J. Account. Public Policy 34 (2015) 490–508

Contents lists available at ScienceDirect

J. Account. Public Policy

journal homepage: www.elsevier.com/locate/jaccpubpol

Geographic dispersion and earnings management ☆

Guifeng Shi [a], Jianfei Sun [a,*], Rui Luo [b]

[a] Department of Accounting, Antai College of Economics and Management, Shanghai Jiao Tong University, 535 Fahua Zhen Rd., Shanghai 200052, PR China
[b] School of Economic Sciences, Washington State University, Hullbert Hall 105G, Pullman, WA 99164-6210, USA

ABSTRACT

Using a sample of U.S. listed firms in the period from 1994 to 2011, we examine how the geographic dispersion of a firm affects the earnings management's choice between accrual based management and real activities management. We show that geographically dispersed firms have lower accrual based management but higher real earnings management, when compared to geographically concentrated firms. These patterns remain robust to various proxies for geographic dispersion and are not likely to be driven by the firm's endogenous choice. We further show that our results are consistent with the investor recognition explanation as in Merton (1987) and Garcia and Norli (2012).

1. Introduction

The widespread use of earnings management has elicited an increasing research interest in gauging the incentives and consequences of earnings management (e.g., Graham et al., 2005; Zang, 2012). The trade-offs between managerial choices of alternative manipulative channels – that is, between the accrual-based earnings management (hereafter, AM) and the real activities earnings management (hereafter, RM) – have become a recent focus in the accounting literature. A number of factors,

☆ The authors thank two anonymous referees and Martin Loeb for their helpful suggestions and comments. We especially thank Diego Garcia for sharing us with the data in this paper. We acknowledge funding from the National Nature Science Foundation of China (NSFC-71002036) and Shanghai Pujiang Program (13PJC078 and 12PJC062). All errors are our own.

* Corresponding author. Tel./fax: +86 21 52301597.
E-mail address: sunjianfei@sjtu.edu.cn (J. Sun).

http://dx.doi.org/10.1016/j.jaccpubpol.2015.05.003
0278-4254/

including relative legislation costs (Cohen et al., 2008; Cohen and Zarowin, 2010; Jaggi et al., 2009), signaling demand (Kothari et al., 2012; Zhao et al., 2012), cost of equity (Kim and Sohn, 2013), ethical attitudes (Graham et al., 2005; McGuire et al., 2012), and corporate social responsibilities (Elias, 2002; Kim et al., 2012), have been documented to be relevant in the managerial use of alternative earnings management methods. However, despite the enormous amount of research conducted in this new area, the elements of corporate economic geography have played a relatively minor role in the earnings management literature.

Corporate geographic dispersion has been shown to play a significant role with respect to firm value (Kang and Kim, 2008; Gao et al., 2008), stock returns (Garcia and Norli, 2012), and corporate finance and management policy making (Almazan et al., 2010; Becker et al., 2011; Landier et al., 2009). These papers argue that this is because economic geography of firms affects a firm's information asymmetry, social networks, investor recognition conditions, and other such factors. In agreement with this literature, and especially along the lines of the investor recognition explanation (Merton, 1987; Garcia and Norli, 2012), we argue that corporate geographic dispersion affects managerial decisions about earnings management. Specifically, in this paper we investigate how a firm's geographic dispersion may influence its earnings management choices between AM and RM.

Following Garcia and Norli (2012), we define the level of domestic geographic dispersion as the number of states in which a firm operates, as mentioned in its 10-K filings. Based on a large sample of U.S. listed firms between 1994 and 2011, we show that geographically dispersed (hereafter, GD) firms have lower AM and higher RM than geographically concentrated firms, or local firms. This pattern is robust to alternative measures of geographic dispersion.

Identification of the effect of geographic dispersion on earnings management using panel evidence is complicated by concerns over the direction of causality and potential endogeneity. In particular, it would be possible for a manager who prefers to manipulate through accruals to choose to concentrate his/her firm's business. However, our causality test using a 2SLS assuages this possibility.

In summary, our findings add to the literature earnings management by suggesting another factor, corporate geographic dispersion, that may affect management's use of alternative earnings management. We find that dispersed firms prefer RM to AM, while local firms tend to prefer AM to RM. These results are consistent with the investor recognition explanation (Merton, 1987; Garcia and Norli, 2012). Geographic dispersed firms are in possession of a broader investor base, and thus they may receive greater attention from investors, the media, analysts and financial institutions. If geographically dispersed firms engaged in more AM practices, such as changing the accounting methods or estimates, they would be exposed to more outside scrutiny and would potentially have a greater probability of being detected by auditors and regulators. Therefore, geographically dispersed firms tend to have lower AM and higher RM, as implied by the tradeoff argument in Zang (2012).

Our main contribution consists of providing direct evidence that corporate geographic dispersion may affect the trade-offs between AM and RM. The results are a step toward reaching a more comprehensive understanding of managerial tradeoffs between alternative available earnings management vehicles. This may help both investors and regulators to assess the quality of earnings reports. Moreover, these findings supplement the growing literature on corporate economic geography, shedding light on the role of geographic dispersion in managerial decisions about earnings management.

The article is organized as follows: In Section 2 we develop our hypothesis and describe our research design. Data and descriptive statistics are presented in Section 3, and empirical findings and results of supplementary tests are reported in Section 4 and Section 5, respectively. In Section 6, we discuss the implications of this work.

2. Hypothesis development and research design

2.1. Earnings management

In the accounting literature, many papers have studied reporting irregularity. Following Healy (1985), a large number of papers started to study management earnings manipulation. Some papers have documented evidence that managers engage in AM in order to obtain private gains from certain aspects, such as option granting (e.g., McAnally et al., 2008), IPO (e.g., Aerts and Cheng, 2011), and acquirers' stock-for-stock merger (e.g., Higgins, 2013).

McAnally et al. (2008) find that firms that miss earnings targets have larger and more valuable subsequent grants, and that the likelihood of missing earnings targets for firms that manage earnings downward through AM increases with stock-option grants. Aerts and Cheng (2011) find evidence of close alignment of a firm's AM propensity and its use of tactical causal disclosures, as well as association between stronger AM and more intense assertive causal disclosure. Also along this line of equity issuing, Higgins (2013) finds that Japanese acquirers have significantly positive long-term abnormal accruals in the year prior to a stock-for-stock merger announcement. Finding unusually low frequencies of small decreases in earnings and small losses, and unusually high frequencies of small increases in earnings and small positive income, Burgstahler and Dichev (1997), on the other hand, provide evidence that firms manage reported earnings as a way to avoid earnings decreases and losses. Bhojraj et al. (2009) also analyze the effect of AM on stock valuation, finding that although firms which beat analyst forecasts by managing earnings reports tend to procure short-term stock price benefits, the benefit from the manipulation reverses in a 3-year horizon.

An alternative view on AM is that managers may use AM to improve the ability of earnings to reflect economic value. Subramanyam (1996) finds that discretionary accruals are associated with several performance measures. Thus, managers' accrual choices increase the informativeness of accounting earnings and are useful in predicting future performance. However, using a sample of restatement firms and a meet-or-beat model to classify firms as making discretionary accounting choices for opportunistic meet-or-beat reasons, Badertscher et al. (2012) show that originally reported earnings and accrual components are less predictive of future cash flows relative to the restated numbers.

In contrast to this stream of the accounting literature examining AM, other papers have focused on why firms choose RM instead. Roychowdhury (2006), for instance, argues that managers use RM to avoid reporting annual losses or to meet certain benchmarks. Cohen and Zarowin (2010) point out that, although real activities manipulation seems to have smaller legislative costs due to the difficulty of detection, the long-term costs it bears could be much higher than those resulting from manipulating accruals. Kim and Sohn (2013) find that a firm's cost of equity is positively correlated with the extent of earnings management, especially for firms using RM. This implies that RM introduces more noise in reported earnings, as it distorts cash flows through real operational manipulation activities. Kim and Sohn (2013) also suggest that RM is difficult to detect and is normally less subject to external scrutiny. A different point of views on RM has been presented by Gunny (2010), who shows that RM could be an informative behavior to signal future performance, as the usage of RM to meet benchmarks may bring current-period benefits which eventually increase the firm's future performance.

As discussed above, prior studies have documented findings that firms may use either AM (e.g., McAnally et al., 2008) or RM (e.g., Roychowdhury, 2006; Graham et al., 2005) to manage earnings. There also exist some papers that document how and why firms make choices between these two strategies (e.g., Cohen et al., 2008; Cohen and Zarowin, 2010). Along this line of work, Zang (2012) studies the trade-off between AM and RM. She shows that firms may choose one strategy over the other based on the relative costs of the two activities. Zang (2012) further shows that (1) AM is constrained by the presence of high-quality auditors and a heightened scrutiny of accounting practice after the passage of the Sarbanes–Oxley Act (SOX), as well as by the firms' accounting flexibility; and that (2) RM is constrained by firms' competitive status in the industry, financial health, scrutiny from institutional investors, and the immediate tax consequences of manipulation.

Other than the factors mentioned in Zang (2012), scholars also have shown that relative legislation costs (Cohen and Zarowin, 2010; Jaggi et al., 2009), signaling demand (Kothari et al., 2012; Zhao et al., 2012), cost of equity (Kim and Sohn, 2013), ethical attitude (Graham et al., 2005; McGuire et al., 2012), duration of overvaluation (Badertscher, 2011) and corporate social responsibilities (Kim et al., 2012) may also be factors affecting the managerial use of alternative manipulation channels.

2.2. Geographic dispersion and earnings management choices between AM and RM

Our paper argues that there exists another important factor that may affect the choice between AM and RM strategies, namely, corporate geographic dispersion.

The connection between geographic dispersion and stock returns has been examined by Garcia and Norli (2012), who find that stock returns of local firms exceed those of geographically dispersed firms by 70 basis points per month. Following the work by Merton (1987), they suggest the investor recognition explanation for their findings, i.e., firms with lower investor recognition would have higher stock returns to compensate investors for insufficient diversification.[1] Garcia and Norli (2012) argue that local firms have a smaller investor base and, thus, lower investor recognition than geographically dispersed firms. Therefore, local firms would have higher stock returns than geographically dispersed firms. The empirical tests in their paper further prove that their findings are consistent with the investor recognition argument.[2]

Along this story line, since geographically dispersed firms have a larger investor base and higher investor recognition (Garcia and Norli, 2012), they might be more likely to have more institutional holdings, more financial analyst followings, and more media coverage. Therefore, geographically dispersed firms are likely to be faced with higher public attention. If geographically dispersed firms had higher AM, including changing the accounting methods or estimates, they would be exposed to more outside scrutiny and potentially would have a greater probability of being detected by auditors and regulators. As a result, geographically dispersed firms tend to have a lower level of AM.[3]

In terms of RM, the survey by Graham et al. (2005) shows that firms tend to have a higher willingness to manipulate earnings through real activities rather than accruals, maybe because RM is less likely to draw scrutiny and attention from auditors and regulators than AM (Roychowdhury, 2006). Other empirical papers have also documented this finding (Cohen et al., 2008; Cohen and Zarowin, 2010; Zang, 2012). Zang (2012) further suggests the trade-off explanation between AM and RM, and shows that there is a negative relationship between AM and RM.

Geographic dispersion may complicate corporate information. Landier et al. (2009) show that corporate geographic dispersion is associated with corporate business decisions.[4] Bushman et al. (2004) argue that corporate information complexities can arise due to geographic dispersion.[5] Those complexities could make the firms more inclined to do RM and maybe able to better defend themselves if they were questioned about RM.

According to the above discussion, we have the following two hypotheses:

H1. Geographically dispersed firms have lower AM than local firms.

H2. Geographically dispersed firms have higher RM than local firms.

2.3. Measuring geographic dispersion

Our data on geographic dispersion covers the period from 1994 to 2011. We first obtain the data between 1994 and 2007 from Garcia and Norli (2012).[6] Then, for the period from 2008 to 2011, we follow Garcia and Norli (2012) and get, through a computerized parsing of all 10-K's filed with the SEC during that period, a count of the number of times each 10-K mentions a U.S. state name. We also follow Garcia and Norli (2012) in defining the degree of geographic dispersion of a firm's business operations as the number of different operating states mentioned in its 10-K filings. As Garcia and Norli (2012) explain, the counted number is comprised of the occurrence of different state names in the 10-K sections "Item 1: Business", "Item 2: Properties", "Item 6: Consolidated Financial Data", and "Item 7:

[1] Merton (1987) theoretically shows that when investors are not aware of all securities, expected returns decrease with the size of the firm's investor base, which he characterizes as "the degree of investor recognition."

[2] Empirically, there are other papers that study the investor recognition using different measures such as non-U.S. firms cross-listing shares on U.S. exchanges (Foerster and Karolyi, 1999), media attention (Fang and Peress, 2009), and the shadow cost of incomplete information (Bodnaruk and Ostberg, 2009).

[3] As the literature has shown (Zang, 2012), firms facing greater outside scrutiny would have a lower AM and a higher RM.

[4] Unlike Garcia and Norli (2012), Landier et al. (2009) define geographically dispersed firms as firms below the sample median for the proportion of divisions in the same state as headquarters, while concentrated firms are firms above the median.

[5] Also unlike Garcia and Norli (2012), Bushman et al. (2004) use segments sales data to define geographic dispersion.

[6] We are very grateful to Diego Garcia for sharing with us the data on geographic dispersion from 1994 to 2007.

Management's Discussion and Analysis". We exclude those firms whose 10-K forms contain the name of zero U.S. states being excluded. Therefore, geographic dispersion for firm i for fiscal year t is an integer in {1, 2, ..., 50}. We then take the natural log of the above integer as our independent variable.

2.4. Measuring the association between geographic dispersion and earnings management

For the H1, we utilize a cross-sectional modified Jones's (1991) model, which was initially promoted by DeFond and Subramanyam (1998). Following Kothari et al. (2005), we use the performance-matching procedure to estimate the absolute value of discretionary accruals (ABS_DA). We do this because controlling for ROA in the regression is insufficient and the performance-matching procedure in Kothari et al. (2005) is designed to mitigate the non-linear relation between accruals and firm performance. The regression equation we adopt is shown in Eq. (1):

$$ABS\_DA = \beta_0 + \beta_1 GD + \beta_2 RM + \sum_l \beta_{3,l} Control_l + u \quad (1)$$

Then, for H2, our model testing the influence of geographic dispersion on earnings management that uses RM (H2) takes the following form:

$$RM = \beta_0 + \beta_1 GD + \sum_l \beta_{2,l} Control_l + u \quad (2)$$

The dependent variable, RM, is developed pursuant to the literature as the unexplained residual of real activities (e.g., Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Badertscher, 2011; Zang, 2012). Specifically, considering that real activities manipulation impacts CFO in different directions and its net effect is ambiguous (Roychowdhury, 2006; Zang, 2012), we estimate the level of a firm's RM as the aggregate of two real activities manipulation measures: (1) abnormal product costs (AB_EXP), and (2) abnormal discretionary expenses (AB_PROD) from the following Eqs. (3) and (4), respectively. The residuals of AB_EXP are multiplied by minus 1 in order to make the higher values of variables correspond to greater levels of RM.[7]

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \varepsilon_t \quad (3)$$

$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \alpha_4(S_{t-1}/A_{t-1}) + \varepsilon_t \quad (4)$$

Some other variables, including firm size (Waddock and Graves, 1997), growth opportunities (McWilliams and Siegel, 2000; Prior et al., 2008), R&D expenses (Roychowdhury, 2006), advertisement intensity (Cohen and Zarowin, 2010; Kim and Sohn, 2013), firm age (Roychowdhury, 2006; Cohen et al., 2008), profitability (Musteen et al., 2009), leverage (Teoh et al., 1998; Kim and Park, 2005), and the presence of BIG 4 auditors (Becker et al., 1998; Francis et al., 2005) are controlled and expressed as $control_t$ in our analysis so as to isolate the effect of geographic dispersion on earnings management. All these variables are documented in the existing literature as being relevant to earnings management.

Considering the substitutive relation between the two earnings management methods, we also control RM in the AM regression. For the RM regression, since managers usually adjust real activities manipulation during the fiscal year before the accrual-based earnings management is realized (Zang, 2012), we include not AM itself, but the costs of AM. Other than the presence of BIG 4 auditors, the other costs of AM including auditor tenure, whether or not the observation is from the post-SOX period, net operating assets at the beginning of the year, and the length of operating cycles are expressed as $control_t$ in the RM regression.

[7] When we investigate H2, we also investigate the effect of geographic dispersion on each individual part of RM. The results (not reported) remain unchanged.

3. Data and descriptive statistics

To examine how a firms' geographic dispersion affects management's use of alternative earnings management channels, we obtain most of the variables for U.S. listed firms in the period from 1994 to 2011 from the Compustat database, with financial and utility firms (SIC 6000–6999 and SIC 4900–4949, respectively) excluded and all main variables except for the dummy ones winsorized at the 1% level. There are a total of 51,077 observations in the sample. All variables are defined in the Appendix A and their summary descriptions are depicted in Panel A of Table 1.

As can been seen in Panel A, the mean value of absolute discretionary accruals (ABS_DA) is 0.14. The average number of different U.S. states names occurring in the annual 10-K form, which is represented by C_state, is 8.31. We transform the counted states numbers into the degree of geographic concentration by taking the natural log of the C_state and calling it GD. As the variable GD increases, so does the level of geographic dispersion. Panel B of Table 1 presents Pearson correlation coefficients for selected variables. As we can see, GD is significantly negatively correlated with ABS_DA (with a correlation of −0.119) and significantly positively correlated with RM (with a correlation of 0.057). The correlation relationship shows that geographically dispersed firms are less likely to engage in AM and more likely to engage in RM.

To highlight the differences of variables across differently geographically located firms, we rank the level of geographic dispersion into quintiles and define a firm as "local" if its degree of geographic dispersion is in the bottom quintile and as "dispersed" if it is in the top quintile. We present the distribution of the average dependent and independent variables as well as some control variables across the five quintiles in Panel A, Table 2. The mean value of C_state for local firms is 2.32 and for dispersed firms it is 21.49. The average value of ABS_DA is 0.16 for local firms and 0.11 for dispersed firms. The mean of RM increases as a firm becomes more geographically dispersed (a mean RM of −0.03 compared with 0.07). The differences of these three variables across local and dispersed firms are all significant at 1% level (Panel B of Table 2).

A comparison of descriptive statistics of variables between local and dispersed firms is reported in Panel B, Table 2. Compared with their local peers, firms that disperse their business nationwide tend to be of greater size and with lower growth opportunity, consistent with Garcia and Norli (2012). On the other hand, ROA, financial leverage, advertisement intensity, firm age, percentage of firms audited by one of the big 4 auditing firms, auditor tenure, and net operating assets at the beginning of the year are significantly larger for the dispersed firms than for their local counterparts.

4. Empirical results

4.1. 2SLS regressions of earnings management on geographic dispersion

As mentioned above, we argue that firms with a geographically dispersed business tend to have lower AM but higher RM than their geographically concentrated counterparts, or local firms. However, the causality issue may arise since it is also possible that in order to escape from rigid outside surveillance, firms that more frequently manipulate RM than AM may choose to disperse their business. To address this issue, we resort to the instrumental variable method by employing a 2SLS regression in order to remove possible estimation biases caused by this causality – if the instruments are uncorrelated with the error terms and are sufficiently correlated with the endogenous elements of the variable of interest. We use the average value of domestic geographic dispersion of other firms that are headquartered in the same state as the firm but operate in other industries (based on 2-digit SIC industry) as the instrument variable for a firm's domestic geographic dispersion.

Table 3 reports the empirical results using a 2SLS regression to control for the endogeneity between earnings management and domestic geographic dispersion. In Panel A of Table 3, we focus on the whole sample, while in Panel B, we look at the subsample of suspect firms. For the whole sample in Panel A, the *F*-statistics in the first stage regression of 2SLS (not reported) are 262.86 and 255.58 for AM and RM regressions, respectively. Both of them are much higher than the approximate cutoff of 10 for weak instruments suggested by Stock and Yogo (2005). In the second stage regression of 2SLS,

Table 1
Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Bottom 25%	Median	Top 25%
Panel A: Univariate Statistics						
DA	51,077	−0.01	0.21	−0.09	0.00	0.08
ABS_DA	51,077	0.14	0.16	0.04	0.09	0.18
RM	51,077	0.02	0.52	−0.18	0.06	0.30
C_state	51,077	8.31	8.07	3.00	6.00	10.00
GD	51,007	1.76	0.85	1.10	1.79	2.30
SIZE	51,077	5.22	2.24	3.64	5.23	6.75
MB	51,077	2.81	4.42	1.09	1.92	3.42
ADJ_ROA	51,077	−0.03	0.26	−0.06	0.02	0.08
LEV	51,077	0.17	0.20	0.00	0.10	0.27
RD_INT	51,077	0.08	0.18	0.00	0.00	0.07
AD_IND_INT	51,077	0.01	0.01	0.01	0.01	0.02
FIRM_AGE	51,077	4.79	1.03	4.14	4.89	5.56
BIG4	51,077	0.79	0.41	1.00	1.00	1.00
Audit_Tenure	51,077	0.60	0.49	0.00	1.00	1.00
SOX	51,077	0.49	0.50	0.00	0.00	1.00
NOA	51,077	0.49	0.50	0.00	0.00	1.00
Cycle	51,077	139.02	109.78	72.69	114.96	172.01

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Panel B: Correlation Matrix (Pearson Below)														
(1) ABS_DA														
(2) RM	**−0.152**													
(3) GD	**−0.119**	**0.057**												
(4) SIZE	**−0.179**	**0.015**	**0.304**											
(5) MB	**0.076**	**−0.158**	**−0.033**	**0.221**										
(6) ADJ_ROA	**−0.324**	**0.192**	**0.075**	**0.307**	**0.015**									
(7) LEV	**−0.048**	**0.080**	**0.186**	**0.063**	**−0.103**	**−0.055**								
(8) RD_INT	**0.188**	**−0.248**	**−0.166**	**−0.057**	**0.112**	**−0.410**	**−0.137**							
(9) AD_IND_INT	**−0.017**	**−0.027**	**0.024**	**0.026**	**0.023**	**0.060**	0.003	**0.036**						
(10) (FIRM_AGE	**−0.170**	**0.131**	**0.071**	**0.183**	**−0.079**	**0.186**	**0.030**	**−0.157**	**0.033**					
(11) BIG4	**−0.125**	**0.023**	**0.138**	**0.417**	**0.035**	**0.140**	**0.082**	−0.005	**−0.015**	**−0.021**				
(12) Audit_Tenure	**−0.113**	**0.063**	**0.076**	**0.170**	**−0.030**	**0.132**	**0.022**	**−0.083**	**0.019**	**0.407**	**0.152**			
(13) SOX	**−0.075**	**−0.009**	**0.140**	**0.187**	**−0.017**	**0.047**	**−0.032**	**0.025**	**0.053**	**0.173**	**−0.156**	**0.033**		
(14) NOA	**−0.067**	**0.125**	**0.066**	**0.142**	**−0.031**	**0.018**	**0.144**	0.002	**0.029**	**−0.032**	**0.056**	0.002	0.006	
(15) Cycle	**0.055**	**−0.072**	**−0.191**	**−0.116**	0.006	**−0.121**	**−0.081**	**0.247**	**0.048**	**0.041**	**−0.090**	**0.017**	**−0.039**	**0.166**

This table reports the summary statistic tests for the whole sample. The sample consists of U.S. firms listed in the Compustat database in the period from 1994 to 2011. The financial and utility firms (SIC 6000–6999 and SIC 4900–4949) are excluded and all the variables excepting the dummy variables are winsorized at 1% level. Variables are defined in Appendix A. Bolded coefficients in Panel B are significant at $p < 0.10$ (two-tailed test).
Bolded coefficients are significant at $p < 0.10$ (two-tailed test).

Table 2
Univariate statistics by local firms versus dispersed firms.

	Local mean (median)	Q2 mean (median)	Q3 mean (median)	Q4 mean (median)	Dispersed mean (median)
Panel A					
C_state	2.32 (2)	4.42 (4)	6.38 (6)	9.48 (9)	21.49 (18)
ABS_DA	0.16 (0.10)	0.15 (0.09)	0.14 (0.09)	0.13 (0.08)	0.11 (0.07)
RM	−0.03 (0.05)	−0.003 (0.06)	0.01 (0.06)	0.06 (0.08)	0.07 (0.07)

	Local mean	Dispersed mean	Difference = Local–Dispersed (*t*-value)
Panel B			
C_state	2.32	21.49	−19.17*** (−220)
ABS_DA	0.16	0.11	0.05*** (23.31)
RM	−0.03	0.07	−0.09*** (−13.09)
SIZE	4.50	6.28	−1.78*** (−58.89)
MB	2.95	2.63	0.32*** (5.33)
ADJ_ROA	−0.05	0.01	−0.06*** (−16.86)
LEV	0.12	0.24	−0.11*** (−42.65)
RD_INT	0.11	0.02	0.09*** (38.89)
AD_IND_INT	0.0125	0.013	0.0005*** (−3.35)
FIRM_AGE	4.76	4.90	−0.14*** (−10.06)
BIG4	0.70	0.90	−0.20*** (−36.41)
Audit_Tenure	0.57	0.66	−0.09*** (−13.18)
SOX	0.48	0.50	−0.02*** (−2.76)
NOA	0.45	0.54	−0.10*** (−14.41)
Cycle	163.58	104.40	59.17*** (40.04)

This table presents univariate statistics of C_state, ABS_DA, and RM across the five quintiles (Panel A) and tests the differences of certain variables between local firms and dispersed firms. See Appendix A for variable definitions. *T*-statistics are in parentheses.
* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

the coefficients of the predicted value of geographic dispersion are −0.027 (significant at 5% level) for the ABS_DA regression and 0.315 (significant at 1% level) for the RM regression, respectively. In summary, these findings reported in Panel A of Table 3 are consistent with our prediction that geographic dispersion may influence management use of earnings management, predisposing dispersed (local) firms to AM (RM) at times of manipulation.

In the above regression we use the estimated residuals from the regressions as proxies for AM and RM. However, it is plausible to argue that these residuals themselves might not necessarily reflect earnings management without considering incentives of earnings management, without which one could not distinguish, for example, poor business decisions from real earnings management. To control for this possible effect, some previous studies have used suspect firms, or firms with suspect earnings management, arguing that this would be more likely to capture earnings management in the presence of certain earnings management incentives (Roychowdhury, 2006; Cohen and Zarowin, 2010; Zang, 2012).[8]

Following Zang (2012), we define the suspected firms as follows: (1) Suspects just beating/meeting the zero benchmark are firm-years with earnings before extraordinary items over lagged total assets between 0% and 0.5%; (2) suspects just beating/meeting last-year earnings are firm-years with the change in basic EPS excluding extraordinary items from last year between zero and two cents; and (3) suspects just beating/meeting analyst forecast consensus are firm-years with actual EPS less the last analyst forecast consensus provided in the I/B/E/S Database between zero and one cent.

We then re-examine the results of Panel A of Table 3 using this subsample of suspect firms, and the results are tabulated in Panel B of Table 3. As we can see, we have findings similar to those in Panel A

[8] Roychowdhury (2006) studies a sample of companies that just beat/meet zero earnings target. Cohen and Zarowin (2010) use a sample of seasoned equity offerings. Zang (2012) studies a sample of companies that just beat/meet various earnings targets.

Table 3
2SLS regression of earnings management on geographic dispersion.

Dependent variable	ABS_DA	RM
Panel A: The whole samples		
GD hat	−0.027**	0.315***
	(−2.545)	(4.016)
RM	−0.026***	
	(−7.580)	
SIZE	0.000	−0.042***
	(−0.199)	(−4.281)
MB	0.002***	−0.012***
	(6.413)	(−8.695)
ADJ_ROA	−0.169***	0.257***
	(−18.783)	(4.710)
LEV	0.001	0.068*
	(0.197)	(1.843)
RD_INT	−0.009	−0.543***
	(−1.098)	(−9.338)
AD_IND_INT	−0.230	−0.555
	(−0.713)	(−0.746)
FIRM_AGE	−0.009***	0.061***
	(−6.996)	(9.173)
BIG4	−0.025***	0.001
	(−9.447)	(0.037)
Audit_Tenure		0.009
		(1.102)
SOX		−0.134***
		(−4.427)
NOA		0.113***
		(9.790)
Cycle		−0.000***
		(−2.685)
Industry and year fixed effects	Yes	Yes
Observations	51,077	51,077
Adj.R^2	0.175	0.156
Panel B: Suspect firms		
GD hat	−0.055*	0.173*
	(−1.955)	(1.661)
RM	−0.007	
	(−1.395)	
SIZE	0.001	−0.024**
	(0.322)	(−2.234)
MB	0.002*	−0.016***
	(1.884)	(−4.292)
ADJ_ROA	−0.167***	0.087
	(−7.233)	(0.798)
LEV	0.009	0.182**
	(0.565)	(2.377)
RD_INT	0.037	−1.009***
	(1.084)	(−6.100)
AD_IND_INT	−0.399	−1.231
	(−0.671)	(−0.889)
FIRM_AGE	−0.006***	0.063***
	(−2.624)	(5.952)
BIG4	−0.014*	0.023
	(−1.879)	(0.626)
Audit_Tenure		0.003
		(0.187)
SOX		−0.008
		(−0.152)
NOA		0.107***
		(5.827)

Table 3 (*continued*)

Dependent variable	ABS_DA	RM
Cycle		0.000 (−1.278)
Industry and year fixed effects	Yes	Yes
Observations	5347	5347
Adj.R^2	0.157	0.178

This table presents the second stage results from 2SLS tests addressing the endogeneity between predicted domestic geographic dispersion and AM and RM. The instrument variables (IV) for domestic geographic dispersion is the average value for domestic geographic dispersion for firms that have their headquarters located in the same state, but belong to other industry based on 2-digit SIC industry. Panel A presents the results of the whole samples. Panel B presents the results of the suspected firms measured by zero benchmark, last-year earnings and analyst forecast consensus. Following Zang (2012), suspects just beating/meeting the zero benchmark are firm-years with earnings before extraordinary items over lagged total assets between 0% and 0.5%; suspects just beating/meeting last-year earnings are firm-years with the change in basic EPS excluding extraordinary items from last year between zero and two cents; suspects just beating/meeting analyst forecast consensus are firm-years with actual EPS less the last analyst forecast consensus provided in the I/B/E/S Database between zero and one cent. See Appendix A for other variable definitions. The dummies for industry and year fixed effects are included (as well as constant) in all the columns, but not reported. Standard errors are double-clustered by firm and year (Petersen, 2009; Gow et al., 2010) and *t*-values are presented in parentheses.

* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

of Table 3. The coefficients of GD hat are −0.055 for the ABS_DA regression and 0.173 for the RM regression, both significant at 10% level.[9] Therefore, we cannot reject H1 and H2. In both panels, we follow previous studies in controlling the fixed effects for the industry and year dummies and reporting standard errors adjusted by both firm-level and year-level clustering (Petersen, 2009; Gow et al., 2010).

4.2. OLS regressions of earnings management on geographic dispersion

Next, we report OLS regression results in Table 4. Panel A of Table 4 uses the whole sample. After controlling for RM (Kim et al., 2012), we find a strong negative relation between GD and ABS_DA. The coefficient of GD is −0.005, statistically significant at 1%, indicating that dispersed firms have lower accruals management than local firms. The coefficient of RM is −0.028, statistically significant at 1%, which is consistent with prior research documenting that firms substitute between real operating-based and accrual-based earnings management activities (e.g., Graham et al., 2005; Cohen et al., 2008; Badertscher, 2011; Zang, 2012). After controlling for the costs of ABS_DA, Panel A of Table 4 also shows that RM is positively associated with GD. The coefficient is 0.034, significant at 1 percent level. In Panel B of Table 4, using the suspect firms subsample, we have findings similar to those in Panel A of Table 4.[10]

4.3. Investor recognition explanation

Tables 3 and 4 show that geographically dispersed firms tend to have lower AM and higher RM than local firms. We attribute this findings to the investor recognition explanation as in Merton (1987) and Garcia and Norli (2012). Following Garcia and Norli (2012), we argue that since geographically dispersed firms have a larger investor base and thus higher investor recognition than local firms, they are likely to be exposed to more outside scrutiny and to face a larger public attention. As a result, dispersed firms tend to have lower AM and higher RM. To test the investor recognition explanation, Garcia and Norli (2012) did a *t*-test, showing that local firms with lower investor recognition would

[9] The *F*-statistics from the first stage 2SLS regression are 28.46 and 27.22 for AM and RM regressions, respectively. Both are higher than the approximate cutoff of 10 for weak instruments (Stock and Yogo, 2005). Results are not reported.

[10] One might wonder if the recent financial crisis could affect our results in the different ways. We also look at the regressions before and after financial crisis. The patterns (not reported) would not change.

Table 4
OLS regression of earnings management on geographic dispersion.

Dependent variable	ABS_DA	RM
Panel A: The whole samples		
GD	−0.005***	0.034***
	(−6.862)	(4.801)
RM	−0.028***	
	(−8.866)	
SIZE	−0.003***	−0.014***
	(−3.726)	(−3.461)
MB	0.002***	−0.015***
	(7.917)	(−13.846)
ADJ_ROA	−0.166***	0.213***
	(−19.249)	(4.100)
LEV	−0.008*	0.176***
	(−1.813)	(5.343)
RD_INT	−0.004	−0.616***
	(−0.495)	(−11.173)
AD_IND_INT	−0.228	−0.630
	(−0.708)	(−0.843)
FIRM_AGE	−0.009***	0.059***
	(−6.816)	(9.135)
BIG4	−0.026***	0.019
	(−10.204)	(1.216)
Audit_Tenure		0.010
		(1.307)
SOX		−0.026***
		(−4.728)
NOA		0.126***
		(11.104)
Cycle		−0.000***
		(−5.848)
Industry and year fixed effects	Yes	Yes
Observations	51,077	51,077
Adj.R^2	0.175	0.157
Panel B: Suspect firms		
GD	−0.007**	0.042***
	(−2.271)	(4.057)
RM	−0.013***	
	(−2.740)	
SIZE	−0.004***	−0.011
	(−3.418)	(−1.529)
MB	0.002***	−0.017***
	(3.082)	(−5.087)
ADJ_ROA	−0.156***	0.057
	(−7.693)	(0.519)
LEV	−0.006	0.224***
	(−0.476)	(3.688)
RD_INT	0.054	−1.066***
	(1.570)	(−6.717)
AD_IND_INT	−0.675	−0.505
	(−1.108)	(−0.355)
FIRM_AGE	−0.005*	0.059***
	(−1.904)	(5.643)
BIG4	−0.020**	0.038
	(−2.455)	(1.219)
Audit_Tenure		0.007
		(0.488)
SOX		0.062**
		(2.547)
NOA		0.118***
		(7.752)

Table 4 (*continued*)

Dependent variable	ABS_DA	RM
Cycle		−0.000** (−1.972)
Industry and year fixed effects	Yes	Yes
Observations	5347	5347
Adj.R^2	0.158	0.181

This table presents the OLS regression results of the association between geographic dispersion and AM and RM. Panel A presents the results of the whole samples. Panel B presents the results of the suspected firms measured by zero benchmark, last-year earnings and analyst forecast consensus. Following Zang (2012), suspects just beating/meeting the zero benchmark are firm-years with earnings before extraordinary items over lagged total assets between 0% and 0.5%; suspects just beating/meeting last-year earnings are firm-years with the change in basic EPS excluding extraordinary items from last year between zero and two cents; suspects just beating/meeting analyst forecast consensus are firm-years with actual EPS less the last analyst forecast consensus provided in the I/B/E/S Database between zero and one cent. See Appendix A for variable definitions. The dummies for industry and year fixed effects are included (as well as constant) in all the columns but not reported. Standard errors are double-clustered by firm and year (Petersen, 2009; Gow et al., 2010) and *t*-values are presented in parentheses.
* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

Table 5
AM and RM for GD firms sorted on two proxies for investor recognition.

	Low institutional shareholding	High institutional shareholding	Difference = High–Low (*t*-value)
Panel A: Institutional shareholding			
Mean of AM	0.126	0.094	0.032*** (8.996)
Mean of RM	0.034	0.098	−0.064*** (−5.132)
	Low analyst coverage	High analyst coverage	Difference = High–Low (*t*-value)
Panel B: Analyst coverage			
Mean of AM	0.122	0.095	0.027*** (8.743)
Mean of RM	0.051	0.072	−0.021* (−1.835)

This table first sorts GD firms by two different measures, institutional shareholding and analyst coverage, that are proxies for investor recognition, and then rank GD firms into two groups using each measure: low and high investor recognition. Then this table tests the differences of AM and RM of GD firms between the low and high investor recognition groups. A firm is a GD firm if it is among the 20% most geographically dispersed firms. See Appendix A for variable definitions. *T*-statistics are in parentheses.
**Statistical significance at 5% level.
* Statistical significance at 10% level.
*** Statistical significance at 1% level.

have higher returns than local firms with higher investor recognition, which is consistent with their investor recognition argument.

To the extent that GD firms have higher investor recognition, the lower AM and higher RM, as shown in the previous section, is consistent with the investor recognition argument. Following Garcia and Norli (2012), we provide a test that further investigates this argument. We compare AM and RM of GD firms of higher investor recognition with those of GD firms of lower investor recognition. Under the investor recognition theory, AM (RM) of GD firms should be lower (higher) for those which are easier to be recognized by investors.

We use *t*-tests on earnings management based on the sorting of two proxies for investor recognition. The first proxy is institutional shareholding, similar to the one used in Garcia and Norli (2012). Higher institutional shareholdings represent higher investor recognition. The second proxy is analyst coverage, similar to the one used in Fang and Peress (2009). Higher analyst coverage represents higher investor recognition. We then sort the GD firms based on these two proxies. In this section only, a firm is called GD if it is among the 20% most geographically dispersed firms.[11]

[11] We follow Garcia and Norli (2012) in defining GD firms this way in this *t*-test.

Table 5 presents the *t*-tests results. Panel A is based on institutional shareholding and Panel B is based on analyst coverage as proxies for investor recognition. We get similar results in both panels. Consistent with the investor recognition explanation, GD firms with a higher investor recognition have lower AM and higher RM than GD firms with a lower investor recognition.

5. Additional tests

5.1. More tests on endogeneity between geographic dispersion and earnings management

Other than 2SLS, an alternative way to mitigate endogeneity is to use lagged geographic dispersion as independent variable, or to run a change regression instead of a level regression. The results are reported in Table 6. As we can see in the first two columns of Table 6, when we use lagged variables we still have significant coefficients of lagged GD for both AM and RM regressions, both significant at 1% level. In the third and fourth columns of Table 6, we then run a change regression. In the regression of change in AM, the coefficient of change in GD is −0.004, significant at 10% level. In the regression of change in RM, the coefficient of change in GD is insignificant.

Table 6
Lagged independent variables and change regression.

Dependent variable	ABS_DA	RM	△ABS_DA	△RM
Lagged GD (or △GD)	−0.005***	0.038***	−0.004*	−0.004
	(−5.470)	(5.241)	(−1.937)	(−0.730)
RM (or △)	−0.025***		−0.055***	
	(−5.987)		(−8.482)	
SIZE (or △)	−0.003***	−0.007**	0.013***	−0.063***
	(−5.765)	(−2.289)	(6.228)	(−10.158)
MB (or △)	0.002***	−0.015***	0.000	0.000
	(6.898)	(−10.648)	(0.890)	(−0.184)
ADJ_ROA (or △)	−0.166***	0.133***	−0.156***	0.225***
	(−23.090)	(3.900)	(−17.529)	(5.528)
LEV (or △)	−0.005	0.138***	0.017*	−0.013
	(−1.239)	(4.359)	(1.783)	(−0.671)
RD_INT (or △)	0.006	−0.697***	0.001	−0.085
	(0.842)	(−12.604)	(0.076)	(−1.589)
AD_IND_INT (or △)	−0.239	−0.708	0.509	0.892
	(−0.665)	(−0.887)	(0.415)	(0.322)
FIRM_AGE (or △)	−0.004***	0.045***	−0.037***	0.218***
	(−4.374)	(7.403)	(−6.099)	(5.390)
BIG4 (or △)	−0.025***	0.026	−0.002	0.014
	(−9.349)	(1.583)	(−0.302)	(1.088)
Audit_Tenure (or △)		0.008		−0.018***
		(0.919)		(−2.605)
SOX (or △)		−0.066***		−0.163**
		(−14.434)		(−2.266)
NOA (or △)		0.109***		0.086***
		(11.048)		(8.582)
Cycle (or △)		−0.000***		−0.000***
		(−6.030)		(−6.548)
Industry and year fixed effects	Yes	Yes	Yes	Yes
Observations	44,102	44,102	44,102	44,102
Adj.R^2	0.155	0.149	0.044	0.083

This table presents the results using lagged geographic dispersion as independent variables and running a change regression instead of level regression. See Appendix A for other variable definitions. The dummies for industry and year fixed effects are included (as well as constant) in all the columns, but not reported. Standard errors are double-clustered by firm and year (Petersen, 2009; Gow et al., 2010) and *t*-values are presented in parentheses.

* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

Table 7
Alternative measures for geographic dispersion.

	(1)	(2)	(3)	(4)	(5)
Panel A: The dependent variable is ABS_DA					
Excluding DE, Washington, and NY	−0.004***				
	(−7.004)				
Census division		−0.007***			
		(−8.827)			
Herfindahl*(−1)			−0.016***		
			(−4.985)		
Disperse dummy for top quintile				−0.001**	
				(−2.128)	
Three-year moving average					−0.005***
					(−4.709)
RM	−0.028***	−0.028***	−0.028***	−0.028***	−0.025***
	(−8.873)	(−8.936)	(−8.942)	(−8.878)	(−6.191)
SIZE	−0.002***	−0.003***	−0.003***	−0.003***	−0.003***
	(−3.709)	(−3.770)	(−3.913)	(−4.163)	(−4.997)
MB	0.002***	0.002***	0.002***	0.002***	0.002***
	(7.673)	(7.921)	(7.906)	(8.050)	(5.654)
ADJ_ROA	−0.166***	−0.166***	−0.166***	−0.165***	−0.165***
	(−19.168)	(−19.338)	(−19.237)	(−19.098)	(−23.689)
LEV	−0.009**	−0.008*	−0.008*	−0.009**	−0.006
	(−2.127)	(−1.830)	(−1.858)	(−2.099)	(−1.420)
RD_INT	−0.006	−0.004	−0.004	−0.003	0.007
	(−0.661)	(−0.484)	(−0.523)	(−0.395)	(0.919)
AD_IND_INT	−0.192	−0.225	−0.228	−0.229	−0.356
	(−0.584)	(−0.699)	(−0.709)	(−0.711)	(−0.967)
FIRM_AGE	−0.009***	−0.009***	−0.009***	−0.009***	−0.005***
	(−6.848)	(−6.828)	(−6.817)	(−6.768)	(−7.288)
BIG4	−0.026***	−0.026***	−0.026***	−0.026***	−0.027***
	(−9.839)	(−10.210)	(−10.298)	(−10.240)	(−9.452)
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	50,166	51,077	51,077	51,077	41,562
Adj.R^2	0.176	0.176	0.176	0.175	0.162
Panel B: The dependent variable is RM					
Excluding DE, Washington, and NY	0.035***				
	(5.273)				
Census division		0.034***			
		(3.447)			
Herfindahl*(−1)			0.104***		
			(4.089)		
Disperse dummy for top quintile				0.012***	
				(4.888)	
Three-year moving average					0.044***
					(5.301)
SIZE	−0.014***	−0.013***	−0.013***	−0.013***	−0.009***
	(−3.519)	(−3.271)	(−3.224)	(−3.094)	(−2.647)
MB	−0.015***	−0.015***	−0.015***	−0.015***	−0.014***
	(−14.244)	(−14.053)	(−14.020)	(−13.874)	(−10.011)
ADJ_ROA	0.210***	0.212***	0.213***	0.210***	0.174***
	(4.137)	(4.070)	(4.069)	(4.025)	(5.158)
LEV	0.175***	0.181***	0.179***	0.179***	0.127***
	(5.237)	(5.487)	(5.418)	(5.524)	(4.147)
RD_INT	−0.622***	−0.619***	−0.616***	−0.619***	−0.652***
	(−11.296)	(−11.213)	(−11.143)	(−11.206)	(−13.522)
AD_IND_INT	−0.759	−0.647	−0.627	−0.608	−0.993
	(−1.007)	(−0.869)	(−0.844)	(−0.811)	(−1.056)
FIRM_AGE	0.059***	0.059***	0.059***	0.058***	0.043***
	(9.089)	(9.096)	(9.076)	(9.065)	(6.821)
BIG4	0.019	0.019	0.019	0.020	0.029*
	(1.241)	(1.245)	(1.210)	(1.278)	(1.907)

(*continued on next page*)

Table 7 (*continued*)

	(1)	(2)	(3)	(4)	(5)
Audit_Tenure	0.010	0.011	0.011	0.010	0.008
	(1.238)	(1.347)	(1.341)	(1.280)	(0.932)
SOX	−0.020***	−0.021***	−0.019***	−0.018***	−0.071***
	(−4.203)	(−4.129)	(−3.862)	(−4.117)	(−12.949)
NOA	0.123***	0.127***	0.126***	0.127***	0.112***
	(10.903)	(11.084)	(11.142)	(11.092)	(10.847)
Cycle	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(−5.942)	(−5.967)	(−5.867)	(−6.041)	(−6.551)
Industry and year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	50,166	51,077	51,077	51,077	41,562
Adj.R^2	0.159	0.156	0.156	0.156	0.155

This table uses alternative measures for geographic dispersion. For both Panel A and B, the geographic dispersion is replaced with, respectively, the number of different states excluding Delaware, Washington, and New York in Column (1), the number of different Census divisions using the state names mentioned in their 10-K statements in Column (2), the Herfindahl index based on the number of different states in Column (3), a dummy equal to one if it is the top quintile of geographic dispersion in Column (4), and a 3-year moving average of the state counts from the 10-K statements in Column (5). See Appendix A for other variable definitions. The dummies for industry and year fixed effects are included (as well as constant) in all the columns, but not reported. Standard errors are double-clustered by firm and year (Petersen, 2009; Gow et al., 2010) and *t*-values are presented in parentheses.

* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

5.2. Alternative measures for geographic dispersion

To reaffirm the relation between geographic dispersion and managerial earnings management behaviors, we employ alternative gauges for geographic dispersion and summarize our findings in Panels A and B of Table 7. Specifically, we retest Eqs. (1) and (2) in the following five scenarios: (1) excluding Delaware, Washington and New York, since Delaware is a state where many companies are incorporated or registered, Washington is the name of the United States' capital, and New York is related to the name of the stock exchange;[12] (2) using the nine U.S. census divisions, rather than the fifty U.S. states, to measure a firm's dispersion level. Intuitively, a firm operating in both California and Maine appears to be more geographically dispersed than one that operates in Arizona and Montana, as the latter concentrates its business in the Mountain division; (3) using Herfindahl index based on the number of different states;[13] (4) developing a dummy variable that equals to 1 if a firm is in the top quintile of geographic dispersion and 0 otherwise; and (5) controlling for a 3-year moving average of the state counts from the 10-K statements. Results are reported in Table 7. In agreement with previous results, the coefficients of alternative proxies for dispersion are all significantly negative in AM regressions and positive in RM regressions. Collectively, the evidence shows that the dispersed firms have higher RM and lower AM, compared with local firms.

5.3. An alternative measure for discretionary accruals

Dechow and Dichev (2002) propose a measure that focuses on the extent to which working capital accruals map onto operating cash flow realizations in current and next time periods. To examine whether our results are robust to this alternative measure of accruals quality, in this section we calculate a measure of accruals quality (AQ) and run an OLS regression by replacing ABS_DA with AQ as the dependent variable. The approach of Dechow and Dichev (2002) regresses working capital accruals on cash from operations in the current period, prior period and future period. Greater unexplained

[12] Delaware, Washington and New York are excluded when we count the occurrence of different state names in 10-K, since these three states' names appear in 10-K may be due to the above reasons rather than to operations.

[13] The Herfindahl index is developed as $H = \sum_{i=1}^{50} x_i^2$, where x_i is the proportion of all state names mentioned in the 10-K statement that are associated with state i (Garcia and Norli, 2012).

Table 8
An alternative measure for discretionary accrual.

Dependent variable	AQ Full samples
GD	−0.003***
	(−2.997)
RM	−0.011***
	(−4.678)
SIZE	−0.004***
	(−9.649)
MB	0.001***
	(3.931)
ADJ_ROA	−0.041***
	(−9.091)
LEV	0.007
	(1.423)
RD_INT	−0.003
	(−0.473)
AD_IND_INT	−0.026
	(−0.117)
FIRM_AGE	−0.009***
	(−7.595)
BIG4	−0.014***
	(−6.684)
Industry and year fixed effects	Yes
Observations	14,746
Adj.R^2	0.269

This table presents the OLS regression results when we use another measure for discretionary accruals. See Appendix A for variable definitions. Dummies for industry and year fixed effects are included (as well as constant) in all the columns but not reported. Standard errors are double-clustered by firm and year (Petersen, 2009; Gow et al., 2010), and *t*-values are presented in parentheses.
* Statistical significance at 10% level.
** Statistical significance at 5% level.
*** Statistical significance at 1% level.

portion of the variation in working capital accruals implies poorer earnings quality. We follow Francis et al. (2005) and measure AM in a modified Dechow and Dichev (2002)'s model. Specifically, every year, for every 2-digit SIC industry with no less than 20 companies, we run the following equation:

$$CAC_t = \alpha_0 + \alpha_1 CFO_{t-1} + \alpha_2 CFO_t + \alpha_3 CFO_{t+1} + \alpha_4 CREV_t + \alpha_5 \mathrm{PPE}_t + \varepsilon_t, \quad (5)$$

where CAC_t and CFO stand for the total current accruals and the cash flows, respectively. $CREV_t$ is changes in net sales, and PPE_t is the current year gross level of property, plant, and equipment. All of the above variables are scaled by average assets. The accrual quality of each firm, AQ_t, is then defined as its 5-year-rolling standard deviation of residuals. Similar to prior studies (e.g., Cohen et al., 2008; Kim et al., 2012), we resort to the balance sheet approach to define the prior-to-sample CAC_t as

$$CAC_t = (\Delta CA_t - \Delta CASH_t) - (\Delta CL_t - \Delta STD_t), \quad (6)$$

where ΔCA_t, $\Delta CASH_t$, ΔCL_t, and ΔSTD_t are the period changes in current assets, cash, current liabilities, and short-term debts, respectively.

Regression results are reported in Table 8. As we can see, the coefficient of GD is −0.003, significant at 1% level. That is, the results that the dispersed firms have lower accrual quality than their local peers are robust to the alternative proxy for AM.

6. Conclusion

We examine how the degree of domestic geographic dispersion affects management's choice between AM and RM. We hypothesize that firms that disperse their business nationwide have lower accruals manipulation and higher real activities management. The rationalization for these expectations is twofold. On the one hand, the larger investor base and closer attention received by geographically dispersed firms would make the use of AM riskier. On the other hand, faced with higher public attention and a greater probability of being detected by auditors and regulators, geographically dispersed firms tend to have more RM.

For a sample of all U.S listed firms in the period from 1994 to 2011, we find a consistently positive relation between a firm's predilection for RM and the level of a number of proxies for domestic geographic dispersion. Alternatively, we document a negative association between AM and alternative measures of dispersion level. Our overall results suggest that managers of dispersed firms prefer RM over AM. These patterns are robust to a variety of specifications: we test the potential causality and document that this phenomenon is not likely to be driven by the firm's endogenous choice.

This paper contributes to the literature by showing that the level of a firm's domestic geographic dispersion may be a significant attribute in the managerial trade-off between AM and RM. We also contribute to the growing number of studies that investigate the effect of economic geography on corporate decision making. We show that the earnings management behavior may vary across firms with different geographic dispersion levels. In investigating the rationale behind firms' earnings management choices, our study may be of interest to shareholders, board members, and regulators as well.

Appendix A

Variable	Descriptions
DA	Signed discretionary accruals (DA) are computed through the cross-sectional modified Jones model with the performance-matching DA as in Kothari et al. (2005)
ABS_DA	Absolute value of DA
AB_EXP	The level of abnormal discretionary expenses, where discretionary expenses are the sum of R&D expenses, advertising expenses, and SG&A expenses; $DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \varepsilon_t$ The residuals (DISEXP is the dependent variable) is multiplied by negative one (denoted as AB_DISEXP) so that higher values indicate greater real earning management
AB_PROD	The level of abnormal production costs, where production costs are defined as the sum of cost of goods sold and the change in inventories; $PROD_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \alpha_4(S_{t-1}/A_{t-1}) + \varepsilon_t$ Abnormal production costs, AB_PROD, is the residual. The higher values of abnormal production costs indicate greater real earning management
RM	RM = AB_EXP + AB_PROD The two real activities manipulation measures are aggregated into one proxy, RM. The higher values of *RM* indicate greater real earning management
AQ	The measurement of discretionary accruals in the modified Dechow and Dichev's model (2002). AQ is the 5-year-rolling standard deviation of firm residuals obtained from an industry-specific (2-digit-SIC) regression (Francis et al., 2005)
C_state	The number of different states mentioned in corporate SEC 10K files
GD	Domestic geographic dispersion is natural logarithm of C_state
SIZE	Natural logarithm of the market value of equity (MVE)
MB	Market-to-book equity ratio, measured as MVE/BVE, where BVE is the book value of equity
ADJ_ROA	ROA adjusted by industry (2-digit-SIC) median value of each year, where ROA is measured as income before extraordinary items, scaled by lagged total assets

Appendix A (*continued*)

Variable	Descriptions
LEV	Long-term debt scaled by total assets
RD_INT	R&D intensity (R&D expense/net sales) for the year
AD_IND_INT	Advertising intensity for the 2-digit SIC code industry for the year
FIRM_AGE	Natural logarithm of (1 + number of years since the firm first appears in the CRSP database)
BIG4	An indicator variable that equals one if the firm is audited by a Big 4 auditor, and zero otherwise
Audit_Tenure	An indicator variable that equals one if the number of years the firm has been audited by a same auditor is above the sample median of years, and zero otherwise
SOX	An indicator variable that equals one if the observation is from the post-SOX period, and zero otherwise
NOA	An indicator variable that equals one if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales are above the median in each year, and zero otherwise
Cycle	The days receivable plus the days inventory at the beginning of the year

References

Aerts, W., Cheng, W., 2011. Causal disclosures on earnings and earnings management in an IPO. J. Account. Public Policy 30, 431–459.
Almazan, A., Motta, A.D., Titman, S., Uysal, V., 2010. Financial structure, acquisition opportunities, and firm locations. J. Finan. 65 (2), 529–563.
Badertscher, B.A., 2011. Overvaluation and the choice of alternative earnings management mechanisms. Account. Rev. 86 (5), 1491–1518.
Badertscher, B.A., Collins, D.W., Lys, T.Z., 2012. Discretionary accounting choices and the predictive ability of accruals with respect to future cash flows. J. Account. Econ. 53 (1/2), 330–352.
Becker, C., DeFond, M., Jiambalvo, J., Subramanyam, K.R., 1998. The effect of audit quality on earnings management. Contemp. Account. Res. 15 (1), 1–24.
Becker, B., Ivković, Z., Weisbenner, S., 2011. Local dividend clienteles. J. Finan. 66 (2), 655–683.
Bhojraj, S., Hribar, P., Picconi, M., McInnis, J., 2009. Making sense of cents: an examination of firms that marginally miss or beat analyst forecasts. J. Finan. 64 (5), 2359–2386.
Bodnaruk, A., Ostberg, P., 2009. Does investor recognition predict returns? J. Financ. Econ. 91 (2), 208–226.
Burgstahler, D., Dichev, I., 1997. Earnings, adaptation and equity value. Account. Rev. 72 (2), 187–215.
Bushman, R., Chen, Q., Engel, E., Smith, A., 2004. Financial accounting information, organizational complexity and corporate governance systems. J. Account. Econ. 37, 167–201.
Cohen, D.A., Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. J. Account. Econ. 50 (1), 2–19.
Cohen, D., Dey, A., Lys, T., 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes Oxley period. Account. Rev. 83 (3), 757–787.
Dechow, P., Dichev, I., 2002. The quality of accruals and earnings: the role of accrual estimation error. Account. Rev. 77 (4), 35–59.
DeFond, M., Subramanyam, K.R., 1998. Auditor changes and discretionary accruals. J. Account. Econ. 25 (1), 35–67.
Elias, R.Z., 2002. Determinants of earnings management ethics among accountants. J. Bus. Ethics 40 (1), 33–45.
Fang, L., Peress, J., 2009. Media coverage and the cross-section of stock returns. J. Finan. 64, 2023–2052.
Foerster, S.R., Karolyi, G.A., 1999. The effects of market segmentation and investor recognition on asset prices: evidence from foreign stocks listing in the United States. J. Finan. 54, 981–1013.
Francis, J., LaFond, R., Olsson, P., Schipper, K., 2005. The market pricing of accrual quality. J. Account. Econ. 39 (2), 295–327.
Gao, W., Ng, L., Wang, Q., 2008. Does geographic dispersion affect firm valuation? J. Corp. Finan. 14 (5), 674–687.
Garcia, D., Norli, Ø., 2012. Geographic dispersion and stock return. J. Financ. Econ. 106 (3), 574–565.
Gow, I., Ormazabal, G., Taylor, D., 2010. Correcting for cross-sectional and time-series dependence in accounting research. Account. Rev. 85 (2), 483–512.
Graham, J., Harvey, C., Rajgopal, S., 2005. The economic implications of corporate financial reporting. J. Account. Econ. 40 (1/3), 3–73.
Gunny, K.A., 2010. The relation between earnings management using real activities manipulation and future performance: evidence from meeting earnings benchmarks. Contemp. Account. Res. 27 (3), 855–888.
Healy, P.M., 1985. The effect of bonus schemes on accounting decisions. J. Account. Econ. 7, 85–107.

Higgins, H., 2013. Do stock-for-stock merger acquirers manage earnings? Evidence from Japan. J. Account. Public Policy 32, 44–70.
Jaggi, B., Leung, S., Gul, F., 2009. Family control, board independence and earnings management: evidence based on Hong Kong firms. J. Account. Public Policy 28 (4), 281–300.
Jones, J., 1991. Earnings management during import relief investigations. J. Account. Res. 29, 193–228.
Kang, J.-K., Kim, J.-M., 2008. The geography of block acquisitions. J. Finan. 63 (6), 2817–2858.
Kim, Y., Park, M., 2005. Pricing of seasoned equity offers and earnings management. J. Financ. Quant. Anal. 40 (2), 435–463.
Kim, J.B., Sohn, B.C., 2013. Real earnings management and cost of capital. J. Account. Public Policy 32 (6), 518–543.
Kim, Y., Park, M.S., Wier, B., 2012. Is earnings quality associated with corporate social responsibility? Account. Rev. 87 (3), 761–796.
Kothari, S.P., Leone, A., Wasley, C., 2005. Performance matched discretionary accrual measures. J. Account. Econ. 39 (1), 163–197.
Kothari, S., Mizik, N., Roychowdhury, S., 2012. Managing for the Moment: The Role of Real Activity Versus Accruals Earnings Management in SEO Valuation. Available at SSRN 1982826.
Landier, A., Nair, V.B., Wulf, J., 2009. Trade-offs in staying close: corporate decision making and geographic dispersion. Rev. Financ. Stud. 22 (3), 1119–1148.
McAnally, M., Srivastava, A., Weaver, C., 2008. Executive stock options, missed earnings targets, and earnings management. Account. Rev. 83, 185–216.
McGuire, S.T., Omer, T.C., Sharp, N.Y., 2012. The impact of religion on financial reporting irregularities. Account. Rev. 87 (2), 645–673.
McWilliams, A., Siegel, D., 2000. Corporate social responsibility and financial performance: correlation or misspecification? Strateg. Manag. J. 21 (5), 603–609.
Merton, R.C., 1987. A simple model of capital market equilibrium with incomplete information. J. Finan. 42, 483–510.
Musteen, M., Datta, D., Kemmerer, B., 2009. Corporate reputation: do board characteristics matter? Br. J. Manag. 21 (4), 498–510.
Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: comparing approaches. Rev. Financ. Stud. 22 (1), 435–480.
Prior, D., Surroca, J., Tribo, J., 2008. Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. Corp. Governance 16 (3), 160–177.
Roychowdhury, S., 2006. Earnings management through real activities manipulation. J. Account. Econ. 42 (3), 335–370.
Stock, J.H., Yogo, M., 2005. Testing for Weak Instruments in Linear IV Regression. Chapter 5 in Identification and Inference in Econometric Models: Essays in Honor of Thomas J. Rothenberg. Cambridge University Press, New York, NY.
Subramanyam, K.R., 1996. The pricing of discretionary accruals. J. Account. Econ. 22 (1), 249–281.
Teoh, S.H., Welch, I., Wong, T.J., 1998. Earnings management and the long-term performance of initial public offerings. J. Finan. 53 (6), 1935–1974.
Waddock, S., Graves, S., 1997. The corporate social performance–financial performance link. Strateg. Manag. J. 18 (4), 303–319.
Zang, A.Y., 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. Account. Rev. 87 (2), 675–703.
Zhao, Y., Chen, K.H., Zhang, Y., Davis, M., 2012. Takeover protection and managerial myopia: evidence from real earnings management. J. Account. Public Policy 31 (1), 109–135.