>Panel A1: Impact of Dividend Payment and Geographic Dispersion on Local Institutional Holdings</b>								
<b>Local_IOR(t+1)</b>	<b>Fixed Effect</b>				<b>OLS (clustered)</b>		<b>FMB</b>	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Dividend	-0.097** (-2.00)	-0.122** (-2.06)	-0.096** (-1.97)	-0.165*** (-2.61)	-0.083 (-0.92)	-0.103 (-0.93)	-0.078** (-2.34)	-0.102** (-2.25)
dv_pay	-0.001 (-0.36)	-0.001 (-0.36)	-0.001 (-0.36)	-0.001 (-0.34)	-0.012*** (-3.25)	-0.012*** (-3.23)	-0.011*** (-4.73)	-0.011*** (-4.79)
NYA	0.016 (1.63)	0.016* (1.66)	0.015 (1.51)	0.015 (1.51)	0.030*** (6.22)	0.029*** (6.08)	0.029*** (15.55)	0.028*** (14.68)
Log(M/B)	0.002*** (2.82)	0.002*** (2.82)	0.002*** (2.86)	0.002*** (2.87)	0.005*** (6.83)	0.005*** (6.67)	0.005*** (13.89)	0.005*** (13.09)
TE/TA	0.002 (0.59)	0.002 (0.60)	0.002 (0.63)	0.002 (0.63)	0.018*** (5.80)	0.018*** (5.76)	0.018*** (12.19)	0.018*** (12.04)
Lifecycle	0.000* (1.73)	0.000* (1.73)	0.000* (1.77)	0.000* (1.78)	0.000*** (3.64)	0.000*** (3.63)	0.000*** (4.36)	0.000*** (4.24)
Profitability	0.006** (2.29)	0.006** (2.30)	0.006** (2.27)	0.006** (2.29)	0.008*** (2.78)	0.008*** (2.81)	0.007*** (4.68)	0.008*** (5.44)
beta	-0.000 (-0.41)	-0.000 (-0.39)	-0.000 (-0.44)	-0.000 (-0.43)	0.010*** (5.26)	0.010*** (5.26)	0.011*** (8.08)	0.011*** (8.03)
adjustedreturn	0.000 (0.51)	0.000 (0.50)	0.000 (0.54)	0.000 (0.53)	-0.000 (-0.74)	-0.000 (-0.67)	-0.001 (-0.91)	-0.001 (-0.89)
SP	0.002 (1.30)	0.002 (1.30)	0.002 (1.28)	0.002 (1.25)	0.010*** (3.64)	0.010*** (3.62)	0.010*** (6.95)	0.010*** (6.99)

Panel A2: Impact of Dividend Payment and Geographic Dispersion on Local Institutional Holdings								
Local_IOR(t+1)	Fixed Effect				OLS (clustered)		FMB	
	1	2	3	4	5	6	7	8
D2			0.002*	0.002		-0.000		0.001
			(1.67)	(1.21)		(-0.12)		(0.28)
D3			0.002	0.002		0.002		0.003
			(1.18)	(1.09)		(0.68)		(1.58)
D4			0.002	0.002		-0.003		-0.002
			(1.24)	(0.79)		(-1.13)		(-0.94)
D5			0.003	0.003		-0.008**		-0.008***
			(1.26)	(1.04)		(-2.48)		(-6.05)
Dividend*D2				0.121		0.083		0.090
				(1.51)		(0.54)		(1.07)
Dividend*D3				0.003		-0.018		-0.047
				(0.03)		(-0.11)		(-0.54)
Dividend*D4				0.152*		-0.067		-0.075
				(1.78)		(-0.42)		(-1.10)
Dividend*D5				0.092		-0.122		-0.083
				(1.19)		(-0.82)		(-1.39)
Count		-0.000			-0.000***		-0.000***	
		(-0.58)			(-3.18)		(-8.29)	
Dividend*Count		0.003			-0.006		-0.005	
		(0.84)			(-0.96)		(-1.79)	
Constant	0.019**	0.020**	0.017**	0.017**	0.005	0.005	0.019	0.016
	(2.37)	(2.44)	(2.16)	(2.19)	(0.22)	(0.20)	(1.20)	(1.08)
Firm FE	Y	Y	Y	Y	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y	N	N
Industry FE	N	N	N	N	Y	Y	Y	Y
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.014	0.014	0.015	0.015	0.060	0.060	0.070	0.073

<b>Panel B1: Impact of Dividend Payment and Geographic Dispersion on Non-local Institutional Holdings</b>								
<b>Nonlocal_IOR(t+1)</b>	<b>Fixed Effect</b>				<b>OLS (clustered)</b>		<b>FMB</b>	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Dividend	-0.272*	0.017	-0.268	-0.102	-1.231***	-2.057***	-1.342***	-2.140***
	(-1.66)	(0.09)	(-1.63)	(-0.48)	(-3.87)	(-5.54)	(-8.34)	(-8.48)
dv_pay	0.005	0.005	0.005	0.005	0.032***	0.031**	0.038***	0.036***
	(0.75)	(0.79)	(0.74)	(0.77)	(2.64)	(2.53)	(3.84)	(3.65)
NYA	0.135***	0.130***	0.131***	0.130***	0.338***	0.339***	0.345***	0.347***
	(5.52)	(5.31)	(5.34)	(5.31)	(15.45)	(15.59)	(16.50)	(16.84)
Log(M/B)	0.029***	0.029***	0.029***	0.029***	0.035***	0.036***	0.033***	0.034***
	(12.84)	(12.86)	(12.91)	(12.92)	(11.65)	(12.12)	(13.77)	(14.16)
TE/TA	0.037***	0.037***	0.038***	0.038***	0.034***	0.036***	0.043***	0.045***
	(5.29)	(5.28)	(5.34)	(5.34)	(3.75)	(4.02)	(6.76)	(7.17)
Lifecycle	0.001***	0.001***	0.001***	0.001***	0.002***	0.002***	0.002***	0.003***
	(3.45)	(3.46)	(3.48)	(3.47)	(7.58)	(7.68)	(8.69)	(8.87)
Profitability	0.048***	0.047***	0.047***	0.047***	0.202***	0.200***	0.203***	0.201***
	(6.06)	(6.05)	(6.01)	(6.02)	(12.51)	(12.37)	(12.40)	(11.81)
beta	0.024***	0.023***	0.023***	0.023***	0.072***	0.071***	0.067***	0.065***
	(11.56)	(11.51)	(11.50)	(11.47)	(6.67)	(6.65)	(6.27)	(6.20)
adjustedreturn	0.005***	0.005***	0.005***	0.005***	0.004	0.004	0.009**	0.008*
	(5.92)	(5.96)	(5.98)	(5.98)	(1.18)	(1.12)	(2.25)	(1.98)
SP	0.024***	0.024***	0.024***	0.024***	0.110***	0.109***	0.096***	0.096***
	(5.73)	(5.75)	(5.68)	(5.69)	(16.44)	(16.45)	(8.51)	(8.50)

Panel B2: Impact of Dividend Payment and Geographic Dispersion on Non-local Institutional Holdings								
Nonlocal_IOR(t+1)	Fixed Effect				OLS (clustered)		FMB	
	1	2	3	4	5	6	7	8
D2			0.007*	0.007*		0.015**		0.019***
			(1.88)	(1.85)		(2.48)		(5.24)
D3			0.009**	0.011**		0.027***		0.026***
			(2.12)	(2.29)		(4.06)		(7.46)
D4			0.014***	0.014***		0.046***		0.042***
			(2.71)	(2.60)		(5.46)		(6.59)
D5			0.015**	0.019***		0.079***		0.078***
			(2.48)	(2.85)		(8.18)		(11.41)
Dividend*D2				-0.052		0.804		0.508
				(-0.24)		(1.56)		(1.11)
Dividend*D3				-0.278		0.510		0.528***
				(-1.10)		(1.20)		(3.69)
Dividend*D4				-0.059		0.738		0.843**
				(-0.21)		(1.58)		(2.71)
Dividend*D5				-0.574*		-1.105**		-1.256***
				(-1.85)		(-2.05)		(-4.64)
Count		0.001**			0.004***		0.003***	
		(2.20)			(8.30)		(11.11)	
Dividend*Count		-0.037***			-0.086***		-0.092***	
		(-2.59)			(-3.45)		(-8.62)	
Constant	0.061***	0.057***	0.053***	0.052**	-0.118**	-0.134**	-0.005	-0.016
	(3.08)	(2.83)	(2.61)	(2.58)	(-2.26)	(-2.55)	(-0.16)	(-0.50)
Firm FE	Y	Y	Y	Y	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y	N	N
Industry FE	N	N	N	N	Y	Y	Y	Y
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.289	0.290	0.290	0.290	0.447	0.448	0.429	0.432

**Panel C1: Impact of Dividend Payment and Geographic Dispersion on Total Institutional Holdings**

Totalholding(t+1)	Fixed Effect				OLS (clustered)		FMB	
	1	2	3	4	5	6	7	8
Dividend	-0.376** (-2.29)	-0.123 (-0.63)	-0.371** (-2.26)	-0.294 (-1.37)	-1.301*** (-3.99)	-2.147*** (-5.83)	-1.407*** (-8.15)	-2.234*** (-9.33)
dv_pay	0.006 (0.82)	0.006 (0.86)	0.006 (0.81)	0.006 (0.85)	0.021 (1.62)	0.020 (1.52)	0.027** (2.50)	0.026** (2.37)
NYA	0.153*** (6.03)	0.149*** (5.86)	0.149*** (5.85)	0.148*** (5.83)	0.369*** (16.77)	0.370*** (16.98)	0.375*** (18.09)	0.376*** (18.55)
Log(M/B)	0.031*** (13.72)	0.031*** (13.74)	0.031*** (13.79)	0.031*** (13.80)	0.040*** (12.48)	0.041*** (12.94)	0.038*** (14.21)	0.039*** (14.62)
TE/TA	0.040*** (5.35)	0.040*** (5.34)	0.041*** (5.40)	0.041*** (5.40)	0.053*** (5.56)	0.055*** (5.81)	0.062*** (10.08)	0.064*** (10.58)
Lifecycle	0.001*** (3.77)	0.001*** (3.77)	0.001*** (3.81)	0.001*** (3.80)	0.003*** (8.16)	0.003*** (8.24)	0.003*** (10.17)	0.003*** (9.42)
Profitability	0.053*** (6.22)	0.052*** (6.21)	0.052*** (6.17)	0.052*** (6.18)	0.209*** (12.65)	0.206*** (12.49)	0.209*** (13.37)	0.207*** (12.60)
beta	0.023*** (10.74)	0.023*** (10.69)	0.023*** (10.68)	0.023*** (10.66)	0.080*** (7.51)	0.079*** (7.49)	0.077*** (7.11)	0.076*** (7.03)
adjustedreturn	0.005*** (5.49)	0.005*** (5.52)	0.005*** (5.55)	0.005*** (5.55)	0.003 (1.03)	0.003 (0.98)	0.008 (1.78)	0.007 (1.56)
SP	0.025*** (5.83)	0.025*** (5.85)	0.024*** (5.77)	0.024*** (5.78)	0.118*** (17.55)	0.117*** (17.67)	0.104*** (8.79)	0.103*** (8.70)

Panel C2: Impact of Dividend Payment and Geographic Dispersion on Total Institutional Holdings								
Totalholding(t+1)	Fixed Effect				OLS (clustered)		FMB	
	1	2	3	4	5	6	7	8
D2			0.009** (2.19)	0.008* (1.96)		0.014** (2.37)		0.020*** (3.87)
D3			0.011** (2.32)	0.012** (2.41)		0.029*** (4.27)		0.030*** (7.00)
D4			0.015*** (2.74)	0.014** (2.48)		0.042*** (5.08)		0.039*** (6.20)
D5			0.016*** (2.61)	0.019*** (2.87)		0.070*** (7.15)		0.069*** (11.43)
Dividend*D2				0.101 (0.47)		0.900* (1.67)		0.610 (1.32)
Dividend*D3				-0.245 (-0.93)		0.492 (1.08)		0.483*** (3.57)
Dividend*D4				0.103 (0.38)		0.681 (1.39)		0.786** (2.25)
Dividend*D5				-0.444 (-1.41)		-1.201** (-2.21)		-1.318*** (-5.10)
Count		0.001* (1.88)			0.003*** (7.12)		0.003*** (9.27)	
Dividend*Count		-0.033** (-2.29)			-0.091*** (-3.64)		-0.095*** (-8.77)	
Constant	0.077*** (3.73)	0.073*** (3.55)	0.067*** (3.23)	0.067*** (3.21)	-0.111*** (-2.98)	-0.128*** (-3.26)	0.015 (0.44)	0.001 (0.04)
Firm FE	Y	Y	Y	Y	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y	N	N
Industry FE	N	N	N	N	Y	Y	Y	Y
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.295	0.295	0.295	0.296	0.459	0.460	0.438	0.442



**Table 4: Determinants of Decision to Pay Dividends**

This table reports the effect of institutional holdings, geographic dispersion, on decision to pay dividends, using the random effect panel logit model (Column 1-5) and the Fama McBeth approach (Column 6-10). Panel A focuses on the effect of Local institutional holdings, Panel B of Non-local institutional holdings, and Panel C of Total institutional holdings. Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location. Details of the variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

<b>Panel A: Impact of Local and Non-local Institutional Holdings on the decision to pay dividends</b>										
<b>dv_pay(t+1)</b>	<b>Panel Logit</b>					<b>FMB</b>				
	1	2	3	4	5	6	7	8	9	10
Local_IOR	-1.142 (-1.33)	-1.132 (-1.31)	-2.461** (-2.05)	-1.103 (-1.28)	0.723 (0.47)	-0.259*** (-5.82)	-0.253*** (-6.04)	-0.320*** (-4.60)	-0.249*** (-5.93)	-0.171* (-1.84)
Non-local_IOR	1.229*** (3.92)	1.207*** (3.84)	0.952** (2.44)	1.209*** (3.85)	1.043** (2.04)	0.035* (1.94)	0.032* (1.81)	0.049** (2.64)	0.029 (1.75)	0.013 (0.51)
NYA	10.002*** (21.48)	9.866*** (20.93)	9.926*** (20.96)	9.881*** (21.02)	9.907*** (21.04)	0.380*** (30.26)	0.372*** (33.96)	0.372*** (34.04)	0.367*** (33.73)	0.364*** (31.64)
Log(M/B)	0.153** (2.03)	0.156** (2.08)	0.155** (2.06)	0.157** (2.09)	0.158** (2.10)	0.029*** (6.82)	0.030*** (6.95)	0.030*** (6.90)	0.030*** (7.09)	0.030*** (6.88)
TE/TA	2.235*** (6.69)	2.247*** (6.71)	2.251*** (6.72)	2.240*** (6.70)	2.242*** (6.70)	0.085*** (8.07)	0.086*** (7.86)	0.087*** (7.80)	0.088*** (7.51)	0.087*** (7.93)
Lifecycle	0.040*** (2.94)	0.040*** (2.93)	0.040*** (2.95)	0.040*** (2.94)	0.040*** (2.94)	0.003*** (10.13)	0.003*** (10.10)	0.003*** (9.79)	0.003*** (10.22)	0.003*** (9.23)
Cash	-1.887*** (-4.34)	-1.860*** (-4.26)	-1.835*** (-4.21)	-1.899*** (-4.36)	-1.895*** (-4.34)	-0.214*** (-22.62)	-0.209*** (-20.32)	-0.208*** (-21.48)	-0.204*** (-20.69)	-0.204*** (-21.12)
Profitability	5.612*** (9.66)	5.596*** (9.61)	5.604*** (9.63)	5.607*** (9.64)	5.642*** (9.67)	0.102*** (6.17)	0.101*** (6.14)	0.100*** (6.25)	0.099*** (6.08)	0.097*** (6.32)
Age	0.284*** (20.96)	0.286*** (20.95)	0.286*** (20.82)	0.284*** (21.02)	0.285*** (21.03)	0.010*** (24.61)	0.010*** (24.67)	0.010*** (25.01)	0.010*** (24.85)	0.010*** (25.16)
SP	0.156 (1.11)	0.157 (1.12)	0.155 (1.10)	0.149 (1.06)	0.136 (0.97)	0.010 (0.67)	0.008 (0.53)	0.008 (0.53)	0.008 (0.52)	0.008 (0.52)
<b>Difference Local_IOR=Nonlocal_IOR</b>										
F_value	6.86	6.67	7.36	6.54	0.04	26.57	28.46	19.61	28.09	3.65
Prob>F	0.0088	0.0098	0.0067	0.0105	0.8413	0.0004	0.0003	0.0013	0.0003	0.0851

**Panel B: Impact of Local and Non-local Institutional Holdings with Geographic Dispersion on the decision to pay dividends**

dv_pay(t+1)	Panel Logit					FMB				
	1	2	3	4	5	6	7	8	9	10
D2				-0.065 (-0.44)	-0.039 (-0.14)				-0.015** (-2.46)	0.002 (0.23)
D3				-0.321* (-1.86)	-0.580* (-1.79)				-0.012 (-1.39)	-0.010 (-1.15)
D4				0.032 (0.17)	0.183 (0.54)				0.019 (1.34)	0.015 (0.85)
D5				0.217 (1.06)	0.235 (0.60)				0.034** (2.65)	0.060*** (3.48)
Local_IOR*D1					-2.458 (-1.16)					-0.046 (-0.53)
Local_IOR*D2					-1.349 (-0.66)					-0.062 (-0.92)
Local_IOR*D3					-0.667 (-0.33)					-0.135 (-1.58)
Local_IOR*D4					-3.945** (-2.17)					-0.203 (-1.76)
Local_IOR*D5										0.122 (1.23)
Nonlocal_IOR*D1					0.250 (0.41)					0.026 (1.24)
Nonlocal_IOR*D2					0.073 (0.12)					-0.014 (-0.82)
Nonlocal_IOR*D3					0.599 (0.94)					0.033 (1.57)
Nonlocal_IOR*D4					0.084 (0.15)					0.078 (1.41)
Nonlocal_IOR*D5										-0.027 (-0.87)
Count		<b>0.017*</b> <b>(1.80)</b>	<b>-0.011</b> <b>(-0.53)</b>				<b>0.001*</b> <b>(2.00)</b>	<b>0.002**</b> <b>(2.25)</b>		
Local_IOR*Count			<b>0.160*</b> <b>(1.77)</b>					0.009 (1.80)		
Nonlocal_IOR*Count			0.034 (1.20)					-0.002 (-1.44)		
Prob>chi2/R-square	0.000	0.000	0.000	0.000	0.000	0.320	0.321	0.322	0.324	0.327

**Table 5: Determinants of Dividend Payout Ratio**

This table reports the effect of institutional holdings and geographic dispersion on the dividend payout ratio (Total dividends to common stock/Total assets), using the panel data fixed effect model, controlling for year and firm fixed effect in Panel A; and various comparable approaches, including the OLS regressions with standard error clustered by firm and year, the Fama and McBeth estimations, the tobit models and the panel tobit models (both left censored at dividend payout ratio of 0) in Panel B. Each Panel is divided into Panel A1, A2, and Panel B1, B2 to present the effect of institutional holdings (1) and geographic dispersion (2) on dividend payout ratio separately. Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location. Details of the variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

<b>Panel A1: Determinants of Dividend Payout Ratio (Fixed Effect Models)</b>					
<b>Dividend(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Local_IOR	-0.0022 (-1.52)	-0.0023 (-1.54)	-0.0034* (-1.76)	-0.0022 (-1.52)	-0.0038 (-1.56)
Nonlocal_IOR	-0.0001 (-0.15)	-0.0001 (-0.15)	-0.0009 (-1.01)	-0.0001 (-0.16)	-0.0000 (-0.04)
Log(TA)	0.0003* (1.72)	0.0003* (1.83)	0.0004** (1.96)	0.0003* (1.92)	0.0004* (1.94)
Log(M/B)	0.0006*** (4.42)	0.0006*** (4.41)	0.0006*** (4.48)	0.0006*** (4.41)	0.0006*** (4.42)
TE/TA	0.0002 (0.53)	0.0002 (0.51)	0.0002 (0.49)	0.0002 (0.46)	0.0002 (0.43)
Lifecycle	0.0000 (0.54)	0.0000 (0.52)	0.0000 (0.53)	0.0000 (0.51)	0.0000 (0.57)
Cash	0.0019** (2.47)	0.0019** (2.46)	0.0019** (2.46)	0.0019** (2.44)	0.0018** (2.41)
Profitability	0.0010*** (3.06)	0.0010*** (3.07)	0.0011*** (3.13)	0.0011*** (3.12)	0.0011*** (3.13)
Age	0.0026** (2.12)	0.0027** (2.13)	0.0027** (2.14)	0.0027** (2.12)	0.0027** (2.13)
SP	0.0006* (1.79)	0.0006* (1.80)	0.0006* (1.76)	0.0006* (1.80)	0.0006* (1.80)

<b>Panel A2: Determinants of Dividend Payout Ratio (Fixed Effect Models)</b>					
<b>Dividend(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
D2				-0.0005** (-2.25)	-0.0004 (-0.97)
D3				-0.0006** (-2.35)	-0.0004 (-0.88)
D4				-0.0006* (-1.89)	-0.0011* (-1.86)
D5				-0.0006 (-1.35)	-0.0005
Local_IOR*D1					0.0014 (0.57)
Local_IOR*D3					0.0019 (0.65)
Local_IOR*D4					0.0006 (0.17)
Local_IOR*D5					0.0046 (1.49)
Nonlocal_IOR*D2					-0.0003 (-0.39)
Nonlocal_IOR*D3					-0.0007 (-0.70)
Nonlocal_IOR*D4					0.0010 (0.86)
Nonlocal_IOR*D5					-0.0004 (-0.37)
Count		-0.0000 (-0.83)	-0.0001** (-1.99)		
Local_IOR*Count			0.0002 (1.07)		
Nonlocal_IOR*Count			0.0001* (1.74)		
Constant	-0.0285** (-2.18)	-0.0285** (-2.18)	-0.0285** (-2.18)	-0.0285** (-2.16)	-0.0285** (-2.17)
Firm FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Industry FE	N	N	N	N	N
Observations	26,387	26,387	26,387	26,387	26,387
R-squared	0.033	0.033	0.033	0.033	0.033

Panel B1: Determinants of Dividend Payout Ratio (Various Models)								
Dividend(t+1)	OLS (clustered)		FMB		Tobit		Panel Tobit	
	1	2	3	4	5	6	7	8
Local_IOR	-0.0074*** (-2.89)	-0.0084** (-2.39)	-0.0096*** (-5.85)	-0.0090** (-3.13)	-0.0286*** (-6.10)	-0.0195*** (-2.79)	-0.0171*** (-2.76)	-0.0015 (-0.19)
Nonlocal_IOR	-0.0047*** (-4.36)	-0.0044*** (-3.45)	-0.0035*** (-4.16)	-0.0034*** (-4.10)	-0.0112*** (-6.84)	-0.0114*** (-5.56)	-0.0026 (-1.24)	-0.0005 (-0.19)
Log(TA)	0.0011*** (6.66)	0.0011*** (6.57)	0.0010*** (8.37)	0.0010*** (8.99)	0.0044*** (21.09)	0.0043*** (20.89)	0.0056*** (14.36)	0.0056*** (14.28)
Log(M/B)	0.0018*** (6.81)	0.0017*** (6.73)	0.0020*** (8.25)	0.0019*** (8.02)	0.0019*** (5.90)	0.0018*** (5.80)	0.0034*** (8.69)	0.0033*** (8.61)
TE/TA	0.0004 (0.70)	0.0004 (0.70)	0.0009 (1.44)	0.0008 (1.41)	0.0150*** (11.83)	0.0151*** (11.84)	0.0045*** (2.81)	0.0043*** (2.69)
Lifecycle	0.0001*** (4.03)	0.0001*** (3.99)	0.0001*** (5.04)	0.0001*** (4.64)	0.0009*** (9.80)	0.0009*** (9.77)	0.0002** (2.20)	0.0002** (2.15)
Cash	-0.0016* (-1.71)	-0.0017* (-1.81)	-0.0016** (-2.32)	-0.0017** (-2.46)	-0.0192*** (-10.91)	-0.0193*** (-10.95)	-0.0058*** (-2.61)	-0.0061*** (-2.74)
Profitability	0.0054*** (3.55)	0.0053*** (3.53)	0.0064*** (4.62)	0.0062*** (4.61)	0.0972*** (31.08)	0.0965*** (30.89)	0.0443*** (15.72)	0.0442*** (15.69)
Age	0.0003*** (12.45)	0.0003*** (12.36)	0.0003*** (19.28)	0.0003*** (18.68)	0.0006*** (37.19)	0.0006*** (37.19)	0.0009*** (19.31)	0.0009*** (19.30)
SP	0.0005 (1.19)	0.0006 (1.25)	0.0007* (1.89)	0.0007* (2.03)	0.0004 (0.65)	0.0005 (0.75)	0.0001 (0.09)	0.0001 (0.10)
Firm FE	N	N	N	N	N	N	Y	Y
Year FE	Y	Y	N	N	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	N	N
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.193	0.194	0.219	0.223				

Panel B2: Determinants of Dividend Payout Ratio (Various Models)								
Dividend(t+1)	OLS (clustered)		FMB		Tobit		Panel Tobit	
	1	2	3	4	5	6	7	8
D2		-0.0007 (-1.38)		-0.0005 (-1.18)		-0.0034** (-2.17)		-0.0024 (-1.57)
D3		-0.0010* (-1.83)		-0.0006 (-1.73)		-0.0071*** (-4.27)		-0.0045*** (-2.65)
D4		-0.0011 (-1.63)		-0.0009*** (-3.66)		-0.0047*** (-2.81)		-0.0049*** (-2.70)
D5		0.0002 (0.25)		0.0014* (2.12)		-0.0010 (-0.62)		-0.0026 (-1.29)
Local_IOR*D1		0.0009 (0.19)		-0.0005 (-0.20)		-0.0048 (-0.52)		-0.0106 (-0.99)
Local_IOR*D2		0.0018 (0.47)		0.0020 (0.77)		-0.0097 (-0.91)		-0.0134 (-1.25)
Local_IOR*D3		0.0016 (0.37)		0.0010 (0.42)		-0.0010 (-0.09)		-0.0022 (-0.21)
Local_IOR*D4		-0.0018 (-0.47)		-0.0037 (-1.19)		-0.0258** (-2.34)		-0.0145 (-1.51)
Local_IOR*D5				0.0002 (0.07)				
Nonlocal_IOR*D2		-0.0009 (-0.83)		-0.0016 (-1.41)		-0.0001 (-0.02)		0.0008 (0.29)
Nonlocal_IOR*D3		0.0000 (0.03)		-0.0005 (-0.90)		0.0061** (2.02)		0.0017 (0.59)
Nonlocal_IOR*D4		0.0008 (0.53)		0.0010 (0.88)		0.0070** (2.39)		0.0051* (1.74)
Nonlocal_IOR*D5		-0.0024 (-1.60)		-0.0045*** (-4.94)		-0.0017 (-0.63)		0.0005 (0.17)
Count	-0.0000 (-0.56)		0.0000 (1.04)		-0.0002** (-2.28)		-0.0003*** (-3.22)	
Local_IOR*Count	-0.0001 (-0.32)		0.0001 (0.46)		0.0002 (0.52)		0.0009* (1.78)	
Nonlocal_IOR*Count	-0.0000 (-0.21)		-0.0001** (-2.83)		0.0002 (1.51)		0.0004*** (2.99)	
Constant	-0.0109*** (-3.07)	-0.0106*** (-2.95)	-0.0122*** (-7.74)	-0.0120*** (-6.92)	-0.0564*** (-12.58)	-0.0548*** (-12.13)	-0.0851*** (-7.00)	-0.0847*** (-6.98)

**Table 6: The impact of the 2000 Fair Disclosure Regulation**

This table reports the effect of the 2000 Regulation (using DM as a dummy variable) on institutional holdings (Panel A), *dv\_pay* (Panel B) and the dividend payout ratio (Panel C). Panel A focuses on institutional holdings, includes the *Local\_IOR* (Column 1-2), *Non-local\_IOR* (Column 3-4), and *Totalholdings* (Column 5-6). We use the firm fixed effect models (Column 1, 3, 5) and the OLS with clustered standard error in Panel A. Panel B examines the effect of 2000 Regulation on *dv\_pay*, using the panel logit (Column 1) and the FMB model (Column 2). Panel C test the impact of the 2000 Regulation on dividend payout ratio, using 4 different approaches. Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location. Details of the variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

<b>Panel A: Effect of the 2000 Regulation on Institutional Holdings</b>						
<b>Variables</b>	<b>Local_IOR</b>		<b>Nonlocal_IOR</b>		<b>Totalholding</b>	
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Dividend	-0.144** (-2.41)	-0.093 (-1.02)	0.009 (0.04)	-1.242*** (-3.88)	-0.154 (-0.78)	-1.321*** (-4.03)
<i>dv_pay</i>	-0.001 (-0.35)	-0.012*** (-3.29)	0.005 (0.78)	0.032*** (2.61)	0.006 (0.85)	0.021 (1.60)
NYA	0.016 (1.62)	0.030*** (6.17)	0.128*** (5.23)	0.337*** (15.45)	0.147*** (5.78)	0.368*** (16.78)
Log(M/B)	0.002*** (2.78)	0.005*** (6.79)	0.028*** (12.85)	0.035*** (11.57)	0.031*** (13.70)	0.040*** (12.35)
TE/TA	0.002 (0.65)	0.018*** (5.82)	0.037*** (5.30)	0.034*** (3.75)	0.040*** (5.38)	0.053*** (5.57)
Lifecycle	0.000* (1.79)	0.000*** (3.67)	0.001*** (3.46)	0.002*** (7.58)	0.001*** (3.79)	0.003*** (8.18)
Profitability	0.006** (2.23)	0.008*** (2.79)	0.047*** (6.07)	0.202*** (12.51)	0.052*** (6.20)	0.209*** (12.66)
beta	-0.000 (-0.29)	0.010*** (5.28)	0.023*** (11.47)	0.071*** (6.65)	0.023*** (10.68)	0.080*** (7.49)
adjustedreturn	0.000 (0.61)	-0.000 (-0.70)	0.005*** (5.91)	0.004 (1.16)	0.005*** (5.50)	0.003 (1.02)
SP	0.002 (1.44)	0.010*** (3.70)	0.025*** (5.82)	0.110*** (16.49)	0.025*** (5.98)	0.118*** (17.68)
DM	0.018*** (6.17)	0.023 (.)	0.180*** (20.96)	0.207*** (48.25)	0.197*** (21.79)	0.228*** (53.72)
Count	0.000 (0.23)	-0.000*** (-3.55)	0.000 (0.24)	0.003*** (4.41)	0.000 (0.24)	0.002*** (3.60)
Dividend*Count	0.017*** (2.89)	0.010 (1.10)	-0.007 (-0.37)	-0.048 (-1.20)	0.010 (0.51)	-0.040 (-0.91)
Count*DM	-0.000 (-1.53)	-0.000 (-0.73)	0.001*** (3.08)	0.001* (1.72)	0.001** (2.29)	0.001 (1.45)
Dividend*Count*DM	-0.014*** (-2.83)	-0.018*** (-3.49)	-0.037*** (-2.60)	-0.047 (-1.49)	-0.048*** (-3.37)	-0.062* (-1.79)
Constant	0.019** (2.29)	0.004 (0.19)	0.061*** (3.04)	-0.114** (-2.15)	0.076*** (3.68)	-0.108*** (-2.87)
Firm FE	Y	N	Y	N	Y	N
Year FE	Y	Y	Y	Y	Y	Y
Industry FE	N	Y	N	Y	N	Y
Observations	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.015	0.061	0.290	0.447	0.296	0.459

<b>Panel B: Effect on the Decision to Pay</b>		
<b>Dv_pay(t+1)</b>	<b>1</b>	<b>2</b>
Local_IOR	-1.953 (-1.52)	-2.428** (-2.02)
Nonlocal_IOR	1.696*** (4.00)	1.010** (2.53)
Log(TA)	9.958*** (21.37)	9.916*** (20.94)
Log(M/B)	0.139* (1.82)	0.154** (2.03)
TE/TA	2.244*** (6.71)	2.256*** (6.74)
Lifecycle	0.040*** (2.95)	0.040*** (2.94)
Cash	-1.880*** (-4.32)	-1.827*** (-4.19)
Profitability	5.642*** (9.68)	5.605*** (9.63)
Age	0.284*** (20.96)	0.286*** (20.82)
SP	0.186 (1.32)	0.154 (1.09)
Local_IOR*DM	1.054 (0.91)	
Nonlocal_IOR*DM	<b>-0.562*</b> <b>(-1.68)</b>	
Count		-0.016 (-0.61)
Local_IOR*Count		0.198 (1.61)
Nonlocal_IOR*Count		0.029 (0.74)
Count*DM		0.013 (0.61)
Local_IOR*Count*DM		-0.049 (-0.54)
Nonlocal_IOR*Count*DM		-0.005 (-0.17)
Constant	-14.150*** (-23.64)	-14.066*** (-22.58)
Observations	26,387	26,387

*\*Panel Logit Regressions with Random Effect*



**Panel C1: Effect of the 2000 Regulation on Dividend Payout Ratio**

Dividend(t+1)	Fixed Effect		OLS clustered		Tobit		Panel Tobit	
	1	2	3	4	5	6	7	8
Local_IOR	-0.0035 (-1.64)	-0.0033* (-1.74)	-0.0075*** (-3.35)	-0.0073*** (-2.86)	-0.0248*** (-3.48)	-0.0286*** (-6.10)	-0.0159** (-2.56)	-0.0187*** (-3.00)
Nonlocal_IOR	-0.0001 (-0.08)	-0.0008 (-0.93)	-0.0055*** (-4.45)	-0.0045*** (-4.07)	-0.0050** (-2.26)	-0.0111*** (-6.66)	0.0075*** (3.45)	-0.0040* (-1.81)
Log(TA)	0.0003* (1.71)	0.0004* (1.94)	0.0011*** (6.47)	0.0011*** (6.67)	0.0042*** (21.01)	0.0044*** (21.02)	0.0057*** (14.91)	0.0059*** (15.16)
Log(M/B)	0.0006*** (4.51)	0.0006*** (4.51)	0.0018*** (6.73)	0.0018*** (6.82)	0.0018*** (5.73)	0.0018*** (5.74)	0.0032*** (8.19)	0.0033*** (8.54)
TE/TA	0.0002 (0.53)	0.0002 (0.48)	0.0004 (0.71)	0.0004 (0.68)	0.0151*** (11.86)	0.0151*** (11.85)	0.0041** (2.56)	0.0041** (2.55)
Lifecycle	0.0000 (0.54)	0.0000 (0.52)	0.0001*** (4.04)	0.0001*** (3.97)	0.0009*** (9.80)	0.0009*** (9.79)	0.0002** (2.15)	0.0002** (2.17)
Cash	0.0019** (2.49)	0.0019** (2.46)	-0.0015 (-1.61)	-0.0016* (-1.71)	-0.0189*** (-10.77)	-0.0191*** (-10.85)	-0.0053** (-2.38)	-0.0055** (-2.47)
Profitability	0.0010*** (3.05)	0.0011*** (3.13)	0.0054*** (3.55)	0.0054*** (3.56)	0.0970*** (31.04)	0.0972*** (31.09)	0.0434*** (15.33)	0.0436*** (15.39)
Age	0.0026** (2.11)	0.0027** (2.14)	0.0003*** (12.47)	0.0003*** (12.45)	0.0006*** (37.43)	0.0006*** (37.10)	0.0009*** (20.57)	0.0009*** (20.41)
SP	0.0006* (1.77)	0.0006* (1.75)	0.0005 (1.09)	0.0005 (1.14)	0.0006 (0.85)	0.0005 (0.76)	0.0003 (0.54)	0.0001 (0.19)
DM	-0.0227* (-1.81)	-0.0230* (-1.84)	0.0024*** (12.13)	0.0024*** (13.32)				
Local_IOR*DM	0.0016 (0.74)		-0.0002 (-0.12)		-0.0026 (-0.33)		0.0074 (1.33)	
Nonlocal_IOR*DM	-0.0000 (-0.03)		0.0008 (0.88)		-0.0061*** (-2.63)		-0.0082*** (-4.73)	

<b>Panel C2: Effect of the 2000 Regulation on Dividend Payout Ratio</b>								
<b>Dividend(t+1)</b>	<b>Fixed Effect</b>		<b>OLS clustered</b>		<b>Tobit</b>		<b>Panel Tobit</b>	
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
Count		-0.0001 (-1.56)		-0.0000 (-0.60)		<b>-0.0004***</b> <b>(-2.95)</b>		<b>-0.0005***</b> <b>(-3.90)</b>
Local_IOR*Count		0.0001 (0.69)		0.0001 (0.43)		0.0009 (1.33)		0.0011* (1.73)
Nonlocal_IOR*Count		0.0001 (1.09)		-0.0001 (-1.44)		<b>0.0005**</b> <b>(2.15)</b>		<b>0.0009***</b> <b>(4.06)</b>
Count*DM		0.0000 (0.10)		0.0000 (0.51)		0.0003* (1.92)		0.0001 (1.10)
Local_IOR*Count*DM		0.0000 (0.21)		-0.0002 (-1.58)		-0.0009 (-1.32)		-0.0000 (-0.10)
Nonlocal_IOR*Count*DM		0.0000 (0.09)		0.0001 (1.57)		<b>-0.0004*</b> <b>(-1.74)</b>		<b>-0.0004**</b> <b>(-2.22)</b>
Constant	-0.0285** (-2.17)	-0.0285** (-2.17)	-0.0109*** (-3.07)	-0.0109*** (-3.06)	-0.0587*** (-13.12)	-0.0555*** (-12.33)	-0.1044*** (-27.51)	-0.1009*** (-26.45)
Firm FE	Y	Y	N	N	N	N	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Industry FE	N	N	Y	Y	Y	Y	N	N
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.033	0.033	0.193	0.193				

**Table 7: Simultaneous Equations (Institutional Holdings and Dividend Payout Ratios)**

This table reports the regression results of the following simultaneous equations

$$\begin{aligned} IOR_{i,t+1} &= a_{0,t+1} + a_{1,t+1}IOR_{i,t} + a_{2,t+1} Dividend_{i,t} + \psi_{t+1}f_i + u_{it+1} \text{ and} \\ Dividend_{i,t+1} &= b_{0,t+1} + b_{1,t+1} Dividend_{i,t} + b_{2,t+1} IOR_{i,t} + e_{t+1}g_i + v_{it+1}, \end{aligned}$$

where *Dividend* is the dividend payout ratio ; IOR is the percentage holdings of institutional investors. The factors  $f_i$ ,  $g_i$  and  $h_i$  are latent firm-fixed effects, and  $\psi_{t+1}$ ,  $e_{t+1}$ , and  $k_{t+1}$  are latent time coefficients. Detailed of variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively. In these simultaneous regressions, we test the effect of institutional holdings, geographic dispersion, and the 2000 Regulation dummy on dividend payout ratio, and the effect of dividend payout geographic dispersion, and the 2000 Regulation dummy on institutional holdings at the same time, controlling for the causal effect between dividends and institutional holdings. The lagged values of institutional holdings and dividend payout ratio are used as instruments to capture this effect. Panel A focuses on Local institutional holdings, Panel B on Non-local institutional holdings, and Panel C on Total institutional holdings. Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location.

**Panel A: Local Institutional Holdings and Dividend Payout Ratio**

<b>Local_IOR(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Dividend(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Local IOR	0.824*** (236.63)	0.824*** (236.59)	0.824*** (236.13)	0.824*** (236.09)	Dividend	0.758*** (187.62)	0.758*** (187.62)	0.758*** (187.53)	0.758*** (187.52)
Dividend	-0.045 (-1.59)	-0.001 (-0.02)	-0.048 (-1.36)	-0.049 (-1.38)	Local IOR	-0.002*** (-2.61)	-0.002* (-1.69)	-0.002* (-1.81)	-0.002* (-1.77)
dv pav	-0.002** (-2.23)	-0.002** (-2.27)	-0.002** (-2.14)	-0.002** (-2.15)	NYA	0.001*** (5.83)	0.001*** (5.84)	0.001*** (5.82)	0.001*** (5.83)
NYA	0.003** (2.34)	0.003** (2.30)	0.004*** (3.00)	0.004*** (2.99)	Log(M/B)	0.000*** (10.84)	0.001*** (10.85)	0.000*** (10.83)	0.000*** (10.84)
Log(M/B)	0.002*** (6.31)	0.002*** (6.29)	0.002*** (6.25)	0.002*** (6.24)	TE/TA	0.000 (1.02)	0.000 (1.02)	0.000 (1.01)	0.000 (0.99)
TE/TA	0.002** (2.25)	0.002** (2.26)	0.002** (2.12)	0.002** (2.12)	Lifecycle	0.000 (1.55)	0.000 (1.55)	0.000 (1.56)	0.000 (1.55)
Lifecycle	0.000 (1.44)	0.000 (1.45)	0.000 (1.45)	0.000 (1.45)	Cash	0.000 (1.63)	0.000 (1.62)	0.000 (1.52)	0.000 (1.53)
Profitability	0.002* (1.75)	0.002* (1.75)	0.002** (2.05)	0.002** (2.05)	Profitability	0.002*** (7.90)	0.002*** (7.90)	0.002*** (7.93)	0.002*** (7.94)
beta	0.002*** (3.62)	0.002*** (3.64)	0.002*** (3.55)	0.002*** (3.56)	Age	0.000*** (17.81)	0.000*** (17.81)	0.000*** (17.64)	0.000*** (17.65)
adjustedreturn	0.000 (0.65)	0.000 (0.68)	0.000 (0.64)	0.000 (0.65)	SP	-0.000 (-0.70)	-0.000 (-0.72)	-0.000 (-0.68)	-0.000 (-0.70)
SP	0.002** (2.50)	0.002** (2.55)	0.002*** (2.61)	0.002*** (2.62)	DM		0.001*** (3.33)		0.001*** (3.14)
DM		0.004* (1.66)		0.003* (1.85)	Local IOR*DM		0.001 (0.49)		
Dividend*DM		-0.058 (-1.23)			Count			-0.000 (-0.62)	-0.000 (-0.73)
Count			-0.000*** (-2.75)	-0.000 (-1.17)	Local IOR*Count			-0.000 (-0.11)	-0.000 (-0.31)
Dividend*Count			-0.000 (-0.11)	0.001 (0.12)	Count*DM				0.000 (0.48)
Count*DM				-0.000 (-0.41)	Local IOR*Count*DM				0.000 (0.27)
Dividend*Count*DM				-0.001 (-0.20)	Constant	-0.004*** (-9.77)	-0.004*** (-9.73)	-0.004*** (-9.60)	-0.004*** (-9.37)
Constant	-0.007*** (-3.00)	-0.007*** (-3.08)	-0.006*** (-2.64)	-0.006*** (-2.68)	Observations	26,387	26,387	26,387	26,387
Observations	26,387	26,387	26,387	26,387	R-squared	0.647	0.647	0.647	0.647
R-squared	0.696	0.696	0.696	0.696					

**Panel B: Nonlocal Institutional Holdings and Dividend Payout Ratio**

<b>Local_IOR(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Dividend(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<i>Nonlocal IOR</i>	<i>0.904***</i> (286.92)	<i>0.904***</i> (286.87)	<i>0.902***</i> (284.17)	<i>0.902***</i> (284.13)	<i>Dividend</i>	<i>0.757***</i> (187.34)	<i>0.757***</i> (187.34)	<i>0.757***</i> (187.25)	<i>0.757***</i> (187.20)
Dividend	-0.331*** (-4.79)	-0.271** (-2.43)	-0.185** (-2.14)	-0.191** (-2.20)	Nonlocal IOR	-0.001*** (-4.58)	-0.002*** (-4.16)	-0.001*** (-3.11)	-0.001*** (-2.94)
dv pay	0.005** (2.13)	0.005** (2.11)	0.005** (2.07)	0.005** (2.04)	NYA	0.002*** (7.10)	0.002*** (7.22)	0.002*** (6.97)	0.002*** (7.04)
NYA	0.024*** (7.28)	0.024*** (7.27)	0.022*** (6.41)	0.022*** (6.36)	Log(M/B)	0.001*** (11.70)	0.001*** (11.82)	0.001*** (11.71)	0.001*** (11.80)
Log(M/B)	0.011*** (18.17)	0.011*** (18.15)	0.011*** (18.42)	0.011*** (18.40)	TE/TA	0.000 (1.30)	0.000 (1.26)	0.000 (1.31)	0.000 (1.30)
TE/TA	-0.008*** (-3.34)	-0.008*** (-3.34)	-0.007*** (-3.05)	-0.007*** (-3.04)	Lifecycle	0.000* (1.90)	0.000* (1.87)	0.000* (1.89)	0.000* (1.88)
Lifecycle	-0.000 (-0.71)	-0.000 (-0.71)	-0.000 (-0.69)	-0.000 (-0.68)	Cash	0.000 (1.34)	0.000 (1.35)	0.000 (1.31)	0.000 (1.31)
Profitability	0.047*** (16.68)	0.047*** (16.68)	0.045*** (16.10)	0.045*** (16.08)	Profitability	0.002*** (8.89)	0.002*** (8.97)	0.002*** (8.80)	0.002*** (8.83)
beta	0.003** (2.31)	0.003** (2.31)	0.003** (2.55)	0.003** (2.58)	Age	0.000*** (16.96)	0.000*** (16.98)	0.000*** (16.91)	0.000*** (16.94)
adjustedreturn	0.008*** (11.88)	0.008*** (11.89)	0.008*** (11.90)	0.008*** (11.94)	SP	0.000 (0.02)	-0.000 (-0.16)	0.000 (0.03)	-0.000 (-0.08)
SP	0.003 (1.40)	0.003 (1.43)	0.003 (1.34)	0.003 (1.38)	DM		0.001* (1.68)		0.001** (2.28)
DM		0.045*** (10.05)		0.046*** (10.03)	Nonlocal IOR*DM		0.001* (1.94)		
Dividend*DM		-0.079 (-0.69)			Count			0.000 (0.61)	0.000 (1.03)
Count			0.001*** (5.44)	0.001*** (4.12)	Nonlocal IOR*Count			-0.000 (-0.77)	-0.000* (-1.67)
Dividend*Count			-0.016** (-2.48)	-0.012 (-1.01)	Count*DM				-0.000 (-0.58)
Count*DM				-0.000 (-1.36)	Nonlocal IOR*Count*DM				0.000 (1.33)
Dividend*Count*DM				-0.004 (-0.38)	Constant	-0.004*** (-10.02)	-0.004*** (-9.57)	-0.004*** (-9.81)	-0.004*** (-9.75)
Constant	-0.044*** (-7.75)	-0.044*** (-7.78)	-0.048*** (-8.43)	-0.049*** (-8.57)	Observations	26,387	26,387	26,387	26,387
Observations	26,387	26,387	26,387	26,387	R-squared	0.647	0.647	0.647	0.647
R-squared	0.863	0.863	0.863	0.863					

**Panel B: Total Institutional Holdings and Dividend Payout Ratio**

<b>Totalholding(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Dividend(t+1)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Totalholding	0.897*** (279.95)	0.897*** (279.87)	0.895*** (278.15)	0.895*** (278.10)	Dividend	0.756*** (187.17)	0.756*** (187.17)	0.756*** (187.06)	0.756*** (187.01)
Dividend	-0.367*** (-5.03)	-0.276** (-2.35)	-0.217** (-2.38)	-0.222** (-2.43)	Totalholding	-0.001*** (-5.39)	-0.002*** (-4.56)	-0.001*** (-3.66)	-0.001*** (-3.45)
dv pay	0.003 (1.33)	0.003 (1.30)	0.003 (1.28)	0.003 (1.25)	NYA	0.002*** (7.49)	0.002*** (7.59)	0.002*** (7.35)	0.002*** (7.42)
NYA	0.029*** (8.27)	0.029*** (8.25)	0.027*** (7.49)	0.027*** (7.45)	Log(M/B)	0.001*** (11.81)	0.001*** (11.93)	0.001*** (11.85)	0.001*** (11.93)
Log(M/B)	0.012*** (18.81)	0.012*** (18.80)	0.012*** (19.03)	0.012*** (19.01)	TE/TA	0.000 (1.43)	0.000 (1.40)	0.000 (1.46)	0.000 (1.44)
TE/TA	-0.006** (-2.47)	-0.006** (-2.46)	-0.005** (-2.21)	-0.005** (-2.20)	Lifecycle	0.000** (2.00)	0.000** (1.98)	0.000** (1.99)	0.000** (1.98)
Lifecycle	-0.000 (-0.06)	-0.000 (-0.05)	-0.000 (-0.05)	-0.000 (-0.04)	Cash	0.000 (1.63)	0.000 (1.64)	0.000 (1.58)	0.000 (1.58)
Profitability	0.049*** (16.64)	0.049*** (16.63)	0.048*** (16.09)	0.048*** (16.07)	Profitability	0.002*** (9.09)	0.002*** (9.15)	0.002*** (8.98)	0.002*** (9.01)
beta	0.004*** (3.23)	0.004*** (3.24)	0.004*** (3.42)	0.004*** (3.44)	Age	0.000*** (16.85)	0.000*** (16.88)	0.000*** (16.80)	0.000*** (16.84)
adjustedreturn	0.008*** (11.56)	0.008*** (11.58)	0.008*** (11.59)	0.008*** (11.62)	SP	0.000 (0.22)	0.000 (0.05)	0.000 (0.24)	0.000 (0.14)
SP	0.004* (1.95)	0.004** (1.99)	0.004* (1.88)	0.004* (1.92)	DM		0.001* (1.80)		0.001** (2.37)
DM		0.047*** (9.94)		0.048*** (9.82)	Totalholding*DM		0.001* (1.83)		
Dividend*DM		-0.119 (-0.98)			Count			0.000 (0.82)	0.000 (1.10)
Count			0.000*** (4.70)	0.001*** (3.57)	Totalholding*Count			-0.000 (-1.00)	-0.000* (-1.74)
Dividend*Count			-0.017** (-2.46)	-0.013 (-1.03)	Count*DM				-0.000 (-0.48)
Count*DM				-0.000 (-1.20)	Totalholding*Count*DM				0.000 (1.23)
Dividend*Count*DM				-0.004 (-0.35)	Constant	-0.004*** (-10.02)	-0.004*** (-9.58)	-0.004*** (-9.84)	-0.004*** (-9.78)
Constant	-0.047*** (-7.97)	-0.048*** (-8.02)	-0.051*** (-8.55)	-0.053*** (-8.65)	Observations	26,387	26,387	26,387	26,387
Observations	26,387	26,387	26,387	26,387	R-squared	0.647	0.647	0.647	0.647
R-squared	0.862	0.862	0.862	0.862					

### **Table 8: Herfindahl Index with Dividend Payout Ratio**

Similar to Table 5, this table reports the effect of institutional holdings and geographic dispersion (Herfindahl index instead of Count variable), and the 2000 Regulation dummy on the dividend payout ratio (Total dividends to common stock/Total assets). We use various approaches, including the panel data fixed effect model with standard error clustered by firm, controlling for year and firm fixed effect (Column 1-2), the OLS regressions with standard error clustered by firm and by year (Column 3-4), the Fama McBeth estimations, the OLS Tobit and the panel Tobit analyses (left censored at dividend payout ratio of 0 for firms that do not pay dividends).

Detailed of variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A focuses on the effect of Local Institutional Holdings and geographic dispersion levels on Dividend Payout Ratio. Similarly, Panel B and Panel C reports the effect of Non-local Institutional Holdings, and of Total Institutional Holdings on Dividend Payout Ratio, respectively.

Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location.

**Panel A: Impact of Local Institutional Holdings and Geographic Dispersion on Dividend Payout Ratio**

Dividend(t+1)	Fixed Effect		OLS clustered		FMB		OLS Tobit		Panel Tobit	
	1	2	3	4	5	6	7	8	9	10
Local_IOR	-0.0004 (-0.16)	-0.0002 (-0.08)	-0.0039 (-1.20)	-0.0048 (-1.54)	-0.0031* (-2.09)	-0.0050*** (-4.20)	-0.0135** (-2.05)	-0.0123* (-1.70)	0.0016 (0.21)	-0.0020 (-0.26)
H2		0.0001 (0.35)		0.0010** (2.22)		0.0006 (1.58)		0.0009 (1.01)		-0.0003 (-0.38)
H3		-0.0002 (-0.66)		0.0003 (0.82)		0.0004 (1.70)		-0.0010 (-1.04)		-0.0011 (-1.32)
H4		0.0001 (0.22)		0.0005 (1.28)		0.0005** (2.90)		-0.0009 (-0.91)		-0.0002 (-0.22)
H5		0.0001 (0.21)		0.0013** (2.19)		0.0011*** (3.90)		0.0023** (2.42)		0.0002 (0.17)
Local_IOR*H2		-0.0036 (-1.18)		-0.0027 (-0.78)		-0.0014 (-0.53)		-0.0190* (-1.83)		-0.0104 (-1.22)
Local_IOR*H3		-0.0016 (-0.48)		-0.0018 (-0.47)		-0.0035 (-1.57)		-0.0112 (-1.04)		-0.0048 (-0.51)
Local_IOR*H4		-0.0029 (-1.01)		-0.0035 (-0.92)		-0.0042*** (-3.89)		-0.0087 (-0.85)		-0.0099 (-1.04)
Local_IOR*H5		-0.0034 (-1.12)		-0.0016 (-0.28)		-0.0049* (-2.13)		-0.0083 (-0.84)		-0.0112 (-1.06)
DM	-0.0104 (-1.56)		0.0011*** (3.80)							
Herfindahl	-0.0008 (-0.93)		0.0010 (1.50)		0.0003** (2.28)		-0.0015 (-0.71)		-0.0048** (-2.57)	
Local_IOR*Herfindahl	-0.0071 (-1.25)		-0.0081 (-1.08)		-0.0120** (-2.55)		-0.0278 (-1.41)		-0.0411** (-2.19)	
DM*Herfindahl	0.0015* (1.68)		0.0018** (2.27)		0.0019*** (3.79)		0.0091*** (3.73)		0.0084*** (4.97)	
DM*Local_IOR*Herfindahl	0.0018 (0.39)		0.0015 (0.42)				0.0087 (0.51)		0.0156 (1.32)	
Constant	-0.0120* (-1.92)	-0.0123** (-1.97)	-0.0064* (-1.81)	-0.0067* (-1.87)	-0.0077*** (-7.90)	-0.0074*** (-6.95)	-0.0404*** (-9.15)	-0.0421*** (-9.66)	-0.0648*** (-5.37)	-0.0666*** (-5.52)
Firm FE	Y	Y	N	N	N	N	N	N	Y	Y
Year FE	Y	Y	Y	Y	N	N	Y	Y	Y	Y
Industry FE	N	N	Y	Y	Y	Y	Y	Y	N	N
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.038	0.038	0.189	0.188	0.215	0.216				



**Panel B: Impact of Non-local Institutional Holdings and Geographic Dispersion on Dividend Payout Ratio**

Dividend(t+1)	Fixed Effect		OLS clustered		FMB		OLS Tobit		Panel Tobit	
	1	2	3	4	5	6	7	8	9	10
Nonlocal_IOR	-0.0008 (-0.91)	-0.0007 (-0.80)	-0.0045*** (-3.73)	-0.0045*** (-3.69)	-0.0050*** (-10.41)	-0.0046*** (-5.78)	-0.0026 (-1.34)	-0.0086*** (-4.07)	0.0034 (1.47)	-0.0006 (-0.27)
H2		0.0001 (0.32)		0.0003 (0.45)		0.0001 (0.27)		-0.0026 (-1.46)		-0.0023 (-1.49)
H3		-0.0004 (-0.82)		-0.0002 (-0.36)		-0.0006 (-1.55)		-0.0052*** (-2.96)		-0.0053*** (-3.15)
H4		0.0003 (0.64)		-0.0001 (-0.15)		-0.0000 (-0.02)		-0.0044*** (-2.58)		-0.0008 (-0.49)
H5		-0.0001 (-0.23)		-0.0000 (-0.00)		-0.0003 (-0.76)		-0.0005 (-0.32)		-0.0023 (-1.26)
Nonlocal_IOR*H2		-0.0004 (-0.53)		0.0008 (0.75)		0.0005 (0.49)		0.0042 (1.46)		0.0026 (1.08)
Nonlocal_IOR*H3		0.0003 (0.38)		0.0006 (0.48)		0.0008 (0.95)		0.0066** (2.23)		0.0073*** (2.71)
Nonlocal_IOR*H4		-0.0010 (-1.08)		0.0001 (0.09)		0.0001 (0.12)		0.0048 (1.60)		-0.0003 (-0.11)
Nonlocal_IOR*H5		0.0003 (0.24)		0.0021 (1.41)		0.0021** (2.41)		0.0028 (0.94)		0.0038 (1.22)
DM	-0.0102 (-1.53)		0.0019*** (5.84)							
Herfindahl index	-0.0011 (-1.04)		0.0001 (0.10)		-0.0004* (-1.89)		-0.0025 (-0.94)		-0.0081*** (-2.99)	
Nonlocal_IOR*Herfindahl	0.0002 (0.09)		0.0009 (0.39)		0.0026*** (3.42)		-0.0007 (-0.12)		0.0076 (1.44)	
DM*Herfindahlindex	0.0015* (1.69)		0.0010 (0.81)		0.0005 (1.26)		0.0113*** (4.00)		0.0130*** (6.32)	
DM* Nonlocal_IOR*Herfindahl	-0.0002 (-0.16)		0.0014 (0.74)				-0.0058 (-1.14)		-0.0124*** (-3.26)	
Constant	-0.0120* (-1.91)	-0.0124** (-1.98)	-0.0060 (-1.64)	-0.0062* (-1.68)	-0.0064*** (-6.22)	-0.0061*** (-5.82)	-0.0399*** (-8.98)	-0.0390*** (-8.82)	-0.0645*** (-5.32)	-0.0655*** (-5.40)
Firm FE	Y	Y	N	N	N	N	N	N	Y	Y
Year FE	Y	Y	Y	Y	N	N	Y	Y	Y	Y
Industry FE	N	N	Y	Y	Y	Y	Y	Y	N	N
Observations	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.038	0.038	0.190	0.190	0.217	0.219				

### **Table 9: Herfindahl Index with Institutional Holdings**

Similar to Table 3, this table reports the effect of dividend policy (pay or not pay decision, and the level of dividend payment), geographic dispersion (Herfindahl index instead of Count variable), and the 2000 Regulation dummy on institutional holdings.

Detailed of variable definitions are provided in Appendix 1. The symbols, \*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

Panel A focuses on the impact of Dividend variables and geographic dispersion on Local institutional holdings, and respectively Panel B on Non-local institutional holdings, Panel C on Total institutional holdings.

Local institutional holdings gather the holdings of institutions which locate in the same state of their firm of investment while non-local institutional holdings assemble the holdings of institutions which locate in a difference state with their firms of investment. We obtain the institutional holdings data and investors' location from Thomson Reuters (Form 13F) and use the state of the firm' or the investor' headquarter as proxy for location.

The table shows that local institutions prefer firms with do business in 4 or 5 states the most (H4) – which are considered almost local firms, while non-local institutions avoid these incorporations. Local institutional holdings increase after 2000, but not in local firms which pay higher dividends. Non institutional holdings decrease in local firms after 2000, and also in local firms that pay higher dividend. The inclusion of the firms of investment in the S&P indices is an important driver for non-local institutional ownership, but not for local holdings.

<b>Panel A: Impact of Dividend Payout Ratio and Geographic Dispersion on Local Institutional Holdings</b>						
<b>Local_IOR(t+1)</b>	<b>Fixed Effect</b>		<b>OLS clustered</b>		<b>FMB</b>	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Dividend	0.002 (0.03)	-0.072 (-1.32)	-0.045 (-0.40)	-0.131 (-1.19)	-0.057 (-1.08)	-0.145** (-2.75)
dv_pay	-0.001 (-0.35)	-0.001 (-0.31)	-0.010*** (-2.81)	-0.009** (-2.52)	-0.010*** (-5.05)	-0.009*** (-4.72)
NYA	0.015 (1.54)	0.016* (1.72)	0.031*** (6.00)	0.034*** (6.59)	0.029*** (13.30)	0.031*** (14.89)
Log(M/B)	0.002*** (2.75)	0.002*** (2.78)	0.005*** (6.29)	0.005*** (6.25)	0.005*** (12.16)	0.005*** (11.90)
TE/TA	0.002 (0.64)	0.002 (0.59)	0.017*** (5.60)	0.017*** (5.45)	0.018*** (11.82)	0.018*** (11.53)
Lifecycle	0.000* (1.82)	0.000* (1.77)	0.000*** (3.75)	0.000*** (3.74)	0.000*** (4.50)	0.000*** (4.52)
Profitability	0.006** (2.19)	0.006** (2.27)	0.009*** (3.01)	0.010*** (3.27)	0.008*** (4.65)	0.008*** (4.67)
beta	-0.000 (-0.35)	-0.000 (-0.43)	0.010*** (5.29)	0.010*** (5.24)	0.011*** (7.83)	0.011*** (8.03)
adjustedreturn	0.000 (0.63)	0.000 (0.51)	-0.000 (-0.60)	-0.000 (-0.65)	-0.001 (-0.72)	-0.001 (-0.71)
Age	-0.004 (-1.44)	-0.004 (-1.49)	-0.000* (-1.93)	-0.000* (-1.94)	-0.000* (-1.94)	-0.000* (-1.82)
SP	0.002 (1.48)	0.002 (1.30)	0.010*** (3.70)	0.010*** (3.70)	0.010*** (7.03)	0.011*** (6.97)
H2		0.002 (1.31)		0.011*** (4.86)		0.012*** (7.12)
H3		0.002 (1.18)		0.013*** (4.57)		0.014*** (5.13)
H4		0.004** (2.16)		0.018*** (6.09)		0.017*** (11.48)
H5		0.003 (1.27)		0.016*** (5.37)		0.015*** (10.82)
Dividend*H2		0.081 (1.37)		-0.017 (-0.14)		0.009 (0.16)
Dividend*H3		0.010 (0.15)		0.081 (0.52)		0.097 (1.16)
Dividend*H4		-0.098 (-1.30)		-0.047 (-0.34)		0.022 (0.26)
Dividend*H5		-0.111 (-1.49)		-0.009 (-0.05)		-0.015 (-0.33)
DM	0.053* (1.94)		0.018*** (13.86)			
Herfindahl	-0.004 (-0.95)		0.008** (2.00)		0.004* (2.00)	
Dividend*Herfindahl	0.014 (0.12)		0.162 (0.77)		-0.117 (-1.61)	
DM*Herfindahl	0.008** (2.26)		0.012*** (3.46)		0.010*** (3.35)	
DM*Dividend*Herfindahl	-0.335*** (-3.55)		-0.443*** (-5.27)		0.000 (1.00)	
Constant	0.058** (2.07)	0.055** (2.00)	-0.000 (-0.02)	-0.005 (-0.24)	0.012 (0.71)	0.008 (0.49)
Observations	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.015	0.015	0.061	0.064	0.071	0.077

<b>Panel B: Impact of Dividend Payout Ratio and Geographic Dispersion on Non-local Institutional Holdings</b>						
<b>Nonlocal_IOR(t+1)</b>	<b>Fixed Effect</b>		<b>OLS clustered</b>		<b>FMB</b>	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Dividend	-0.454*	-0.272	-1.741***	-2.370***	-1.935***	-2.552***
	(-1.83)	(-1.06)	(-4.39)	(-5.15)	(-9.08)	(-7.65)
dv_pay	0.005	0.005	0.051***	0.050***	0.053***	0.054***
	(0.80)	(0.72)	(4.62)	(4.46)	(7.19)	(6.74)
NYA	0.132***	0.133***	0.370***	0.369***	0.373***	0.373***
	(5.43)	(5.43)	(17.67)	(17.68)	(19.15)	(19.54)
Log(M/B)	0.029***	0.029***	0.035***	0.035***	0.033***	0.033***
	(12.93)	(12.90)	(11.51)	(11.48)	(13.93)	(13.51)
TE/TA	0.037***	0.037***	0.032***	0.033***	0.042***	0.042***
	(5.29)	(5.26)	(3.52)	(3.59)	(6.20)	(6.08)
Lifecycle	0.001***	0.001***	0.003***	0.002***	0.003***	0.003***
	(3.48)	(3.47)	(7.46)	(7.54)	(8.38)	(7.98)
Profitability	0.047***	0.048***	0.209***	0.207***	0.209***	0.207***
	(6.12)	(6.13)	(12.68)	(12.56)	(12.52)	(12.29)
beta	0.023***	0.023***	0.068***	0.068***	0.063***	0.063***
	(11.44)	(11.52)	(6.40)	(6.54)	(6.02)	(6.05)
adjustedreturn	0.005***	0.005***	0.004	0.004	0.009*	0.009*
	(5.91)	(5.93)	(1.10)	(1.09)	(2.11)	(2.16)
Age	0.002	0.002	-0.002***	-0.002***	-0.002***	-0.002***
	(0.12)	(0.11)	(-7.08)	(-7.05)	(-7.99)	(-7.95)
SP	0.024***	0.024***	0.109***	0.109***	0.096***	0.095***
	(5.69)	(5.70)	(16.33)	(16.10)	(8.62)	(8.41)
H2		-0.000		-0.025***		-0.015*
		(-0.07)		(-3.56)		(-1.82)
H3		-0.005		-0.042***		-0.032***
		(-1.07)		(-5.41)		(-3.69)
H4		-0.010*		-0.064***		-0.055***
		(-1.91)		(-7.92)		(-8.13)
H5		-0.008		-0.079***		-0.071***
		(-1.41)		(-7.96)		(-6.52)
Dividend*H2		-0.172		0.756		0.595
		(-0.77)		(1.63)		(1.45)
Dividend*H3		0.085		1.528***		1.372**
		(0.31)		(3.41)		(3.07)
Dividend*H4		0.036		0.581		0.647
		(0.14)		(1.13)		(1.55)
Dividend*H5		0.068		0.197		0.263
		(0.23)		(0.37)		(0.81)
DM	0.175		0.241***		0.000	
	(0.90)		(35.84)		(.)	
Herfindahl	0.001		-0.081***		-0.024*	
	(0.08)		(-5.05)		(-2.16)	
Dividend*Herfindahl	0.730*		0.959		0.183	
	(1.68)		(1.38)		(0.49)	
DM*Herfindahl	-0.028***		-0.041***		-0.085***	
	(-2.65)		(-2.71)		(-3.90)	
DM*Dividend*Herfindahl	-0.386		-1.297**		-0.003	
	(-1.26)		(-2.51)		(-1.00)	
Constant	0.038	0.045	-0.022	-0.022	0.102**	0.089*
	(0.21)	(0.25)	(-0.43)	(-0.43)	(2.44)	(2.11)
Observations	26,387	26,387	26,387	26,387	26,387	26,387
R-squared	0.290	0.289	0.455	0.456	0.436	0.440

**Table 10: Key variable statistics by Herfindahl Index**

This table reports the sample statistics by geographic dispersion quintiles (Herfindahl\_quintiles). The data consist of publicly held US firms between 1997 and 2007 with institutional holdings and investors' location except utility and financial companies. In the table, firms in the sample are divided annually into five different quintiles of geographic dispersion (proxy by Herfindahl-index, explanation for Herfindahl-index is presented in Appendix 2.2). Details of the variable definitions are provided in Appendix 1.

<i>Herfindahlindex quintiles</i>	<i>Herfindahl-index</i>	<i>Count</i>	<i>Dividend (%)</i>	<i>dv_pay</i>	<i>Local_IOR (%)</i>	<i>Nonlocal_IOR(5)</i>	<i>Totalholding (%)</i>	<i>NYA</i>	<i>Profit-ability</i>	<i>Lever-age</i>	<i>Growth</i>	<i>Cash</i>	<i>Life-cycle</i>	<i>Age</i>	<i>N</i>
1	0.144	17.029	0.676	0.390	3.791	53.670	57.328	0.380	0.068	0.436	6.791	0.113	0.118	17.284	5,282
2	0.250	9.634	0.601	0.272	4.633	43.981	48.496	0.242	0.007	0.476	6.862	0.181	-0.537	14.921	5,276
3	0.348	6.537	0.481	0.217	4.719	40.520	45.161	0.195	-0.029	0.506	6.951	0.237	-0.769	14.044	5,285
4	0.482	4.658	0.439	0.190	5.110	35.504	40.466	0.157	-0.060	0.522	7.061	0.273	-1.077	13.180	5,364
5	0.791	2.656	0.511	0.198	4.919	31.988	36.827	0.128	-0.075	0.539	7.124	0.290	-1.101	13.345	5,180

## Appendix 1: Variable Definition

Variable Name	Definition
Totalholding	is the proportion of outstanding shares held by institutional investors (as reported in Form 13F)
Local_IOR	is the proportion of outstanding shares held by local institutional investors (investors with headquarters in the same state as the headquarters of their investment firms)
Nonlocal_IOR	is the proportion of outstanding shares held by non-local institutional investors (investors with headquarters in a different state to the headquarters of their investment firms)
dv_pay	is the dummy variable for the decision to pay or not pay a dividend, which takes the value of 1 if the firm paid a dividend, and 0 otherwise
Dividend	is the dividend payout ratio, equal to the total dollar amount of annual dividends paid to common stock divided by the book value of total assets
Lifecycle	is the retained earnings to total equity ratio, as a proxy for lifecycle
Age	is firm age, calculated based on the year that firm price data become available in CRSP.
Size	is the natural logarithm of the book value of sales of the company at financial year end
Profitability	is the earnings before interest and tax to book value of the total assets
Growth	is the natural logarithm of the book value of total assets plus the market value of total equities minus the book value of equities to the book value of total assets
Leverage	is the total equity to total assets ratio.
Cash	is the ratio of the book value of cash and equivalent to the book value of total assets
industry	is the dummy variable for industry, which takes the value from 1-9 as 1 digit SIC code number
beta	is the company beta taken from CRSP
adjustedlreturn	is the annual adjusted return, equal to the difference between the annual return of stock and the beta return of the stock (CAPM model with 10-year bond yield and realized return on S&P 500)
Count	is the proxy for geographic dispersion of the firms, and equals the number of the states that are mentioned in a firm's annual report.
Di	is the dummy variable for geographic dispersion quintiles (i=1-5), which takes the value of 1 if the dispersion quintile of a particular firm in a particular year belong to the dispersion quintile i, and 0 otherwise.
DM	is the dummy variable for period 2001-2008, and takes the value of 1 if year>2000, and 0 otherwise
SP	S&P dummy: dummy for inclusion in S&P indices (1 if included, 0 otherwise)

## **Appendix 2: Measures of Geographic Dispersion**

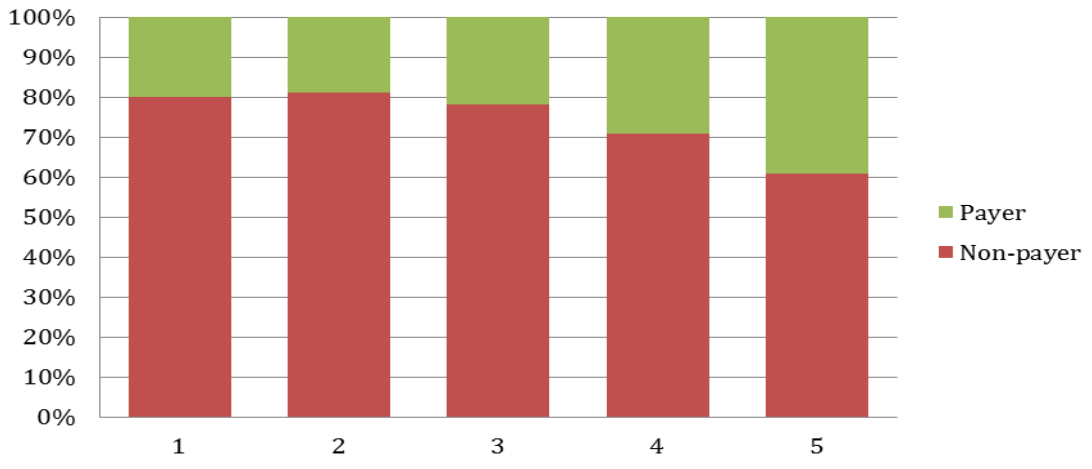
### *Appendix 2.1. State Count for Geographic dispersion*

We follow Garcia and Norli (2012) and use the data provided by Norli on geographic dispersion in our research. “The degree of geographic dispersion of a firm’s business operations is measured using data from 10-K filings. Form 10-K is an annual report required by the SEC that gives a comprehensive summary of a public company’s performance and operations”. This report is due 90 days after the end of a firm’s fiscal year, especially incorporate information on the firm’s operation during that year, provide information on the firm’s properties, such as factories, warehouses, and sales offices. Computerized parsing of all 10-Ks files with the SEC allows a count of the number of times each 10-K mentions a US state name. In our research, we simply measure geographic dispersion as the number of different states mentioned in the report (see Garcia and Norli (2012) for more details). The higher the Count, the higher level of geographic dispersion the firm is classified.

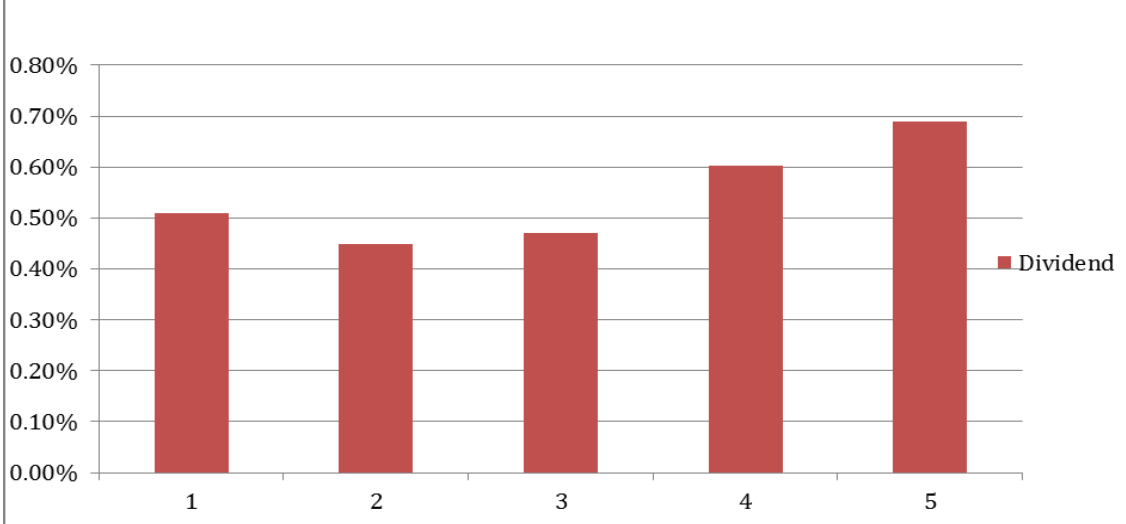
### *Appendix 2.2. Herfindahl Index for Geographic dispersion*

We use the Herfindahl Index in our Robustness Check as another proxy for geographic dispersion of the firms. Instead of the simply count of number of the states mentioned in a firm’s annual report (Form 10-K), the Herfindahl Index approach calculate the sum of all square values of the weighted count of each state that is cited in the report. The state that is more often named in the report will get the higher weight (equal to the time that state is mentioned over the total time that all states are included in the report), with the total weight equals to one (1). The highest Herfindahl Index (closer to 1) quintile represent the “truly local firms” while the lowest Herfindahl Index (closer to 0) quintile represent the “geographic dispersed firms”.

**Figure 1: Number of Dividend Payers/Non-Payers by Dispersion Quintiles**



**Figure 2: Dividend Payout Ratio by Dispersion Quintiles**



**Figure 3: Dividend Payout Ratio by Time**

