Title: Accounting Quality and Information Asymmetry of Foreign Direct Investment Firms

Author: Li-Hsun Wang

PII: S0275-5319(17)30020-X
DOI: http://dx.doi.org/doi:10.1016/j.ribaf.2017.07.029
Reference: RIBAF 719

To appear in: *Research in International Business and Finance*

Received date: 9-10-2016
Revised date: 15-5-2017
Accepted date: 3-7-2017

Please cite this article as: Wang, Li-Hsun, Accounting Quality and Information Asymmetry of Foreign Direct Investment Firms.Research in International Business and Finance http://dx.doi.org/10.1016/j.ribaf.2017.07.029

Accounting Quality and Information Asymmetry of Foreign Direct Investment Firms

Li-Hsun Wang
Department of International Business Administration
Wenzao Ursuline University of Languages, Taiwan
900 Mintzu 1st Rd
Kaohsiung City 80793, Taiwan
Email: 97027@mail.wzu.edu.tw

Highlights

- This study uses data from Taiwan to investigate the accounting quality and information asymmetry of foreign direct investment firms.
- FDI firms are found to engage more in earnings management and have more information asymmetry.
- Managerial ownership, an internal governance mechanism, can improve accounting quality and information asymmetry.

Abstract

This study argues that the foreign direct investment firms mislead stakeholders and are associated with greater information asymmetry due to the raised agency problem. Results show that both earnings management and idiosyncratic volatility increase with foreign investment. Managerial ownership mitigates such inefficiency.

Keywords: earnings management, idiosyncratic risk, foreign direct investment, managerial ownership

JEL: G14, G30

1. Introduction

One of the heated discussions on foreign direct investment (FDI) is the agency problem between managers and stakeholders. Lee and Kwok (1988) argue that legal differences, multicounty financial statements, and multicounty auditors make it difficult to monitor managers in international markets. Choi et al. (2016) report that the extent of institutional dissimilarity between institutions in home and host countries worsens monitor function of stakeholders. In addition, Singhal and Zhu (2013) argue that managers may be willing to make potentially value-destroying diversification decisions to derive and preserve private benefits such as enhanced status, high perquisites, future employment prospects, and reduced employment risk. Weak monitor function in FDI firms provides more opportunities for managers to pursue personal interests, which

consequently increases agency costs. Therefore, the present study argues that managers in FDI firms may use accounting maneuvers to mislead stakeholders and lower accounting information quality in the pursuit of personal benefits such as a better compensation contracts (Healy, 1985) or improved job security (DeAngelo, 1988). Using earnings management, which is frequently applied as a measure of information quality (An et al., 2016), this study predicts earnings manipulation increases with foreign investment by FDI firms.

Essentially, information asymmetry is a more serious consequence of agency problems in FDIs than is earnings management. FDI firms increase their organizational structure and management layers and complicate message transactions, leading to lower information transparency. Hsu and Liu (2016) reveal that FDI firms extend the organizational structure of corporations to increase information asymmetry. Tomassen et al. (2012) argue that information costs arise from communication and coordination failure between multinational company (MNC) headquarters and subsidiaries. Therefore, the present study argues that information asymmetry is more pronounced in FDI firms and uses idiosyncratic volatility to investigate the relationship between information asymmetry and foreign investment.

Investigating earnings management and information asymmetry clarifies the information quality of FDIs from the perspectives of accounting and market place. Earnings management represents the degree to which management intend to mislead stakeholders through financial statements. Alternatively, information asymmetry shows how investors are misdirected by all available information (including information from financial statements) in the financial market. In addition, the investigation of information asymmetry examines asset pricing efficiency. If information can be efficiently incorporated into the stock price, lower idiosyncratic volatility should be observed in FDI firms.

Because earnings management and information asymmetry are motivated by the agency problem (Xie et al., 2003), mitigating agency costs is essential for protecting stakeholders in FDI. Wang et al. (2015) document that good corporate governance ameliorates agency cost problems. Lskavyan and Spatareanu (2011) also report that weaker legal shareholder protection mechanisms increase the cost for shareholders to monitor both foreign subsidiaries and managerial misconduct. In addition, Aman and Nguyen (2013) evidence that good corporate governance is associated with better disclosure quality. The present study

examines whether managerial ownership, which is an internal governance mechanism, mitigates both earnings management and information asymmetry.

The reasons why this study emphasizes on the managerial ownership of the diverse internal governance mechanisms are two-fold. First, Ghouma (2017) argues the earnings management represents to opportunism that managers try to reduce cost of debt or increase credit rating by affecting quality of financial transparency. Thus, managers relate directly to the information manipulation. Second, managerial ownership is the most effective one among the internal governance mechanisms given that FDI is essentially hard to be monitored. This study argues that managerial ownership helps to alleviate earnings management and information asymmetry.

Through a panel regression analysis with the generalized method of moments (GMM) estimation and the use of data from Taiwan, this study shows that both earnings management and information asymmetry are positively associated with foreign investment. Such results confirm that FDI firms lower accounting information quality and increase information asymmetry. This study also provides evidence regarding the reduced share pricing efficiency of FDI firms. Furthermore, results show that managerial ownership mitigates the accounting quality and idiosyncratic volatility, thus proving that this governance mechanism can alleviate earnings manipulation and information asymmetry, leading to improved pricing efficiency[1].

The Financial Supervisory Commission of Taiwan reports that in 2015, 1,230 (73.61%) Taiwanese listed firms invested in foreign countries to the amount of US$244.45 billion. These firms have 8,667 subsidiaries in total. The aforementioned data show that most Taiwanese firms shift their production base abroad to obtain a competitive advantage, acquire resources, or access larger markets; these factors have been widely discussed in the FDI literature (e.g., Sanjo, 2015; Iamsiraroj, 2016). For an economic entity that depends heavily on development in foreign countries, investigating accounting quality and information asymmetry is more critical for stakeholder protection. Using a sample of Taiwanese firms that have enthusiastically extended their current business to foreign countries, this study investigates the information quality of FDI firms, which is crucial to stakeholders in the home country. Suggestions for alleviating the

[1] This study also uses other internal governance mechanisms (blockholders' ownership, institutional investors' ownership, and independent director) or external governance mechanism (product market competition), as suggested by Tomassen et al. (2012) to examine whether they mitigate the earnings management or information asymmetry. The analyses provide no consistent results.

agency costs in FDIs are also provided from the prospective of corporate governance. These results may assist vulnerable stakeholders in FDIs.

2. Taiwan's outward FDI and stakeholders protection

Following the trend of globalization, Taiwanese firms start to invest directly in foreign countries for extending their operations abroad and providing better service to customers about in 1987. The amount of outward FDI increased rapidly from US$ 218 million in 1988 to US$ 15.18 billion in 1990. In 2015, it becomes 107.45 billion US dollars. In average, about 51.42% of firms' revenue comes from oversea operations and about 63.97% of firms' fixed assets locate in foreign countries.

Since 1992, Taiwan authority adopts open policy and agrees that firms could invest in China. Due to the advantages of short geographic distance, same language, homologous culture, lower costs, vast market, and the preferential incentives (Tung and Cho, 2000), many Taiwanese firms invest directly in China. The traditional manufacturing, the computer, electronic component or optical product manufacturing, and the financial and insurance are the top three outward FDI industries with 18.30%, 13.43%, and 6.9% of the total FDI amount to China respectively. In 2010, the total FDI amount in China was US$ 14.617 billion, but decreased to US$ 10.965 billion in 2015 due to the gradually decline profit and the transformative policy in China.

The outward FDI to China causes some problems. First, the out moving of manufacturing firms leads to a following effect of stakeholders (such as the suppliers and the peripheral service firms), speeding up the industry hollowing. Second, these firms raised fund from Taiwan for the expansion. However, many of them experienced severe financial default, raising the stakeholders protection issue. Taiwan authority senses the economic structure changes and the difficulty of monitoring the oversea activities. They consequently strengthen the review of investment applications and requires all of the FDI firms to disclosure their information to publics with a purpose of stakeholders protection.

From 2011 to 2015, Taiwanese firms invest largely in Caribbean British land, other advanced countries (e.g., U.S., U.K.), and the Asia-Pacific region. The top three FDI destinations are the Caribbean British land (US$ 28.9 billion), the U.K. (US$ 16.9 billion), and the Vietnam (US$ 12.27 billion) in 2015. The financial and insurance industry has a dominate investment amount (56.60%) and the electronic

components manufacturing is the second largest outward industry (10.15%)[2]. Obviously, the tax havens are the most attractive destinations for Taiwanese firms. According to the Market Observation Post System[3], the top three areas are the British Virgin Island, Samoa, and Hong Kong, that are identified as tax haven by Organization for Economic Co-operation and Development (OECD). These tax havens attract a significant portion of Taiwanese firms. In 2015, about 68.45% of the Taiwan public firms set up 1,602, 1,136, and 1,094 subsidiaries in these three tax havens respectively[4]. Such high degree of intervention and high amount of subsidiaries in tax havens implies that FDI firms use tax havens as a means of tax avoidance or as a way to hide revenue.

Taxation is one of the critical considerations to the choose of FDI location (Gordon and Hines, 2002; Bénassy-Quéré et al., 2005; Bellak and Leibrecht, 2009). Higher tax rate reduces firms' after-tax return and FDI intention. For attracting multinational enterprises, many governments use tax incentives (e.g., tax holidays) to promote themselves as the best location (NUȚĂ and NUTĂ, 2012). The tax differences among countries allow firms to use transfer pricing or intra-firm debt contracting to shift profits from the higher tax rates country to lower tax rates country (Bénassy-Quéré et al., 2005). Therefore, falsifying accounts is inevitable. Actually, similar scenario might also show in countries with foreign exchange control countries. FDI firms can bypass the restriction on foreign exchange through transfer pricing or some debt contracting game. Manipulating accounting data seems to be a global phenomenon, leading to opaque information.

Due to the difficulty of monitoring oversea operations, stakeholders (including the government) suffer from the opaque FDI. Even Taiwan authority has started to promote governance mechanisms that ask firms who intend to go public should set up at least two independent directors on board since 2002, the independent directions do not function well to the oversea operations. It is possible that many firms nominate their friends to serve as independent directors to fulfill the requirement (Wang et al., 2015). Among those internal (the ownership of outside blockholders, institutional investors, managers, and the independent directors) or the external (product market competition) governance mechanisms suggested by

[2] All of the Taiwan FDI data is obtained from the annual report of the Investment Commission of the Ministry of Economic Affairs in 2015.

[3] Market Observation Post System is an official website that contains all listed firms that are asked by the Financial Supervisory Commission to disclose their information to the public as a means of shareholder protection.

[4] There are 1,302 public firms invest in these three tax havens and one might set up more than one subsidiary in any of the three tax havens.

Tomassen et al. (2012), the managerial ownership can be the most effective one to protect shareholders in FDI since the managers know better about the oversea operations than any others and can hand directly in the activities in foreign countries. The less transparency in FDI leaves space to activate agency problem. Therefore, interest alliance of management and shareholders becomes a suggestive solution to the agency problem raised by information transparency. The requirement of Taiwan authority on the FDI information disclosure only forces firms to shoulder the responsibility of informing. This study argues that the managerial ownership is the key to provide effective shareholders protection since it can mitigate agency problems.

3. Data and methodology

As requested by the relevant authority in Taiwan, public firms that intend to invest in foreign countries must be approved by the Investment Commission of the Ministry of Economic Affairs, and disclosure-related information must be shared quarterly on the Market Observation Post System. This information includes the name of the subsidiary, the cumulative capital amount of remittance, and the remittance amount in the reported quarter. The analysis in this study uses data from 1,671 Taiwanese listed firms for the 2010:Q1 to 2015:Q4 period. The financial data of each firm are from the *Taiwan Economy Journal* (*TEJ*). Excluding firms operating in the financial industry and those with incomplete financial data, the final sample comprises 1,541 firms. Among these firms, 1,093 engage in FDIs.

This study uses four variables to measure earnings management. In accordance with An et al. (2016), the first (*Smth*) and second (*Corr*) earnings management variables capture earnings smoothing. *Smth* is computed as the standard deviation of a firm's operating income scaled by the standard deviation of operation cash flow in the most recent five quarters multiplied by −1. It captures the reduction in the variance of earnings caused by accrual alteration. *Corr* is computed as the correlation between changes in accruals and in operation cash flow in the most recent five quarters multiplied by −1. It captures the extent to which insiders disguise surprises in cash flow by using their accounting discretion. The higher the *Smth* (*Corr*) is, the more a firm engages in earnings management.

The third and fourth earnings management variables are estimated on the basis of the Jones model. We use the cross-sectional, modified Jones model of Dechow et al. (1995) and the performance-adjusted model

of Kothari et al. (2005) to estimate earnings management; the variables are denoted as *MJEM* and *KMJEM*, respectively. *MJEM* is estimated as:

$$WCA_{i,t}/A_{i,t-1} = \beta_0 + \beta_{1,j,t} \cdot (1/A_{i,t-1}) + \beta_{2,j,t} \cdot (\Delta REV_{i,t}/A_{i,t-1} - \Delta REV_{i,t}/A_{i,t-1}) + \varepsilon_{i,t} \quad (1)$$

where $WCA_{i,t}$ is the current accruals, $\triangle REV_{i,t}$ is change in revenues, $\triangle REC_{i,t}$ is change in accounts receivable for firm i in quarter t. $A_{i,t-1}$ is the assets for firm i in quarter $t-1$, and $\varepsilon_{i,t}$ is the error term (the degree on earnings management) for firm i in quarter t. Yet, *KMJEM* is estimated as:

$$WCA_{i,t}/A_{i,t-1} = \beta_0 + \beta_{1,j,t} \cdot (1/A_{i,t-1}) + \beta_{2,j,t} \cdot (\Delta REV_{i,t}/A_{i,t-1} - \Delta REV_{i,t}/A_{i,t-1}) + \beta_{3,j,t} \cdot (ROA_{i,t-1}) + \varepsilon_{i,t} \quad (2)$$

$ROA_{i,t-1}$ is the lagged return on asset for firm i. The other variables are as same as those in Equation (1).

In addition, this study uses idiosyncratic volatility as a proxy for information quality. In accordance with Wang et al. (2016), this study uses the Fama–French three-factor model and the market model to estimate idiosyncratic volatility through either the ordinary least squares (OLS) or generalized autoregressive conditional heteroskedasticity (GARCH) estimation method. Idiosyncratic volatility is estimated using 4-year daily data prior to the date of estimation. The term IV_{OF} (IV_{GF}) is the idiosyncratic volatility estimated using the Fama–French three-factor model with the OLS (GARCH) method. Similarly, IV_{OM} (IV_{GM}) is the idiosyncratic volatility estimated using the market model with the OLS (GARCH) method.

To investigate whether FDI firms engage in more earnings management and whether they exhibit more information asymmetry, this study uses a panel regression analysis and applies both the GMM to deal with endogenous problems and the procedure of White (1980) to correct for heteroskedasticity and obtain a robust estimate of the standard deviation for the coefficients. One-lagged independent variables are used as the instrument. This study uses four earnings management variables (namely *Smth*, *Corr*, *MJEM*, and *KMJEM*) and four idiosyncratic volatility variables (namely IV_{OF}, IV_{GF}, IV_{OM}, and IV_{GM}) as dependent variables. The regression model is presented as follows:

$$Y_{i,t} = \alpha_0 + \alpha_1 \cdot Y_{i,t-1} + \beta_1 \cdot INVTA_{i,t-1} + \beta_2 \cdot ROA_{i,t-1} + \beta_3 \cdot Lnsize_{i,t-1} + \beta_4 \cdot MB_{i,t-1} + \beta_5 \cdot VOL_{i,t-1} + \beta_6 \cdot LEV_{i,t-1} + \beta_7 \cdot CEOD_{i,t-1} + \beta_8 \cdot VROA_{i,t-1} + \gamma \cdot Ind.D_j + \eta \cdot Time.D_k + \varepsilon_{i,t} \quad (3)$$

where $Y_{i,t}$ is one of either the four earnings management or the four idiosyncratic volatility variables for firm *i* in quarter *t*; and $INVTA_{i,t-1}$ is the percentage of foreign assets to total assets for firm *i* in quarter *t*-1, which measures the degree of FDI. In line with the agency cost in FDI, the agency cost increases with the amount of foreign investment. We expect a positive relation between the degree of foreign investment and either earnings management or information asymmetry. Regarding the control variables, *ROA* is return on assets, *Lnsize* is the natural logarithm of the firm's market value, and *MB* is the market-to-book ratio (derived on a quarterly basis). In addition, *VOL* denotes quarterly trading volume, *LEV* is the debt to total assets ratio, and *CEOD* is a dummy variable that is assigned a value of 1 if the chief executive officer (CEO) also acts as the board director. Finally, *VROA*, which is measured as the standard deviation of the prior 24 quarterly ROAs, represents the variability of profitability. The regression model also considers industrial effect (*Ind.D*) by assigning each firm an industry dummy according to the industry classification determined by the Taiwan Stock Exchange. Time effect (*Time.D*) is also involved in the regression analysis.

4. Empirical Results

For the 2010:Q1 to 2015:Q4 period (24 quarters), the analysis in this study uses a sample of 1,541 firms from the Taiwan Stock Exchange and Taipei Exchange that have complete financial data from the *TEJ*. The total number of quarterly observations is approximately 34,876. Table 1 reports the descriptive statistics of the sample.

[Insert Table 1 here.]

This study reports the results of the panel regression analysis to determine whether FDIs motivate earnings management and worsen information asymmetry (Table 2). Results show that the four earnings management variables (*Smth*, *Corr*, *MJEM*, and *KMJEM*) are positively associated with FDI (*INVTA*). This association is both significant and consistent, suggesting that parent firms have more room to manipulate financial statements when their earnings are mainly from foreign countries that are unfamiliar to stakeholders. To achieve a robust result, in the regression model, this study replaces *INVTA* with *Nfirm*, which is the number of subsidiaries that the firms have in foreign countries. The panel regression analysis

provides similar and consistent findings. Accordingly, firms with more foreign subsidiaries have more opportunities to manipulate their earnings (e.g., by using a transfer pricing strategy).

[Insert Table 2 here.]

To examine whether information asymmetry increases with the degree of FDI, four idiosyncratic volatility measurements (IV_{OF}, IV_{GF}, IV_{OM}, and IV_{GM}) are used as dependent variables in the panel regression model. Table 3 shows that FDIs (*INVTA*) are positively associated with information asymmetry. This study demonstrates that information asymmetry increases with the amount of foreign investment. This finding accords with the agency problem in FDI firms. In addition, similar and robust results are obtained when *Nfirm* is used to replace *INVTA*. The information costs of firms increase with the diversification of their foreign investment.

[Insert Table 3 here.]

Because earnings management and information asymmetry are related to the agency cost of FDI firms, this study examines whether managerial ownership alleviates earnings manipulation and information asymmetry. *MH* is the percentage of shares owned by managers relative to the number of total shares. This parameter is included in Regression Model (3). The dependent variable is one of the four earnings management variables or one of the four information asymmetry measurements. The average (median) managerial ownership is approximately 1.18% (0.45%; Table 1). Such low managerial ownership in this setting indicates that the interest alignment hypothesis is likely to hold. If the interests of managers and shareholders are aligned, we should observe a negative association between *MH* and the dependent variable.

Table 4 reports significant and robust results for the finding that managerial ownership (*MH*) is negatively related to the earnings management and information asymmetry variables. This study confirms that managerial ownership, an internal governance mechanism, is effective in ameliorating low accounting information quality and mitigating information asymmetry, leading to an improvement in stock pricing efficiency.

[Insert Table 4 here.]

5. Additional analyses

An critical issue to the empirical results is the high significance of test statistics, implying a potential

overfitting problem[5]. The widely used GMM estimators for dynamic panels might unconsciously raise instrument proliferation problem (Roodman, 2009), leading to downward bias of estimated asymptotic standard errors, biased estimated parameters (Windmeijer, 2005), and a weakened over-identification test. This study follows the suggestion of Roodman (2009) to use only certain lags instead of all available lags for instruments. The results are reported in the Table 5, 6, and 7 with respect to the Table 2, 3, and 4.

[insert Table 5 here.]

As can be found in Table 5, the positive relation between the foreign direct investment (*INVTA*, *Nfirm*) and the four earnings management variables (*Smth*, *Corr*, *MJEM*, and *KMJEM*) remains strong and stable. However, the control variables, *MB* and *VROA*, turn to be insignificant. The adjusted R-square and the p-value for the Sargan test also decrease. It is manifest since some lags of instrument are drop.

[insert Table 6 here.]

Similar scenario is found in the test of whether the foreign direct investment matters to poor information asymmetry. The significant relation between the FDI and the various idiosyncratic risk reveals as usual when some instrument lags are drop. In addition, the managerial ownership (*MH*) also has a negative effect on both the earnings management and the information asymmetry as showed in Table 7. In sum, the results are similar when Roodman's (2009) method is applied.

[insert Table 7 here.]

6. Conclusion

FDIs are a key feature of the modern internationalized world. They produce benefits but increase agency costs. Accordingly, this study argues that FDIs exacerbate accounting information quality and worsen information asymmetry. The findings of this study are currently relevant because FDIs are markedly expanding and are critical because shareholder protection is receiving a lot of attention in the most recent decades.

Using data from Taiwan, this study applies a panel regression analysis with GMM and White’s estimation method to show that earnings management and information asymmetry increase with the amount

[5] Author is grateful to anonymous referees for this helpful comments.

of foreign investment. Low accounting quality and information asymmetry reduce stock pricing efficiency. However, managerial ownership mitigates earnings management and information asymmetry.

References

Amen, H., and P. Nguyen, 2013. Does good governance matter to debtholders? Evidence from the credit ratings of Japanese firms. Research in International Business and Finance 29, 14–34.

An, Z., D., Li, and J. Yu, 2016. Earnings management, capital structure, and the role of institutional environment. Journal of Banking and Finance 68, 131–152.

Bellak, C., and M. Leibrecht, 2009. Do low corporate income tax rates attract FDI? – Evidence from Central- and East European countries. Applied Economics 41, 2691–2703.

Bénassy-Quéré, A., L. Fontagné, and A. Lahrèche-Révil, 2005. How does FDI react to corporate taxation? International Tax and Public Finance 12, 583–603.

Choi, J.J., S.M. Lee, and A. Shoham, 2016. The effects of institutional distance on FDI inflow: General environmental institutions (GEI) versus minority investor protection institutions (MIP). International Business Review 25, 114–123.

DeAngelo, L.E., 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. Journal of Accounting Economics 10, 3–26.

Dechow, P.M., R.G., Sloan, and A.P., Sweeney, 1995. Detecting earnings management. The Accounting Review 70, 193–225.

Ghouma, H., 2017. How does managerial opportunism affect the cost of debt financing? Research in International Business and Finance 39, 13–29.

Gordon, R.H., and J.R., Hines Jr., 2002. International Taxation. NBER Working Paper No. 8854.

Healy, P.M., 1985. The impact of bonus schemes on the selection of accounting principles. Journal of Accounting and Economics 7, 85–107.

Hsu, A.W., and S.H., Liu., 2016. Organizational structure, agency costs, and accrual quality. Journal of Contemporary Accounting and Economics 12, 35–60.

Iamsiraroj, S., 2016. The foreign direct investment—economic growth nexus. International Review of Economics and Finance 42, 116–133.

Kothari, S.P., A.J., Leone, and C.E., Wasley, 2005. Performance matched discretionary accrual measures. Journal of Accounting and Economics 39, 163–197.

Lee, K., and C., Kwok., 1988. Multinational corporations vs. domestic corporations: International environmental factors and determinants of capital structure. Journal of International Business Studies 19, 195–217.

Lskavyan, V., and M. Spatareanu, 2011. Shareholder protection, ownership concentration and FDI. Journal of Economics and Business 63, 69–85.

NUȚĂ, A.C., and F.M. NUTĂ, 2012. The effectiveness of the tax incentives on foreign direct investment. Journal of Public Administration, Finance and Law 1, 55–65.

Roodman, D., 2009. Practitioners' Corner—A Note on the theme of too many instruments. Oxford Bulletin of Economics and Statistics 71, 135–158.

Sanjo, Y., 2015. The role of firm ownership in policy competition for foreign direct investment between asymmetric countries. International Review of Economics and Finance 35, 110–121.

Singhal, R., and Y. Zhu., 2013. Bankruptcy risk, costs and corporate diversification. Journal of Banking and Finance 37, 1475–1489.

Tomassen, S., G.R.G. Benito, and R. Lunnan., 2012. Governance costs in foreign direct investments: A MNC headquarters challenge. Journal of International Management 18, 233–246.

Tung, S., and S. Cho., 2000. The impact of tax incentives on foreign direct investment in China. Journal of International Accounting, Auditing and Taxation 9, 105–135.

Wang, L., C. Lin, H. Fung, and H. Chen., 2015. Governance mechanisms and downside risk. Pacific-Basin Finance Journal 35, 485–498.

Wang, L., C. Lin, J. Kang, and H. Fung., 2016. Idiosyncratic Volatility and Excess Return: Evidence from the Greater China region. Finance Research Letters 19, 126–129.

Windmeijer, F., 2005. A finite sample correction for the variance of linear efficient two-step GMM estimators. Journal of Econometrics 126, 25–51.

Xie, B., W.N.III. Davidson, and P.J. DaDalt, 2003. Earnings management and corporate governance: The role of the board and the audit committee. Journal of Corporate Finance 9, 295–316.

Table 1

Descriptive Statistics

This table reports the descriptive statistics of 1,541 Taiwanese firms for the 2010:Q1 to 2015:Q4 period (24 quarters). *Smith*, *Corr*, *MJEM*, and *KMJEM* are the four earnings management measures. *Smth* is computed as the standard deviation of a firm's operating income scaled by the standard deviation of operation cash flow in the most recent five quarters multiplied by −1. *Corr* is computed as the correlation between changes in accruals and in operation cash flow in the most recent five quarters multiply by −1. *MJEM* and *KMJEM* are the earnings management variables, which are estimated according to Dechow et al. (1995) and Kothari et al. (2005), respectively. IV_{OF}, IV_{GF}, IV_{OM}, and IV_{GM} are the four idiosyncratic volatility variables. IV_{OF} (IV_{GF}) is the idiosyncratic volatility estimated using the Fama–French three-factor model with the OLS (GARCH) method. IV_{OM} (IV_{GM}) is the idiosyncratic volatility estimated using the market model with the OLS (GARCH) method. *ROA* is return on assets, *Lnsize* is the natural logarithm of the firm's market value, and *MB* is the market-to-book ratio (derived on a quarterly basis). *VOL* is the quarterly trading volume, *LEV* is the debt to total assets ratio, and *VROA* is measured as the standard deviation of the prior 24 quarterly ROAs. Finally, *INVTA* is the percentage of foreign assets to total assets.

	Means	Median	Standard deviation	Max	Min	n
Smth	-0.5786	-0.5567	0.4353	0	-3.6687	1,541
Corr	0.7687	0.9106	0.3250	1.0000	-0.5607	1,541
MJEM	6.98E-09	-1.3E-23	1.03E-07	1.96E-06	-1.11E-06	1,541
KMJEM	3.1E-09	4.39E-25	9.85E-08	1.68E-06	-1.87E-06	1,541
IV_{OF}*(%)*	0.0339	0.0273	0.0469	1.2805	0.0025	1,541
IV_{GF}*(%)*	0.0339	0.0273	0.0470	1.2829	0.0025	1,541
IV_{OM}*(%)*	0.0343	0.0275	0.0469	1.2807	0.0027	1,541
IV_{GM}*(%)*	0.0343	0.0275	0.0470	1.2839	0.0027	1,541
ROA(%)	1.6517	1.7207	2.4007	9.1721	-21.21	1,541
Lnsize	13.9695	14.6381	3.1856	21.6262	0	1,541
MB	1.9682	1.3833	2.7774	59.0200	0	1,541
LEV(%)	40.1493	38.5794	19.1846	137.9940	0	1,541
VOL(%)	33.4363	25.8049	30.7801	346.7623	0.0565	1,541
VROA	2.4500	1.7419	2.7246	58.5484	0	1,541
MH(%)	1.1808	0.4504	2.0070	19.3217	0	1,541
INVTA(%)	10.4811	3.3367	21.3013	486.8333	0	1,093

Table 2

Regression Analysis of FDI and Earnings Management

This table reports the results of the regression analysis using GMM with a random effect model and White's cross-sectional coefficient covariance method; this analysis examines the relationship between FDIs and the four earnings management measures (namely *Smth, Corr, MJEM,* and *KMJEM*). *Smth* and *Corr* measure the firm's earnings smoothing, and *MJEM* and *KMJEM* are the earnings management variables (measured according to the modified Jones model). *INVTA* is the percentage of foreign investment relative to total assets. *ROA* is return on assets. *Nfirm* is the number of subsidiaries in foreign countries. *Lnsize* is the natural logarithm of the firm's market value, and *MB* is the market-to-book ratio (derived on a quarterly basis). *VOL* is the quarterly trading volume, *LEV* is the debt to total assets ratio, and *CEOD* is a dummy variable that is assigned a value of 1 if the CEO also acts as the board director. *VROA* is measured as the standard deviation of the prior 24 quarterly ROAs, and it represents the variability of profitability. *Ind.D* is the industry dummy, and *Time.D* is the quarterly dummy. This table also reports the *p*-values of the Sargan test and the test for zero autocorrelation in first-differenced errors, the AR (2).

	SMTH	*CORR*	*MJEM*	*KMJEM*	*SMTH*	*CORR*	*MJEM*	*KMJEM*
Y_{t-1}	0.7312 ***	1.2495 ***	0.4478 **	0.3337	0.7289 ***	1.1367 ***	0.4443 **	0.3327
	(0.0000)	(0.0000)	(0.0205)	(0.1123)	(0.0000)	(0.0000)	(0.0213)	(0.1143)
$INVTA_{t-1}$	0.0012 **	0.0028 ***	5.3E-09 ***	3.9E-09 ***				
	(0.0371)	(0.0000)	(0.0002)	(0.0020)				
$Nfirm_{t-1}$					0.0033 ***	0.0034 ***	7.0E-09 ***	5.5E-09 ***
					(0.0076)	(0.0002)	(0.0000)	(0.0000)
ROA_{t-1}	-0.0005	0.0088 **	1.3E-08	1.3E-08	-0.0016	0.0033 **	7.5E-09	9.3E-09
	(0.9004)	(0.0121)	(0.2971)	(0.2408)	(0.6781)	(0.0328)	(0.5347)	(0.3925)
$Lnsize_{t-1}$	-0.0356 ***	-0.0552 ***	-5.3E-08 ***	-4.0E-08 ***	-0.0390 ***	-0.0327 ***	-5.4E-08 ***	-4.1E-08 ***
	(0.0018)	(0.0016)	(0.0014)	(0.0030)	(0.0015)	(0.0005)	(0.0006)	(0.0012)
MB_{t-1}	-0.0002	0.0027 **	5.2E-08	5.5E-08	-0.0002	0.0016 **	5.2E-08	5.5E-08
	(0.8937)	(0.0362)	(0.1329)	(0.1221)	(0.9173)	(0.0195)	(0.1330)	(0.1218)
VOL_{t-1}	0.0003 **	0.0005 ***	6.1E-10 ***	3.7E-10 **	0.0004 ***	0.0003 ***	7.1E-10 ***	4.5E-10 ***
	(0.0129)	(0.0006)	(0.0001)	(0.0187)	(0.0064)	(0.0000)	(0.0000)	(0.0086)
LEV_{t-1}	-0.0006 ***	-0.0002	-7.3E-10	-1.0E-09 *	-0.0008 ***	-0.0003 ***	-1.1E-09 **	-1.3E-09 ***
	(0.0005)	(0.1159)	(0.1713)	(0.0548)	(0.0000)	(0.0026)	(0.0243)	(0.0079)
$CEOD_{t-1}$	-0.0179 **	-0.0377 ***	-3.7E-08 ***	-2.7E-08 *	-0.0196 **	-0.0222 ***	-3.7E-08 ***	-2.7E-08 *
	(0.0241)	(0.0013)	(0.0084)	(0.0599)	(0.0146)	(0.0004)	(0.0058)	(0.0506)
$VROA_{t-1}$	-0.0054 ***	-0.0072 ***	-1.8E-08 *	-1.6E-08 *	-0.0055 ***	-0.0040 ***	-1.7E-08 *	-1.5E-08 *
	(0.0083)	(0.0007)	(0.0615)	(0.0904)	(0.0050)	(0.0000)	(0.0674)	(0.0955)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.5005	0.4963	0.0925	0.0806	0.4975	0.7366	0.1195	0.0973
AR(2)	0.8046	0.9904	0.6250	0.7428	0.7976	0.9951	0.6284	0.7479
Sargan	(1.0000)	(1.0000)	(1.0000)	(1.0000)	(1.0000)	(1.0000)	(1.0000)	(1.0000)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.

Table 3

Regression Analysis of FDI and Idiosyncratic Volatility

This table reports the results of the regression analysis using GMM with a random effect model and White's cross-sectional coefficient covariance method; this analysis examines the relationship between FDIs and the four idiosyncratic volatility measures (IV_{OF}, IV_{GF}, IV_{OM}, and IV_{GM}). IV_{OF} (IV_{GF}) is the idiosyncratic volatility estimated by the Fama-French three factors model using OLS (GARCH) method. IV_{OM} (IV_{GM}) is the idiosyncratic volatility estimated by the market model using OLS (GARCH) method. All the other variables are as same as that used in Table 2. This table also reports the *p*-value of the Sargan test and the test for zero autocorrelation in first-differenced errors, the AR(2).

	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}
Y_{t-1}	0.1940	0.2003	0.2113	0.2132	0.1039	0.1101	0.1268	0.1289
	(0.2064)	(0.1882)	(0.1537)	(0.1473)	(0.5730)	(0.5471)	(0.4716)	(0.4610)
$INVTA_{t-1}$	0.0001 *	0.0001 *	0.0001 *	0.0001 *				
	(0.0682)	(0.0663)	(0.0702)	(0.0698)				
$Nfirm_{t-1}$					0.0009 ***	0.0009 ***	0.0009 ***	0.0009 ***
					(0.0002)	(0.0002)	(0.0001)	(0.0001)
ROA_{t-1}	-0.0005	-0.0005	-0.0005	-0.0005	-0.0005	-0.0005	-0.0005	-0.0005
	(0.3317)	(0.3336)	(0.2915)	(0.2964)	(0.3442)	(0.3459)	(0.3003)	(0.3050)
$Lnsize_{t-1}$	-0.0082 ***	-0.0082 ***	-0.0080 ***	-0.0080 ***	-0.0101 ***	-0.0102 ***	-0.0099 ***	-0.0099 ***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MB_{t-1}	0.0006 ***	0.0006 ***	0.0006 ***	0.0006 ***	0.0007 ***	0.0007 ***	0.0007 ***	0.0007 ***
	(0.0045)	(0.0047)	(0.0060)	(0.0060)	(0.0015)	(0.0015)	(0.0018)	(0.0018)
VOL_{t-1}	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
LEV_{t-1}	-1.2E-05	-1.3E-05	-9.8E-06	-1.0E-05	-2.9E-05	-3.1E-05	-2.7E-05	-2.7E-05
	(0.8145)	(0.7955)	(0.8390)	(0.8352)	(0.5947)	(0.5775)	(0.6161)	(0.6123)
$CEOD_{t-1}$	-0.0044 **	-0.0044 **	-0.0044 **	-0.0044 **	-0.0053 **	-0.0053 **	-0.0053 **	-0.0053 **
	(0.0261)	(0.0256)	(0.0251)	(0.0248)	(0.0196)	(0.0192)	(0.0185)	(0.0182)
$VROA_{t-1}$	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0010 ***	-0.0010 ***	-0.0009 ***	-0.0009 ***
	(0.0084)	(0.0078)	(0.0084)	(0.0082)	(0.0087)	(0.0081)	(0.0083)	(0.0081)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0602	0.0625	0.0657	0.0664	0.0514	0.0527	0.0541	0.0547
AR(2)	0.4293	0.4491	0.4408	0.4435	0.2709	0.2969	0.3198	0.3251
Sargan	(0.7550)	(0.7865)	(0.7531)	(0.7618)	(0.7362)	(0.7661)	(0.7339)	(0.7424)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.

Table 4

Effect of Managerial Ownership on Information Quality

To see whether the managerial ownership works on the earnings management and the idiosyncratic volatility in FDI, this table reports regression results using GMM with a random effect model and a white cross-sectional coefficient covariance method to study the relationship between the earnings management measures (*Smth*, *Corr*, *MJEM*, and *KMJEM*) or the idiosyncratic volatility (IV_{OF}, IV_{GF}, IV_{OM}, and IV_{GM}) and managerial ownership (*MH*). This table also reports the *p*-value of the Sargan test and the test for zero autocorrelation in first-differenced errors, the AR(2).

	SMTH	*CORR*	*MJEM*	*KMJEM*	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}
Y_{t-1}	0.7293 ***	1.2414 ***	0.4482 **	0.3340 **	0.1841	0.1903	0.2016	0.2035
	(0.0000)	(0.0000)	(0.0204)	(0.0303)	(0.2382)	(0.2186)	(0.1803)	(0.1733)
$INVTA_{t-1}$	0.0013 **	0.0027 ***	5.4E-09 ***	3.9E-09 ***	0.0001 *	0.0001 *	0.0001 *	0.0001 *
	(0.0279)	(0.0000)	(0.0002)	(0.0006)	(0.0744)	(0.0725)	(0.0767)	(0.0764)
ROA_{t-1}	0.0003	0.0091 **	1.4E-08	1.4E-08 *	-0.0003	-0.0003	-0.0003	-0.0003
	(0.9337)	(0.0103)	(0.2585)	(0.0551)	(0.5317)	(0.5346)	(0.4799)	(0.4868)
$Lnsize_{t-1}$	-0.0371 ***	-0.0541 ***	-5.5E-08 ***	-4.1E-08 ***	-0.0084 ***	-0.0084 ***	-0.0082 ***	-0.0082 ***
	(0.0018)	(0.0013)	(0.0015)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MB_{t-1}	-0.0001	0.0027 **	5.3E-08	5.6E-08 **	0.0006 ***	0.0006 ***	0.0006 ***	0.0006 ***
	(0.9460)	(0.0410)	(0.1336)	(0.0176)	(0.0034)	(0.0035)	(0.0045)	(0.0045)
VOL_{t-1}	0.0003 **	0.0004 ***	6.1E-10 ***	3.6E-10 **	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***
	(0.0135)	(0.0003)	(0.0001)	(0.0455)	(0.0002)	(0.0002)	(0.0002)	(0.0001)
LEV_{t-1}	-6.5E-04 ***	-1.8E-04	-7.3E-10	-1.0E-09 *	-1.2E-05	-1.3E-05	-1.0E-05	-1.0E-05
	(0.0005)	(0.1163)	(0.1748)	(0.0998)	(0.8137)	(0.7949)	(0.8382)	(0.8345)
$CEOD_{t-1}$	-0.0177 **	-0.0363 ***	-3.7E-08 ***	-2.7E-08 **	-0.0043 **	-0.0043 **	-0.0043 **	-0.0043 **
	(0.0265)	(0.0009)	(0.0095)	(0.0132)	(0.0313)	(0.0308)	(0.0302)	(0.0298)
$VROA_{t-1}$	-0.0051 **	-0.0067 ***	-1.7E-08 *	-1.5E-08 *	-0.0007 **	-0.0008 **	-0.0007 **	-0.0007 **
	(0.0102)	(0.0005)	(0.0704)	(0.0545)	(0.0203)	(0.0191)	(0.0206)	(0.0202)
MH_{t-1}	-0.0043 **	-0.0028 *	-6.8E-09 **	-5.2E-09 *	-0.0009 **	-0.0009 **	-0.0009 **	-0.0009 **
	(0.0154)	(0.0683)	(0.0255)	(0.0691)	(0.0305)	(0.0297)	(0.0282)	(0.0278)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.4986	0.5076	0.0868	0.0780	0.0582	0.0604	0.0634	0.0641
AR(2)	0.8023	0.9946	0.6230	0.6497	0.4509	0.4725	0.5926	0.4703
Sargan	(1.0000)	(1.0000)	(1.0000)	(1.0000)	(0.7554)	(0.7868)	(0.7535)	(0.7622)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.

Table 5

Regression Analysis of FDI and Earnings Management: Roodman's Method

This table reports the regression results of FDI and earnings management that was presented in Table 2 following the suggestion of Roodman (2009). This analysis uses only certain lags instead of all available lags for instruments. All of the variables are as same as used in Table 2.

	SMTH	*CORR*	*MJEM*	*KMJEM*	*SMTH*	*CORR*	*MJEM*	*KMJEM*
Y_{t-1}	0.7318 ***	1.2694 ***	0.4462 **	0.3316	0.7292 ***	1.0465 ***	0.4443 **	0.3300
	(0.0000)	(0.0000)	(0.0205)	(0.1130)	(0.0000)	(0.0000)	(0.0210)	(0.1328)
$INVTA_{t-1}$	0.0013 **	0.0029 ***	5.0E-09 ***	3.8E-09 ***				
	(0.0333)	(0.0000)	(0.0002)	(0.0010)				
$Nfirm_{t-1}$					0.0033 ***	0.0067 ***	6.4E-09 ***	3.5E-09 ***
					(0.0075)	(0.0000)	(0.0001)	(0.0007)
ROA_{t-1}	0.0001	0.0106 **	1.3E-08	1.4E-08	-0.0020	0.0015 **	3.6E-09	-1.1E-09
	(0.9818)	(0.0137)	(0.3004)	(0.2251)	(0.6432)	(0.0481)	(0.2176)	(0.7619)
$Lnsize_{t-1}$	-0.0344 ***	-0.0577 ***	-5.2E-08 ***	-3.7E-08 ***	-0.0388 ***	-0.0196 ***	-4.9E-08 ***	-2.6E-08 **
	(0.0015)	(0.0024)	(0.0015)	(0.0027)	(0.0017)	(0.0099)	(0.0025)	(0.0114)
MB_{t-1}	-0.0003	0.0025 **	5.2E-08	5.5E-08	-0.0001	0.0006 ***	5.2E-08	2.0E-08
	(0.8705)	(0.0486)	(0.1368)	(0.1263)	(0.9399)	(0.0007)	(0.1280)	(0.1102)
VOL_{t-1}	0.0002 *	0.0003 ***	5.7E-10 ***	1.2E-10	0.0004 ***	0.0002 ***	4.0E-10 ***	2.9E-10 **
	(0.0625)	(0.0004)	(0.0003)	(0.3455)	(0.0054)	(0.0000)	(0.0058)	(0.0306)
LEV_{t-1}	-0.0006 ***	-0.0002	-7.0E-10	-1.0E-09 *	-0.0008 ***	-0.0003 ***	-1.2E-09 ***	-9.8E-10 *
	(0.0008)	(0.1655)	(0.2145)	(0.0785)	(0.0000)	(0.0004)	(0.0049)	(0.0624)
$CEOD_{t-1}$	-0.0174 **	-0.0382 ***	-3.0E-08 **	-2.1E-08 *	-0.0199 **	-0.0124 **	-2.7E-08 **	-1.0E-08
	(0.0246)	(0.0013)	(0.0116)	(0.0664)	(0.0149)	(0.0133)	(0.0129)	(0.3471)
$VROA_{t-1}$	(0.0050) ***	-0.0059 **	-1.6E-08	-1.3E-08	-0.0056 ***	-0.0018 ***	-1.6E-08 *	-4.6E-09
	(0.0099)	(0.0129)	(0.1135)	(0.1774)	(0.0037)	(0.0018)	(0.0800)	(0.6445)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.5021	0.4620	0.0996	0.0856	0.4978	0.7930	0.1296	0.1625
AR(2)	(0.8073)	(0.9927)	(0.1037)	(0.1023)	(0.8008)	(0.9802)	(0.6303)	(0.7860)
Sargan	(0.1391)	(0.8360)	(0.3976)	(0.3393)	(0.3423)	(0.2662)	(0.5374)	(0.2551)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.

Table 6

Regression Analysis of FDI and Idiosyncratic Volatility: Roodman's Method

This table reports the regression results of FDI and idiosyncratic volatility that was presented in Table 3 following the suggestion of Roodman (2009). This analysis uses only certain lags instead of all available lags for instruments. All of the variables are as same as used in Table 3.

	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}
Y_{t-1}	0.3307 **	0.3370 **	0.3399 **	0.3413 **	0.2893 *	0.2957 *	0.2995 *	0.3010 *
	(0.0240)	(0.0203)	(0.0166)	(0.0154)	(0.0839)	(0.0749)	(0.0630)	(0.0598)
$INVTA_{t-1}$	4.7E-05 *	4.7E-05 *	4.6E-05 *	4.6E-05 *				
	(0.0707)	(0.0689)	(0.0735)	(0.0733)				
$Nfirm_{t-1}$					0.0008 ***	0.0008 ***	0.0008 ***	0.0008 ***
					(0.0001)	(0.0001)	(0.0001)	(0.0001)
ROA_{t-1}	-0.0006	-0.0006	-0.0007	-0.0007	-0.0007	-0.0007	-0.0007	-0.0007
	(0.1517)	(0.1526)	(0.1324)	(0.1346)	(0.1450)	(0.1458)	(0.1258)	(0.1279)
$Lnsize_{t-1}$	-0.0071 ***	-0.0071 ***	-0.0069 ***	-0.0069 ***	-0.0085 ***	-0.0085 ***	-0.0083 ***	-0.0083 ***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MB_{t-1}	0.0005 **	0.0005 **	0.0005 **	0.0005 **	0.0006 **	0.0006 **	0.0006 **	0.0006 **
	(0.0284)	(0.0297)	(0.0336)	(0.0337)	(0.0104)	(0.0108)	(0.0123)	(0.0124)
VOL_{t-1}	0.0001 ***	0.0001 ***	0.0001 ***	0.0001 ***	0.0002 ***	0.0002 ***	0.0002 ***	0.0002 ***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
LEV_{t-1}	-2.1E-05	-2.2E-05	-1.9E-05	-1.9E-05	-3.8E-05	-3.9E-05	-3.6E-05	-3.6E-05
	(0.6356)	(0.6165)	(0.6599)	(0.6565)	(0.4233)	(0.4074)	(0.4444)	(0.4414)
$CEOD_{t-1}$	-0.0041 **	-0.0041 **	-0.0040 **	-0.0040 **	-0.0048 **	-0.0048 **	-0.0047 **	-0.0047 **
	(0.0188)	(0.0185)	(0.0186)	(0.0184)	(0.0125)	(0.0122)	(0.0122)	(0.0121)
$VROA_{t-1}$	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0008 ***	-0.0009 ***	-0.0009 ***	-0.0009 ***	-0.0009 ***
	(0.0070)	(0.0066)	(0.0073)	(0.0071)	(0.0059)	(0.0055)	(0.0061)	(0.0059)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.1232	0.1272	0.1285	0.1293	0.1085	0.1121	0.1133	0.1142
AR(2)	(0.2744)	(0.2765)	(0.2744)	(0.2757)	(0.2908)	(0.2930)	(0.2909)	(0.2930)
Sargan	(0.3056)	(0.3079)	(0.3074)	(0.3050)	(0.2207)	(0.2220)	(0.2242)	(0.2220)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.

Table 7

Effect of Managerial Ownership on Information Quality: Roodman's Method

This table reports the results of robustness check to see if the managerial ownership works on the earnings management and the idiosyncratic volatility in FDI that were presented in Table 4 following the suggestion of Roodman (2009). This analysis uses only certain lags instead of all available lags for instruments. All of the variables are as same as used in Table 4.

	SMTH	*CORR*	*MJEM*	*KMJEM*	IV_{OF}	IV_{GF}	IV_{OM}	IV_{GM}
Y_{t-1}	0.7297***	1.2562***	0.4345**	0.3250	0.2836*	0.2888*	0.3031**	0.3045**
	(0.0000)	(0.0000)	(0.0259)	(0.1377)	(0.0574)	(0.0510)	(0.0359)	(0.0338)
$INVTA_{t-1}$	0.0014**	0.0028***	4.0E-09**	2.3E-09*	0.0001*	0.0001**	0.0001*	0.0001*
	(0.0232)	(0.0000)	(0.0012)	(0.0653)	(0.0504)	(0.0491)	(0.0510)	(0.0510)
ROA_{t-1}	0.0008	0.0093***	2.4E-08**	2.1E-08**	0.0005	0.0005	0.0005	0.0005
	(0.8322)	(0.0056)	(0.0060)	(0.0441)	(0.3358)	(0.3351)	(0.3552)	(0.3546)
$Lnsize_{t-1}$	-0.0360*	-0.0558**	-4.8E-08**	-3.2E-08**	-0.0077**	-0.0077**	-0.0075**	-0.0075**
	(0.0019)	(0.0016)	(0.0009)	(0.0038)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MB_{t-1}	0.0001	0.0013***	1.9E-08**	1.9E-08	0.0005**	0.0005**	0.0004*	0.0004*
	(0.8598)	(0.0026)	(0.0377)	(0.1230)	(0.0435)	(0.0441)	(0.0566)	(0.0563)
VOL_{t-1}	0.0002*	0.0003***	3.2E-10**	1.3E-10*	0.0001**	0.0001**	0.0001**	0.0001**
	(0.0636)	(0.0002)	(0.0056)	(0.2191)	(0.0008)	(0.0008)	(0.0009)	(0.0008)
LEV_{t-1}	-6.6E-04***	-2.0E-04**	-9.9E-11	-4.0E-10	-2.8E-06	-3.9E-06	-1.4E-06	-1.7E-06
	(0.000	(0.037	(0.872	(0.484	(0.950	(0.931	(0.976	(0.970

	2)	7)	8)	0)	6)	5)	0)	6)
$CEOD_{t-1}$	-0.0174 **	-0.0361 ***	-1.6E-08	-7.2E-09	-0.0037 **	-0.0037 **	-0.0037 **	-0.0037 **
	(0.0289)	(0.0007)	(0.1637)	(0.4696)	(0.0382)	(0.0378)	(0.0370)	(0.0366)
$VROA_{t-1}$	-0.0049 **	-0.0066 ***	-4.8E-09	-2.4E-09	-0.0006 *	-0.0006 *	-0.0006 *	-0.0006 *
	(0.0084)	(0.0004)	(0.6088)	(0.8104)	(0.0634)	(0.0608)	(0.0671)	(0.0658)
MH_{t-1}	-0.0043 **	-0.0030 **	-8.7E-09 ***	-6.6E-09 **	-0.0010 **	-0.0010 **	-0.0010 **	-0.0010 **
	(0.0148)	(0.0737)	(0.0180)	(0.0619)	(0.0120)	(0.0118)	(0.0108)	(0.0107)
Ind. D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time D.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.5000	0.4879	0.1461	0.1391	0.0977	0.100545	0.1077	0.1085
AR(2)	(0.6032)	(0.5928)	(0.6108)	(0.6095)	(0.3161)	(0.3185)	(0.3158)	(0.3173)
Sargan	(0.2075)	(0.1555)	(0.3174)	(0.2358)	(0.2905)	(0.2924)	(0.2835)	(0.2827)

*, **, *** significance at the 10%, 5%, and 1% level, respectively.