# The Effect of Leverage and IFRS Convergence on Earnings Management Through Real Activities Manipulation in Asia

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**ABSTRACT**

**Manuscript type:** Research Paper
**Research aims:** This study aims to examine the effect of leverage and International Financial Reporting Standards (IFRS) convergence on earnings management through real activities manipulation (RAM), and the moderation role of the IFRS convergence in the relationship between leverage and RAM. This study also explores whether the links are different based on institutional contexts such as country economic size, governance quality and IFRS adoption strategy.
**Design/ Methodology/ Approach:** This study employs panel data and cross country analyses using 19,744 observations from six sample countries in Asia that have already adopted the IFRS, namely China, Hong Kong, Indonesia, Malaysia, the Philippines, and Sri Lanka.
**Research findings:** This study finds that leverage has a significant negative effect on RAM, and IFRS positively affects RAM. In the period after IFRS convergence, the negative effect of leverage on RAM increases. Interestingly, this study provides mixed empirical evidence of the relationship between leverage and IFRS, and the moderation effect of IFRS on RAM across different settings of institutional contexts. This shows that institutional contexts do matter.

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**Theoretical contributions/ Originality:** This study provides empirical evidence on the effect of leverage and IFRS convergence on RAM across countries in Asia.
**Practitioner/ Policy implications:** Regulators should make provisions to protect creditors and increase monitoring to ensure the quality of financial reporting.
**Research limitations/ Implications:** This study covers only six countries in Asia. Future studies should cover other regions so as to enlarge the coverage of the countries that have adopted or fully converged to IFRS. This study uses several firm level control variables. Future research may include other control variables such as investor protection and types of legal system.

**Keywords:** Country Governance Quality, Earnings Management Through Real Activities Manipulation, IFRS Adoption Strategy, Institutional Factors, Leverage
**JEL Classification:** M41

## 1. Introduction

The theory of positive accounting observes three hypotheses that explain the motivation of earnings management. One is debt covenant hypothesis which motivates management to perform earnings management through the use of accounting policies to minimise the possibility of debt covenant violation. Previous studies support the belief that leverage increases earnings management and this adheres to the debt covenant hypothesis (Sweeney, 1994; Burgstahler & Dichev, 1997; Degeorge, Patel, & Zeckhauser, 1999; Jones & Sharma, 2001; Dichev & Skinner, 2002; Jaggi & Lee, 2002; Beatty & Weber, 2003). However, there are also studies with different results. Jensen (1986), Lobo and Zhou (2001), Jelinek (2007) and Rodriguez-Perez and van Hemmen (2010) find that leverage negatively impacts earnings management. This implies that leverage limits earnings management. Looking from the control hypothesis, Jensen (1986) suggests that debt creation reduces manager's opportunistic behaviour. This implies that high leverage restricts the manager's ability to manipulate earnings, the higher the leverage, the more thorough the control applied by lenders.

Studies looking at the effect of leverage on earnings management had focused mainly on the effect of leverage on accrual earnings management. This is observed by Cohen, Dey, & Lys (2008) who note that earnings management could be performed through accrual and real activities. Managers can opportunistically manage earnings by changing the accrual process through various estimations and judgements.

This is known as accrual-earnings management. Managers can also manage earnings by changing the timing or structure of the operation, investment or financial decision. This is known as earnings management through real activities manipulation (RAM). In this regard, the difference between accrual earnings management and RAM is that accrual earnings management uses accruals to perform earnings management but RAM uses real decisions to manage earnings.

Some studies have examined the effect of leverage on RAM. For example, Zamri, Rahman, and Isa (2013) used three different proxies to measure RAM, and they find that leverage positively affects RAM measured by abnormal production costs proxy and abnormal discretionary costs proxy. However, leverage negatively affects RAM measured by abnormal cash flows from operations proxy.

Other than debt contracts, firms are also bound by accounting standards. The International Financial Reporting Standards (IFRS) is a set of global accounting standards whose aim is to improve the quality of corporate financial reporting. Studies that specifically examine the effect of leverage on RAM before and after the IFRS convergence are limited. It is hereby deduced that the effect of leverage on RAM may differ for these two periods because IFRS convergence will result in national accounting standards to be more principle-based, and this can require more disclosures in firms' financial statements. However, under the principle-based accounting standards too, more judgements are allowed. This can be misused by managers to manage earnings in order to achieve certain reporting objectives such as avoid debt covenant violations.

As a result, the findings of studies examining the effect of IFRS convergence on earnings management are also mixed. Some studies (Ashbaugh & Pincus, 2001; Gassen & Sellhorn, 2006; Barth, Landsman, & Lang, 2008; van der Meulen, Gaeremynck, & Willekens, 2007; Lopes, Cerqueira, & Brandao, 2010; Liu, Yao, Hu, & Liu, 2011; Wang & Campbell, 2012; He, Wong, & Young, 2012; Houqe, van Zijl, Dunstan, & Karim, 2012; Ismail, Kamarudin, van Zijl, & Dunstan, 2013; Wardhani, Utama, & Rossieta, 2015) observe that IFRS convergence increases the quality of the financial reports thereby, reducing earnings management. From the Asian perspective, Wardhani et al. (2015) find that IFRS convergence reduces earnings management but others like Lippens (2010), who focused on Europe; Capkun, Collins, and Jeanjean (2016) who focused on the European Union; Rudra and Bhattacharjee (2012) who focused on India; and Lyu, Yuen, Zhang, & Zhang (2014) who focused on China, all find that IFRS convergence increases the activity of earnings management.

This study aims to examine the effect of leverage and IFRS convergence on RAM and the moderation role of IFRS in the relationship between leverage and RAM. This study also explores how the countries' institutional contexts may affect the relationships. The focus on Asian countries is due to the fact that they have institutional diversity. In the context of this study, the institutional context being studied encompasses country economic development, governance quality and IFRS adoption strategy (gradual or big-bang approach strategy).

A study that looks at the effect of leverage on RAM before and after IFRS convergence in Asian countries is important for several reasons. First, the *Regional Economic Outlook Asia and Pacific* published by International Monetary Fund (IMF) in 2014 stated that since the global financial crisis of 2008, the level of firms' leverage in developing Asian countries has increased significantly. This is notwithstanding the fact that some countries in Asia experienced weak governance, in terms of protection of creditors' rights. Given that Asian countries enjoy a high growth of leverage in an environment where protection of creditors' rights is weak, a study examining how leverage affects RAM in these countries is important. Second, the number of Asian countries that had converged to IFRS is increasing. The harmonisation of accounting standards make the respective national accounting standards more aligned with the characteristics of the IFRS, namely the standards are more principle-based, provide lesser accounting policy alternatives and have higher disclosure requirements. Based on this, it is crucial to understand how IFRS convergence impact on earnings management as a measure to avoid debt covenant violations. Third, Asian countries have a high diversity of institutional contexts, both from the economic perspective and level of governance quality and their diverse strategies in adopting the IFRS. This study thus examines the effect of institutional contexts in the relationships between leverage, RAM and IFRS convergence.

The rest of this paper is organised as follows: Section 2 reviews the literature and develops the hypotheses, Section 3 explains the research methodology, Section 4 analyses the results and Section 5 concludes.

## 2. Literature Review and Hypotheses Development

### *2.1 Earnings Management through Real Activities Manipulation (RAM)*

Cohen et al. (2008) state that firms can perform earnings management through accrual earnings management and/or through the manipulation

of real activities. The main difference between the two is that in accrual earnings management, the manager uses his discretion in choosing the accounting policies and estimates so that the firm's earnings align with his incentives. In RAM however, the manager uses his discretion in the firm's operational activities. RAM is defined as a deviation from normal operational activities of the firm; it is motivated by the management's desire to give stakeholders a less accurate understanding about certain financial reporting goals which have been achieved through the firm's normal operational activities (Roychowdhury, 2006).

Based on various studies (see Roychowdhury, 2006; Cohen et al., 2008; Cohen & Zarowin, 2010), RAM is generally carried out through the following activities: First is sales manipulation, where the firm gives sales price discounts and provides easier credit terms so as to increase firm sales. Second is over-production, where the firm increases its productions or inventories. The discount given at a certain time can raise the value of the year-end sales and improve inventory at the end of the year thus, resulting in a decrease of Cost of Goods Sold (COGS) in the financial statements (Roychowdhury, 2006). Third is the reduction of discretionary expenditures, where costs that are included in the discretionary expenditure encompass advertising expense, research and development expenses and selling, general and administrative (SG&A) expenses (Roychowdhury, 2006). Increasing the current period profit can be performed by reducing the discretionary expenses reported in the financial statements.

### *2.2 Debt Covenant Hypothesis and Control Hypothesis*

The theory of positive accounting studies how managers make accounting policy choices. The theory states that accounting policy is a discretion strategically chosen by the management. The theory tries to understand and predict management behaviour in choosing particular accounting policies. Three hypotheses are used to explain the managers' rationale in accounting policy choices: bonus plan hypothesis, debt covenant hypothesis and political cost hypothesis. Since this study examines the relationship between leverage and RAM, it will focus mainly on the debt covenant hypothesis.

Debt covenant hypothesis states that managers' decision on accounting policy choices is motivated by the existence of debt covenants (Watts & Zimmerman, 1986). Policies may be chosen so as to shift future earnings to present in order to avoid the violation of debt contracts. Based on the debt covenant hypothesis, the higher the level of firm's

debt, the more likely the managers use accounting methods to increase income thus, higher level of earnings management. This occurs because a firm with high level of debt will face tighter constraints in the debt covenant. This condition will lead to a greater likelihood for breach of debt covenant. To avoid that condition, managers tend to exercise their discretion by choosing accounting methods that increase firm earnings.

On the other hand, Jensen (1986) propounded the control hypothesis, which is a completely opposite view. It suggests that debt creation reduces managers' opportunistic behaviour. Two explanations are available to explain this hypothesis. First, a higher leverage creates a higher obligation for the firms to provide future cash flows to make interest and principal payments to lenders. Thus, the availability of cash for non-optimal spending is reduced. The lower cash that is available for non-optimal spending limits the managers' ability to perform RAM. Second, higher leverage implies higher monitoring by the creditors. In this regard, the creditors will monitor firm performance and policies in order to make sure that their rights are fulfilled. Iturriaga and Hoffmann (2005) emphasise on the monitoring and governance role of leverage since the higher the leverage the more thorough the control applied.

Because managers face less opportunities to perform non-optimal spending and higher monitoring from the creditors when the firms have higher debts, the managers' opportunity to perform earnings management is thus reduced. Therefore, based on the control hypothesis, the relationship between leverage and earnings management is negative. Besides applying the debt covenant hypothesis, this study also considers using the control hypothesis because the main source of funds for Asian firms are bank debts thus, the control and monitoring function applied by the banks is very important.

### *2.3 International Financial Reporting Standard (IFRS) and IFRS convergence*

Accounting standards is a key determinant of the quality of financial statements. The harmonisation of accounting standards has an impact on various aspects of corporate decision-making. Generally, there are two strategies to adopt the IFRS: the big-bang strategy and the gradual approach strategy. Countries that adopt the IFRS with a big-bang strategy fully adopt the IFRS all at once without any transition period whereas, countries that adopt the IFRS using the gradual approach will do so in phases. There is a converging process between local standards and the IFRS.

Prior studies show that the use of international accounting standards has a mixed impact on various financial aspects of firms such as price reaction (Beatty, Chamberlain, & Magliolo, 1996), cost of capital (Karamanou & Nishiotis, 2005), information asymmetry (Cuijpers & Buijink, 2005) and accounting quality (Ashbaugh & Pincus, 2001; Barth et al., 2008). This is due to the characteristics of the IFRS which are principle-based standards. One of the advantages of the principle-based standards, as compared to rule-based standards, is that a firm can implement the accounting standards in accordance to its special characteristics so that the financial report will better reflect the economic values of firm. On one hand, the principle-based accounting standards offer more room for managers to use their professional judgement in financial reporting; this creates a higher opportunity for managers to do earnings management. Moreover, the standards promote the relevance of financial statements through the application of fair value which again, offers more opportunities for earnings management to be done.

On the other hand, the other characteristics of IFRS, namely IFRS having a higher requirement for disclosure and a higher restriction on the choice of accounting methods used, may complicate the process for managers to perform earnings management (Ashbaugh & Pincus, 2001; Barth et al., 2008). This is because managers will find it more difficult to use their discretion on an opportunistic basis because the accounting policies must be disclosed and justified. In addition, the increasing restrictions on the choices of accounting methods will narrow the room for manager to use their discretion.

### *2.4 Hypotheses Development*

#### *2.4.1 Leverage and RAM*

As mentioned earlier, previous studies looking at the effect of leverage on earnings management produced different empirical evidence. It was also mentioned that the relationship between leverage and earnings management is supported by two hypotheses: debt covenant hypothesis (Watts & Zimmerman, 1986) and control hypothesis (Jensen, 1986). Under the debt convenat hypothesis, the relationship between leverage and earnings management would be positive as management could select accounting methods which may minimise the probability of debt covenant violations. The control hypothesis, in comparison, indicates that leverage increases the need for monitoring as well as reduces the cash available for management to manipulate or do non-optimal

spending. Zagers-Mamedova (2009) finds that leverage increases RAM but Zamri et al. (2013) observe mixed results. Therefore, this study develops a two-tailed hypothesis as follow:

$H_1$: Leverage has an effect on RAM.

*2.4.2 IFRS Convergence and RAM*

The regulator or the board that sets accounting standards would expect IFRS convergence to improve the quality of financial statements thereby, reducing the level of earnings management of firms. However, prior studies reveal mixed results. Studies showing that IFRS convergence decreases earnings management include those of Chen, Chen, Lobo, and Wang (2010), Wang and Campbell (2012) and Sellami and Fakhfakh (2013) but other studies (Capkun et al., 2016; Rudra & Bhattacharjee, 2012) show that IFRS convergence increases earnings management.

The IFRS has a number of characteristics: it is principle-based, it offers fair value orientation, and it has lesser accounting policy alternatives and higher disclosure requirements. These characteristics suggest that the IFRS may negatively affect earnings management (Shen & Chih, 2005; Degeorge, Ding, Jeanjean, & Stolowy, 2013; Yu, 2008) because managers' discretions are restricted. In contrast, by converging to the IFRS, the adoption may positively affect earnings management because its principle-based standards offer more rooms for managers to use their professional judgements in financial reporting instances. The use of fair value measurements also creates more opportunities for managers to perform their earnings management under certain healthy circumstances by using their own estimation.

Previous studies looking at the effect of IFRS convergence on earnings management focused more on the accrual earnings management rather than on RAM. In their studies, Healy and Wahlen (1999), Dechow and Skinner (2000), Graham, Harvey, and Rajgopal (2005) and Zang (2012) note that besides accrual accounting, firms also tend to use real operational activities to manipulate their earnings. Several studies looking at the effect of IFRS convergence on RAM [e.g., Lippens (2010) in Europe and Lyu et al. (2014) in China] show that IFRS convergence has a positive effect on RAM. Nonetheless, Doukakis (2014) indicates that IFRS convergence does not have a significant impact on both the accrual earnings management and RAM.

Since the effect of the IFRS on RAM could be positive or negative, this study uses a two-tailed hypothesis as follow:

$H_2$: IFRS convergence has an effect on RAM.

*2.4.3 Leverage, IFRS Convergence and RAM*

This study aims to examine the moderation role of IFRS on the relationship between leverage and RAM. The debt covenant hypothesis states that higher leverage leads to higher earnings management because managers manage earnings in order to avoid debt covenant violations, and the control hypothesis states that leverage leads to lower earnings management because leverage increases monitoring and reduces the cash available for management to manipulate or do non-optimal spending. IFRS has the characteristics that on the one hand, can limit earnings management because managers are required to make higher disclosures and there is higher restriction on the choice of accounting methods used. On the other hand, IFRS also can provide greater opportunity for management to manage earnings because the standards provide opportunities to managers to exercise their professional judgement in making accounting policies.

In other words, based on both debt covenant hypothesis and control hypothesis, IFRS convergence has an effect on the relationship between leverage of RAM. Therefore, this study hypothesises as follows:

$H_3$: IFRS convergence moderates the effect of leverage on RAM.

*2.4.4 Institutional factors*

Different countries have different institutional characteristics and these can affect the relationship among variables. To test the effects of leverage and IFRS on RAM and also the moderating effect of IFRS on the relationship between leverage and RAM across different countries due to institutional differences, this study also examines three institutional characteristics namely: country economic development, governance quality and IFRS adoption strategy (gradual or big-bang approach strategy).

Country Economic Size

The IFRS was initially adopted by developed countries but a growing number of studies have also investigated the relevance of IFRS on emerging economies (Othman & Kossentini, 2015). Developed countries usually have higher quality of corporate financial reporting. Therefore, differences in the economic scales between countries will greatly determine the differences in the reporting environment faced by firms.

In reviewing prior empirical research on the impact of the IFRS on earnings management around the world, Kaaya (2015) observes that the impact is different in developed and developing countries. The results indicate that accounting standards is not the only determinant or the major factor affecting the quality of financial reporting. In other words, the impact of the IFRS adoption on earnings management is dependent on the economic size of the countries too. Thus, this study hypothesises as follows:

$H_{4a}$: The relationships between leverage, IFRS convergence and RAM are different in developed and developing countries.

Country Governance Quality

Good governance plays an important role in the financial reporting process. The legal system and law enforcement can also greatly determine the effectiveness of the accounting standards used in improving the quality of corporate governance (Wardhani et al., 2015). Daske, Haul, Leuz, and Verdi (2008) state that when firms operate in countries with good institutional environment, accounting standards will be able to improve the quality of the financial reporting.

Based on the above explanation, it is clear that the governance of a country plays an important role in the financial reporting process. The effect of the IFRS and leverage, as part of the monitoring and controlling system, on earnings management, will depend on the quality of the country's governance. As the country governance can be a supporting system to the accounting standards, good accounting standards could also serve as a substitute for poor country governance. Therefore, this study proposes the following hypothesis:

$H_{4b}$: The relationships between leverage, IFRS convergence and RAM are different in countries with good governance and countries with poor governance.

IFRS Adoption Strategy

As mentioned earlier, adopting the IFRS can be done through the big-bang approach or the gradual approach. The gradual approach promotes less mis-statement of financial information; it also allows firms more time to adopt the changes. In this regard, firms are more prepared to

report financial information accurately and this could help firms to distribute expenses and costs more efficiently, over a number of years.

However, this method also leads to confusion among investors; they may face difficulty in comparing financial statements from year to year; they may have difficulty in understanding what methods are being used currently. This approach could potentially hurt firms that are trying to raise capital because investors might lose confidence in the financial reporting for the current period. Moreover, this method may be costlier. While the big-bang approach forces firms to incur a large, one-time adoption expense, the gradual approach allows firms to distribute their costs over a period of time. While this seems conceptually ideal, a long adoption period with many unforeseen risks could cause firms to incur more expenses such as the training of employees and the updating of supporting systems throughout that duration. In the long run, these expenses could add up to become more than the one-time expense incurred, under the big-bang approach (Hibbard, 2012). Consequently, this may also give rise to RAM by the managers.

Based on the explanation above, the selection of IFRS adoption strategy also carries advantages and disadvantages. Due to the lack of research that investigates how the moderating influence of IFRS on the relationship between leverage and RAM differs between countries that choose the big-bang approach and countries that choose the gradual approach, this study proposes the following hypothesis:

$H_{4c}$: The relationships between leverage, IFRS convergence and RAM are different in countries that apply the big-bang approach and countries that apply the gradual approach in adopting IFRS.

## 3. Methodology

### *3.1 IFRS Convergence in Asia*

According to the IFRS Jurisdiction Profile 2015 (issued by the IFRS Foundation), 10 countries in Asia have fully adopted the IFRS, namely Jordan, Hong Kong, the Philippines, China, Indonesia, Malaysia, Sri Lanka, Cambodia, Brunei Darussalam and Nepal. However, due to the lack of data, this study could only examine six out of the 10 countries namely: China, Hong Kong, Indonesia, Malaysia, the Philippines and Sri Lanka. Table 1 provides the IFRS convergence process of the six countries.

Table 1: IFRS Convergence Status of 6 Sample Countrires

| Country | IFRS Convergence | | |
|---|---|---|---|
| | Accounting Standards | Approach | Year |
| China | Chinese Accounting Standards for Business Enterprises (ASBEs) | Gradual | 2006 |
| Hong Kong | Hong Kong Financial Reporting Standards (HKFRS) | Big-Bang | 2005 |
| Indonesia | Indonesian Financial Reporting Standards (PSAK) | Gradual | 2012 |
| Malaysia | Malaysian Financial Reporting Standards (MFRS) | Gradual | 2012 |
| Philippines | Philippine Financial Reporting Standards (PFRS) | Big-Bang | 2005 |
| Sri Lanka | Sri Lanka Financial Reporting Standards (SLFRS) | Gradual | 2012 |

Source: IFRS Jursdiction Profile 2015

### *3.2 Data and Sample*

This study examines firms whose shares were listed on the stock exchange in China, Hong Kong, Indonesia, Malaysia, the Philippines and Sri Lanka. Data from 2003 to 2014 were analysed to examine the effect of leverage on RAM before and after the IFRS convergence. The sample excludes firms in the financial and utilities industries because these industries are more regulated and the measurement of earnings management is different for such industries. The sample of this study also excludes firms without complete data and outliers. Table 2 presents the sample selection process.

Table 2: Sample Selection

| Country | CH | HK | IND | MY | PH | SL | ALL Countries |
|---|---|---|---|---|---|---|---|
| Listed firms from 2003 to 2014 | 2497 | 1419 | 505 | 919 | 249 | 289 | 5878 |
| Listed firms from 2003 to 2014 in the financial and utilities sectors | -266 | -353 | -136 | -156 | -97 | -95 | -1103 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total initial sample before excluding outliers | 2231 | 1066 | 369 | 763 | 152 | 194 | 4775 |
| Total firms-years observation (12 years of observation) | 26772 | 12792 | 4428 | 9156 | 1824 | 2328 | 57300 |
| Observations with incomplete data | -17414 | -7634 | -2913 | -5987 | -1271 | -1425 | -36644 |
| Outliers | -180 | -216 | -132 | -84 | -96 | -204 | -912 |
| Total firm - years observation from 2003-2014 | 9178 | 4942 | 1383 | 3085 | 457 | 699 | 19744 |

Note: CH = China; HK = Hong Kong; IND = Indonesia; MY = Malaysia; PH = Philippines; SL = Sri Lanka.

### *3.3 Regression Model*

To test the effect of leverage on RAM ($H_1$) and the effect of IFRS convergence on RAM ($H_2$), this study employed the regression model as stated in Model 1 which was adapted from Zamri et al. (2013) and Lyu et al. (2014). $H_1$ will be accepted if coefficient $\beta_1$ is significant and $H_2$ will be accepted if coefficient $\beta_2$ is significant. Model 1 is as follows:

Model 1

$$RAM_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 IFRS_{it} + \beta_3 ROA_{t-1} + \beta_4 SIZE_{it} + \beta_5 SALES\_GWTH_{it} + \beta_6 IND_{CONDIS} + \beta_7 IND_{CONSTAP} + \beta_8 IND_{ENERGY} + \beta_9 IND_{HCARE} + \beta_{10} IND_{IT} + \beta_{11} IND_{MATERIALS} + \beta_{12} IND_{TELCOMS} + \varepsilon_{it}$$

To test whether IFRS convergence moderates the effect of leverage on RAM ($H_3$), this study employs Model 2. Model 2 adds interaction variable between leverage and IFRS into Model 1. Thus, $H_3$ will be accepted if coefficient $\beta_3$ is significant. Model 2 is as follows:

Model 2

$$RAM_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 IFRS_{it} + \beta_3 LEV_{it}*IFRS_{it} + \beta_4 ROA_{t-1} + \beta_5 SIZE_{it} + \beta_6 SALES\_GWTH_{it} + \beta_7 IND_{CONDIS} + \beta_8 IND_{CONSTAP} + \beta_9 IND_{ENERGY} + \beta_{10} IND_{HCARE} + \beta_{11} IND_{IT} + \beta_{12} IND_{MATERIALS} + \beta_{13} IND_{TELCOMS} + \varepsilon_{it}$$

### *3.4 Variable Measurement*

Table 3 summarises the description and measurement of variables used in Models 1 and 2 and the references referred for each variable.

Table 3: Operationalisation of Variables

| Variables | Description and Measurement | Reference |
|---|---|---|
| Earnings Management Through Real Activities Manipulation (RAM) | Average of the absolute value of abnormal operating cash flow (CFO), abnormal production cost (PROD) and abnormal discretionary cost (DISEXP) | Roychowdhury (2006) |
| International Financial Reporting Standards (IFRS) | Dummy variable of IFRS Convergence. It is given a value 1 if the country had been already fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others. | IFRS Jurisdiction Profile |
| Leverage (LEV) | The leverage ratio (total debt divided by total assets in which the total debt, including notes payable/short-term debt, current portion of long-term debt/capital leases, and total long-term debt/capital lease) | Zamri et al. (2013); Rahman and Ali (2006); Gu et al. (2005); Dichev and Skinner (2002); Sweeney (1994) |
| Return on Assets (ROA) | Return on assets (total net income divided by total average - average assets) in year *t*-1 | Kothari et al. (2005); Jiraporn et al. (2008); Roychowdury (2006) |
| Firm Size (SIZE) | The natural logarithm of the value of total assets | Roychowdury (2006); Zamri et al. (2013) |

| Variables | Description and Measurement | Reference |
|---|---|---|
| Sales Growth (SALES_ GWTH) | Sales growth, the change in sales divided by total sales last year. | Lyu et al. (2014) |
| Industry ($IND_{DUMMY}$) | A dummy variables to differentiate the level of RAM across industries, with Industrial industry as a reference. The variables are $IND_{CONDIS}$, $IND_{CONSTAP,}$ $IND_{ENERGY}$, $IND_{HCARE}$, $IND_{IT}$, $IND_{MATERIALS}$, and $IND_{TELECOMS}$. The classification of industry is based on the Global Industry Classification Standard (GICS). $IND_{CONDIS}$: Dummy variable, which a value of 1 is given if the firm observed was included in Consumer Discretionary industry, and 0 otherwise. $IND_{CONSTAP}$: Dummy variable, which a value of 1 is given if the firm observed was included in Consumer Staples industry, and 0 otherwise. $IND_{ENERGY}$: Dummy variable, which a value of 1 is given if the firm observed was included in Energy industry, and 0 otherwise. $IND_{HCARE}$: Dummy variable, which a value of 1 is given if the firm observed was included in Health Care industry, and 0 otherwise. $IND_{IT}$: Dummy variable, which a value of 1 is given if the firm observed was included in Information Technology industry, and 0 otherwise. $IND_{MATERIALS}$: Dummy variable, which a value of 1 is given if the firm observed was included in Materials industry, and 0 otherwise. $IND_{TELECOMS}$: Dummy variable, which a value of 1 is given if the firm observed was included in Telecommunication Service industry, and 0 otherwise. | Zamri et al. (2013) |

### *3.4.1 Earnings Management Through Real Activities Manipulation (RAM)*

The dependent variable used in this study is earnings management through real activities manipulation (RAM). Based on research that was developed by Roychowdhury (2006) who refered to Dechow, Kothari, and Watts (1998), RAM was measured by using the following three proxies: abnormal cash flow from operations (CFO), abnormal production cost (PROD) and abnormal discretionary cost (DISEXP). The values of the proxies were obtained through the residual values which resulted from the cross-sectional regressions per year and the firm's industry or sector. Each proxy used regression model equations (1), (2) and (3), for each country. To avoid a lack of observation in the regression model of RAM for each industry and each year, this study used panel data regression for each industry and country to accommodate the cross sectional differences located per year.

Abnormal Cash Flow from Operations (CFO) Proxy

$$CFO_{it} / A_{i,t-1} = \alpha_0 + \alpha_1 (1 / A_{i,t-1}) + \beta_1 (S_{it} / A_{i,t-1}) + \beta_2 (\Delta S_{it} / A_{i,t-1}) + \varepsilon_{it} \quad (1)$$

where:

$CFO_{it}$ = Cash flows from operation of firm *i* in year *t*
$A_{i,t-1}$ = Total assets of firm *i* in year *t*-1
$S_{it}$ = Sales of firm *i* in year *t*
$\Delta S_{it}$ = Changes in the sales of firm *i* in year *t*
The abnormal CFO is the residual of above model.

Abnormal Production Cost (PROD) Proxy

$$PROD_{it} = COGS_{it} + \Delta INV_{it}.$$

$$PROD_{it} / A_{i,t-1} = \alpha_0 + \alpha_1 (1/A_{i,t-1}) + \beta_1 (S_{it}/A_{i,t-1}) + \beta_2 (\Delta S_{it}/A_{i,t-1}) + \beta_3 (\Delta S_{i,t-1}/A_{i,t-1}) + \varepsilon_{it} \quad (2)$$

where:

$PROD_{it}$ = The sum of cost of goods sold and change in inventory of firm *i* in year *t*
$COGS_{it}$ = Cost of goods sold of firm *i* in year *t*
$\Delta INV_{it}$ = Change in inventory of firm *i* in year *t*
$A_{i,t-1}$ = Total assets of firm *i* in year *t*-1
$S_{it}$ = Sales of firm *i* in year *t*
$\Delta S_{it}$ = Changes in the sales of firm *i* in year *t*
$\Delta S_{i,t-1}$ = Changes in the sales of the firm *i* in year *t*-1
The abnormal PROD is the residual of above model.

Abnormal Discretionary Cost (DISEXP) Proxy

$$DISEXP_{it} / A_{i,t-1} = \alpha_0 + \alpha_1 (1 / A_{i,t-1}) + \beta_1 (S_{i,t-1} / A_{i,t-1}) + \varepsilon_{it} \quad (3)$$

where:

$DISEXP_{it}$ = Discretionary Cost (the sum of advertising expense, R & D expenses and selling and administration expenses if the value of selling and administration expenses is provided, the value of advertising expense and R & D expenses is given a value zero (0) if the observation does not have those value or the data are not available) of firm *i* in year *t*

$A_{i,t-1}$ = Total assets of firm *i* in year *t*-1

$S_{it}$ = Sales of firm *i* in year *t*

The abnormal DISEXP is the residual of above model.

Earnings Management Through Real Activities Manipulation (RAM)

RAM is calculated after equations 1, 2 and 3 are regressed. Then, the residuals of each observation based on the model regression are computed. RAM is the average of absolute value of Abnormal CFO, Abnormal PROD and Abnormal DISEXP. This study excluded observations that only had single proxy of RAM, so the observations used in this study are observations that have at least two proxies of RAM.

### *3.4.2 Leverage*

The leverage ratio is the ratio of debt to assets that is acquired from the total debts divided by total assets (Zamri et al. 2013; Rahman & Ali, 2006; Gu, Lee, & Rosett, 2005; Dichev & Skinner, 2002; Sweeney, 1994).

### *3.4.3 IFRS*

In the context of this study, the IFRS is a dummy variable which was given 1 for the year the country was observed to fully converge/adopt the IFRS and 0 for otherwise. Most of the information indicating the status of the respective country's IFRS convergence were extracted from the IFRS Jurisdiction Profile. Where this did not provide clear and complete information, the information would be counter-checked against other reliable sources such as the IFRS Jurisdiction by Deloitte - IAS Plus, Report on the Observance of Standards and Codes (ROSC) of the World Bank and the Indonesian Institute of Accountants (IAI). Table 4 below tabulates the respective country's status of convergence from 2003 to 2014.

Table 4: Status of IFRS Full Convergence

| Year | China | Hong Kong | Indonesia | Malaysia | Philippines | Sri Lanka |
|---|---|---|---|---|---|---|
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 1 | 0 | 0 | 1 | 0 |
| 2006 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2007 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2008 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2009 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2010 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2011 | 1 | 1 | 0 | 0 | 1 | 0 |
| 2012 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2013 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2014 | 1 | 1 | 1 | 1 | 1 | 1 |

### *3.4.4 Control Variables*

As mentioned earlier, this study uses a number of variables. The control variables used are explained further.

Return on Assets (ROA) is return on assets in year *t*-1. ROA is obtained from the calculation of net income divided by average total assets. According to Kothari, Leone, and Wasley (2005), Jiraporn, Kim, and Mathur (2008) and Roychowdury (2006) there is a negative relationship between earnings management and ROA.

Firm Size (SIZE) is obtained from the calculation of the natural logarithm of total assets. Findings provided by Zamri et al. (2013) and Roychowdury (2006) support that SIZE has a negative effect on RAM.

Sales Growth (SALES_GWTH) reflects the growth rate of sales revenue which is measured by the change of sales of current year divided by sales in previous year. Lyu et al. (2014) find that managers tend to manipulate earnings if firms have significant sales growth. Therefore, this study estimates that sales growth has a positive coefficient.

### *3.4.5 Institutional Factors*

To test whether countries' institutional factors have any different effect on the relationship between leverage, IFRS and RAM ($H_4$), this study regressed the relationship by using sub-sample data. The classification procedures are as follow:

Country Economic Size

To classify the countries according to economic size, this study employed the classification provided by the World Bank, based on the level of GNI (Gross National Income) per capita. Thus, countries with low income and lower middle income were classified as developing countries and countries with upper middle income and high income were categorised as developed countries. The World Bank also provides the cut off criteria of the classification for each year and based on this cut off criteria and the GNI per capita level recommended for each year, the six sample countries were classified accordingly as shown in Table 5.

Country Governance Quality

The country governance quality was derived from the Worldwide Governance Indicator (WGI) issued by the World Bank. Several indicators were covered namely: control of corruption, government effectiveness, political stability and absence of violence, regulatory quality, the rule of law, voice and accountability. The classification of countries with good governance and countries with poor governance was based on the average percentile rank of the WGI indicator. Countries were classified as having good governance if the average percentile rank of the WGI indicator was above 50; and as having poor governance if the average percentile rank of WGI indicator was 50 and below. The sample countries were classified accordingly in Table 6.

IFRS Adoption Strategy

This study also considered the IFRS adoption strategy as an institutional context which supports the reporting environment of a country. The sample countries were classified as using the big-bang approach or the gradual approach strategy. Countries using the big-bang approach strategy are Hong Kong and the Philippines while those applying the gradual approach are China, Indonesia, Malaysia and Sri Lanka.

Table 5: Countries Classification Based on Economic Size

| Year | Classification Criteria | | | | Sample Countries GNI (USD) and Classification | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Income (L) | Lower Middle Income (LM) | Upper Middle Income (UM) | High Income (H) | China | Hong Kong | Indonesia | Malaysia | Philippines | Sri Lanka |
| 2003 | ≤ 2506 | 993 -3,035 | 3,036 -9,385 | > 9,385 | 1,270 (LM, DEVING) | 26,340 (H, DEVED) | 900 (LM, DEVING) | 4,130 (UM, DEVED) | 1,260 (LM, DEVING) | 950 (LM, DEVING) |
| 2004 | ≤ 825 | 2169 - 3,255 | 3,256 -10,065 | > 10,065 | 1,500 (LM, DEVING) | 28,120 (H, DEVED) | 1,080 (LM, DEVING) | 4,710 (UM, DEVED) | 1,400 (LM, DEVING) | 1,070 (LM, DEVING) |
| 2005 | ≤ 875 | 876 - 3,465 | 3,466 -10,725 | > 10,725 | 1,750 (LM, DEVING) | 28,890 (H, DEVED) | 1,220 (LM, DEVING) | 5,250 (UM, DEVED) | 1520 (LM, DEVING) | 1,210(LM, DEVING) |
| 2006 | ≤ 2248 | 906-3,595 | 3,596 -11,115 | > 11,115 | 2,050 (LM, DEVING) | 30,290 (H, DEVED) | 1,380 (LM, DEVING) | 5,830 (UM, DEVED) | 1,650 (LM, DEVING) | 1,350 (LM, DEVING) |
| 2007 | ≤ 935 | 960 - 3,705 | 3,706 -11,455 | > 11,455 | 2,490 (LM, DEVING) | 32,070 (H, DEVED) | 1,600 (LM, DEVING) | 6,620 (UM, DEVED) | 1,900 (LM, DEVING) | 1,540 (LM, DEVING) |
| 2008 | ≤ 748 | 976 - 3,855 | 3,856 -11,905 | > 11,905 | 3,070 (LM, DEVING) | 33,950 (H, DEVED) | 1,940 (LM, DEVING) | 7,520 (UM, DEVED) | 2,240 (LM, DEVING) | 1,770 (LM, DEVING) |
| 2009 | ≤ 718 | 802 - 3,945 | 3,946 -12,195 | > 12,195 | 3,650 (LM, DEVING) | 32,350 (H, DEVED) | 2,150 (LM, DEVING) | 7,620 (UM, DEVED) | 2,490 (LM, DEVING) | 1,970 (LM, DEVING) |
| 2010 | ≤ 1,005 | 1,006 -3,975 | 3,976 -12,275 | > 12,275 | 4,300 (UM, DEVED) | 33,620 (H, DEVED) | 2,530 (LM, DEVING) | 8,280 (UM, DEVED) | 2,750 (LM, DEVING) | 2,360 (LM, DEVING) |
| 2011 | ≤ 1,025 | 1,026 -4,035 | 4,036 -12,475 | > 12,475 | 5,000 (UM, DEVED) | 35,690 (H, DEVED) | 3,010 (LM, DEVING) | 9,080 (UM, DEVED) | 2,640 (LM, DEVING) | 2,520 (LM, DEVING) |
| 2012 | ≤ 1,035 | 1,036 -4,085 | 4,086 -12,615 | > 12,615 | 5,870 (UM, DEVED) | 36,320 (H, DEVED) | 3,580 (LM, DEVING) | 10,200 (UM, DEVED) | 3,000 (LM, DEVING) | 2,910 (LM, DEVING) |
| 2013 | ≤ 1,045 | 1,046 -4,125 | 4,126 -12,745 | > 12,745 | 6,710 (UM, DEVED) | 38,520 (H, DEVED) | 3,740 (LM, DEVING) | 10,850 (UM, DEVED) | 3,340(LM, DEVING) | 3,150 (LM, DEVING) |
| 2014 | ≤ 1,045 | 1,046 -4,125 | 4,126 -12,735 | > 12,735 | 7,400 (UM, DEVED) | 40,320 (H, DEVED) | 3,630 (LM, DEVING) | 11,120 (UM, DEVED) | 3,500 (LM, DEVING) | 3,440 (LM, DEVING) |

Source: World Bank (2016)

Note: L= Low Income; LM = Lower Middle Income; UM = Upper Middle Income; H = High Income; DEVING = Developing Countries; DEVED = Developed Countries

Table 6: Classification of Countries

| Year | China | Hong Kong | Indonesia | Malaysia | Philippines | Sri Lanka |
|---|---|---|---|---|---|---|
| 2003 | 36.404 | 85.387 | 22.210 | 63.835 | 40.432 | 46.844 |
| 2004 | 36.154 | 88.754 | 26.089 | 64.796 | 35.967 | 44.666 |
| 2005 | 35.352 | 89.232 | 28.027 | 64.783 | 41.055 | 41.179 |
| 2006 | 35.769 | 88.607 | 31.603 | 61.500 | 37.247 | 42.094 |
| 2007 | 36.496 | 87.893 | 35.347 | 61.361 | 37.440 | 42.268 |
| 2008 | 37.791 | 88.298 | 36.164 | 57.263 | 37.228 | 40.211 |
| 2009 | 36.792 | 87.186 | 35.323 | 56.318 | 36.143 | 39.320 |
| 2010 | 35.081 | 86.891 | 35.130 | 61.310 | 35.006 | 39.980 |
| 2011 | 35.919 | 85.950 | 35.954 | 59.760 | 36.828 | 42.346 |
| 2012 | 35.053 | 87.741 | 38.097 | 60.610 | 39.956 | 41.858 |
| 2013 | 36.169 | 87.105 | 39.531 | 62.280 | 43.132 | 40.987 |
| 2014 | 39.412 | 89.747 | 44.013 | 66.428 | 45.360 | 44.718 |
| Average Percentile Rank per Year | 36.366 | 87.733 | 33.957 | 61.687 | 38.816 | 42.206 |
| Governance Quality | Poor | Good | Poor | Good | Poor | Poor |

Source: *Worldwide Governance Indicator* (WGI) from the World Bank

## 4. Analysis and Empirical Results

### *4.1 Descriptive Statistics*

Descriptive statistics are presented in Table 7 and the correlation results are presented in Table 8. In Table 7, it can be seen that RAM has a standard deviation that is lower than its mean value; it also has a lower margin, indicating that the value in the RAM data does not vary. The value of leverage in this sample is also relatively low because the values of min, max and mean are below 1. A lower standard deviation as seen in its mean value suggests that the variation of leverage is also low.

Table 7: Descriptive Statistics

| Variable | N | Mean | Min | Max | Std.Dev | Skewness |
|---|---|---|---|---|---|---|
| RAM | 19744 | 0.09 | 0.00 | 0.52 | 0.07 | 2.28 |
| LEV | 19744 | 0.24 | 0.00 | 0.77 | 0.17 | 0.47 |
| ROA | 19744 | 0.04 | -0.22 | 0.36 | 0.07 | 0.14 |
| SALES_GWTH | 19744 | 0.15 | -2.28 | 3.14 | 0.36 | 2.00 |
| SIZE | 19744 | 19.36 | 15.11 | 24.08 | 1.49 | 0.12 |

Note: RAM = Earnings Management through Real Activities Manipulation; LEV = Leverage; ROA = Return on Assets in the year *t*-1; SALES_GWTH = Sales Growth; SIZE = Firm Size; N = number of observations

Table 7 also illustrates that the mean value of the control variable, ROA, is below 1. This indicates that the value of return on assets in the year *t*-1 is relatively low. In addition, the value of its standard deviation which is slightly higher than the mean value, indicates that the ROA of the sample countries does not vary much. From the descriptive statistics shown on SALES_GWTH, it can be concluded that its value is relatively low but varied. This is because the value of its standard deviation is higher than its mean value. The results on SIZE indicate that the value of firm size in this study is relatively high but not varied since the value of its standard deviation is lower than its mean value.

### *4.2 Empirical Results*

In this study, the analysis of $H_1$ and $H_2$ was performed by using the results of regression Model 1 while the analysis of $H_3$ was performed by using the results of regression Model 2. Table 9 shows the value of adjusted $R^2$ for Model 1 and Model 2 to be 8.40 per cent and 8.43 per cent respectively. Model 1 shows that leverage, standing at the 1 per cent significant level, has a significant negative effect on RAM. This indicates that $H_1$ cannot be rejected. This regression result is consistent with the control hypothesis of Jensen (1986). Based on the control hypothesis, it appears that leverage increases the level of monitoring and control by creditors and this can reduce the opportunity for managers to perform RAM. Accordingly, debts limit the ability of the managers in performing RAM. This result suggests that leverage can be used as a mechanism to improve monitoring and so increase firm control in Asian countries.

Model 1 also indicates that IFRS has a positive effect on RAM, at a 10 per cent significant level. This result shows that $H_2$ cannot be rejected. This indicates that RAM increases after IFRS convergence.

Table 8: Pearson Correlation

| | RAM | LEV | IFRS | LEV*IFRS | ROA | SALES_ GWTH | SIZE | CONDIS | CONSTAP | ENERGY | HCARE | IT | MATERIALS | TELCOMS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RAM | 1 | | | | | | | | | | | | | |
| LEV | -0.124** | 1 | | | | | | | | | | | | |
| IFRS | -0.023** | 0.012 | 1 | | | | | | | | | | | |
| LEV*IFRS | -0.114** | 0.765** | 0.534** | 1 | | | | | | | | | | |
| ROA | 0.163** | -0.247** | 0.019** | -.176** | 1 | | | | | | | | | |
| SALES_GWTH | 0.135** | 0.036** | 0.005 | 0.036** | 0.085** | 1 | | | | | | | | |
| SIZE | -0.111** | 0.246** | 0.333** | 0.363** | 0.177** | 0.094** | 1 | | | | | | | |
| CONDIS | 0.127** | -0.097** | 0.031** | -0.064** | 0.026** | -0.040** | -0.051** | 1 | | | | | | |
| CONSTAP | 0.020** | -0.037** | -0.076** | -0.063** | 0.036** | -0.006 | -0.053** | -0.199** | 1 | | | | | |
| ENERGY | -0.034** | 0.036** | -0.010 | 0.018* | 0.020** | 0.008 | 0.056** | -0.105** | -0.063** | 1 | | | | |
| HCARE | 0.036** | -0.045** | 0.045** | -0.015* | 0.078** | 0.024** | -0.011 | -0.140** | -0.084** | -0.045** | 1 | | | |
| IT | -0.015* | -0.111** | 0.041** | -0.064** | -0.032** | 0.003 | -0.076** | -0.199** | -0.120** | -0.064** | -0.084** | 1 | | |
| MATERIALS | -0.095** | 0.215** | -0.019** | 0.162** | -0.055** | 0.016* | 0.052** | -0.276** | -0.166** | -0.088** | -0.117** | -0.166** | 1 | |
| TELCOMS | -0.022** | 0.002 | -0.007 | 0.001 | 0.001 | -0.007 | 0.072** | -0.052** | -0.031** | -0.017* | -0.022** | -0.031** | -0.044** | 1 |

Note: ** and * indicate significance at the 1% and 5% levels respectively.
RAM = Earnings Management through Real Activities Manipulation; LEV = Leverage; ROA = Return on Assets in the year t-1; SALES_GWTH = Sales Growth; SIZE = Firm Size; IFRS = It is given a value 1 if the country had already fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others; CONDIS = Consumer Discretionary Sector; CONSTAP = Consumer Staples Sector; ENERGY = Energy Sector; HCARE = Health Care Sector; IT = Information Technology Sector; MATERIALS = Materials Sector; TELCOMS = Telecommunication Service Sector; N = number of observations

The regression result noted here is consistent with Lyu et al. (2014) who find that IFRS has an impact on RAM in registered public firms in China. The increase in RAM after IFRS convergence may be due to the principle-based characteristic of the IFRS because this characteristic provides opportunities for the manipulation of financial statements (Nobes, 2011; Schipper, 2003; Nelson, 2003; Capkun et al., 2016).

Table 9: Regression Result for Model 1 and Model 2

| | | Model 1 (Without Moderation) | | Model 2 (With Moderation) | |
|---|---|---|---|---|---|
| Variable | ^ | Coef | Prob | Coef | Prob |
| C | | 0.198 | 0.000*** | 0.194 | 0.000*** |
| LEV | +/- | -0.014 | 0.002*** | 0.002 | 0.423 |
| IFRS | +/- | 0.003 | 0.067* | 0.008 | 0.009*** |
| LEV*IFRS | +/- | - | - | -0.020 | 0.018** |
| ROA | - | 0.149 | 0.000*** | 0.149 | 0.000*** |
| SALES_GWTH | + | 0.027 | 0.000*** | 0.027 | 0.000*** |
| SIZE | - | -0.006 | 0.000*** | -0.006 | 0.000*** |
| $IND_{CONDIS}$ | +/- | 0.018 | 0.000*** | 0.018 | 0.000*** |
| $IND_{CONSTAP}$ | +/- | 0.005 | 0.045** | 0.005 | 0.043** |
| $IND_{ENERGY}$ | +/- | -0.007 | 0.021** | -0.007 | 0.020** |
| $IND_{HCARE}$ | +/- | 0.008 | 0.028** | 0.008 | 0.029** |
| $IND_{IT}$ | +/- | -0.001 | 0.350 | -0.001 | 0.347 |
| $IND_{MATERIALS}$ | +/- | -0.007 | 0.003*** | -0.006 | 0.003*** |
| $IND_{TELCOMS}$ | +/- | -0.005 | 0.263 | -0.005 | 0.268 |
| *Adjusted* $R^2$ | | 0.084 | | 0.084 | |
| F-Statistik | | 151.778 | | 73.449 | |
| Prob (F-Statistik) | | 0.000 | | 0.000 | |
| N | | 19744 | | 19744 | |

Notes:
*, ** and *** indicate significance at the 10%, 5% and 1% levels respectively; ^ = Estimated sign; Coef = Coefficient; Prob = Probability; N = Number of observations. LEV = leverage ratio; IFRS = a dummy variable that is given a value 1 if the country observed had fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others; ROA = return on assets in year t-1; SALES_GWTH = sales growth; SIZE = firm size; $IND_{CONDIS}$ = dummy variable of the firm's sector for consumer discretionary sector; $IND_{CONSTAP}$ = dummy variable of the firm's sector for consumer staples sector; $IND_{ENERGY}$ = dummy variable of firm's sector for the energy sector; $IND_{HCARE}$ = dummy variable of the firm's sector for health care sector; $IND_{IT}$ = dummy variable of the firm's sector for sector information technology; $IND_{MATERIALS}$ = dummy variable of the firm's sector for materials sector; $IND_{TELCOMS}$ = dummy variable of the firm's sector for telecommunication service sector.

Based on the results seen in Model 2 demonstrated in Table 9, it can be said that the moderating variable LEV * IFRS, standing at a significant level of 5 per cent, has a significant negative effect on RAM. This suggests that $H_3$ cannot be rejected. The result of Model 1 also shows that leverage negatively affects RAM. Thus, it supports the control hypothesis. The negative effect of LEV * IFRS shows that IFRS strengthens the negative effect of leverage on RAM. In the period after IFRS convergence, the negative effect of leverage on RAM increases. This result explains that the higher disclosure requirement of the IFRS supports the monitoring role of creditors. By adopting the IFRS, a country improves its reporting environment and it also supports high quality financial reporting, thereby promoting transparency. This condition reinforces the notion that creditors perform better monitoring for the firms therefore, the opportunity by the firms to do RAM is lower.

### *4.3 Analysis by Differentiating the Developed and Developing Countries*

Table 10 shows the result of the analysis of the effect of leverage and IFRS on RAM in developed and developing countries. The figures show that the leverage of the sub-sample of developing countries has no significant effect on RAM. However, in the sub-sample of developed countries, leverage (LEV) has a negative effect on RAM. This outcome indicates that the effect of leverage on RAM occurs only in developed countries (China, Hong Kong and Malaysia). This could be because in developed countries, the rights of creditors are adequately protected and creditors can perform their monitoring and controlling functions. In this regard, firms will have lesser and lower opportunities to perform RAM. The statistics indicate the opposite in developing countries where the efficiency of debt enforcement and legal right index are lower, hence firms have more opportunities to commit RAM.

Table 10 also reveals that IFRS convergence has a positive effect on RAM but only in the developed countries (China, Hong Kong and Malaysia). It has no significant effect on RAM in developing countries (Indonesia, the Philippines and Sri Lanka). This outcome is consistent with Lyu et al. (2014). Expanding on this, Kaaya (2015) mentions that the impact of the implementation of the IFRS on earnings management also depends on other factors such as law enforcement and reporting system as well as the protection of investors which are different in each country. Another perspective is offered by Zehri and Chouaibi

Table 10: Regression Result for Model 1 and 2 with Sub-Sample Test (Developing and Developed Countries)

| Variable | ^ | Model without Moderation | | | | Model with Moderation | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Developing Countires | | Developed Counties | | Developing Countires | | Developed Counties | |
| | | Coef | Prob | Coef | Prob | Coef | Prob | Coef | Prob |
| C | | 0.138 | 0.000*** | 0.205 | 0.000*** | 0.143 | 0.000*** | 0.200 | 0.000*** |
| LEV | +/- | -0.000 | 0.490 | -0.015 | 0.002*** | -0.019 | 0.150 | 0.006 | 0.291 |
| IFRS | +/- | 0.003 | 0.262 | 0.004 | 0.034** | -0.007 | 0.173 | 0.010 | 0.003*** |
| LEV*IFRS | +/- | - | - | - | - | 0.037 | 0.048** | -0.025 | 0.011** |
| ROA | - | 0.115 | 0.000*** | 0.154 | 0.000*** | 0.116 | 0.000*** | 0.154 | 0.000*** |
| SALES_GWTH | + | 0.019 | 0.001*** | 0.028 | 0.000*** | 0.019 | 0.002*** | 0.028 | 0.000*** |
| SIZE | - | -0.004 | 0.005*** | -0.007 | 0.000*** | -0.004 | 0.004*** | -0.007 | 0.000*** |
| $IND_{CONDIS}$ | +/- | 0.024 | 0.000*** | 0.018 | 0.000*** | 0.024 | 0.000*** | 0.018 | 0.000*** |
| $IND_{CONSTAP}$ | +/- | 0.019 | 0.002*** | 0.003 | 0.170 | 0.018 | 0.002*** | 0.003 | 0.167 |
| $IND_{ENERGY}$ | +/- | 0.006 | 0.208 | -0.009 | 0.008*** | 0.005 | 0.239 | -0.010 | 0.007*** |
| $IND_{HCARE}$ | +/- | 0.011 | 0.195 | 0.008 | 0.043** | 0.011 | 0.196 | 0.008 | 0.045** |
| $IND_{IT}$ | +/- | 0.017 | 0.118 | -0.002 | 0.207 | 0.019 | 0.094* | -0.002 | 0.210 |
| $IND_{MATERIALS}$ | +/- | 0.032 | 0.000*** | -0.011 | 0.000*** | 0.032 | 0.000*** | -0.011 | 0.000*** |
| $IND_{TELCOMS}$ | +/- | -0.023 | 0.006*** | 0.004 | 0.327 | -0.025 | 0.004*** | 0.005 | 0.319 |
| Adjusted $R^2$ | | 0.053 | | 0.095 | | 0.054 | | 0.095 | |
| Prob (F-Statistic) | | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| N | | 2539 | | 17205 | | 2539 | | 17205 | |

Notes:
*, ** and *** indicate signifcance at the 10%, 5% and 1% levels respectively; ^ = Estimated sign; Coef = Coefficient; Prob = Probability; N = Number of observations. LEV = leverage ratio; IFRS = a dummy variable that is given a value 1 if the country had fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others; ROA = return on assets in year *t*-1; SALES_GWTH = sales growth; SIZE = firm size; $IND_{CONDIS}$ = dummy variable of the firm's sector for consumer discretionary sector; $IND_{CONSTAP}$ = dummy variable of the firm's sector for consumer staples sector; $IND_{ENERGY}$ = dummy variable of firm's sector for the energy sector; $IND_{HCARE}$ = dummy variable of the firm's sector for health care sector; $IND_{IT}$ = dummy variable of the firm's sector for sector information technology; $IND_{MATERIALS}$ = dummy variable of the compny's sector for materials sector; $IND_{TELCOMS}$ = dummy variable of the firm's sector for telecommunication service sector.

(2013) who observe that countries benefitting from the IFRS adoption are those with high level economic growth, high level education and a legal system that is based on common law.

The outcome of this study is further explained. The regression result for the moderation role of the IFRS in the relationship of leverage and RAM is interesting. It can be seen that the moderation role of the IFRS is positive and significant in developing countries (Indonesia, the Philippines and Sri Lanka) but it is negatively significant in developed countries (China, Hong Kong and Malaysia). This implies that upon the IFRS convergence in developing countries, managers increased their RAM as the leverage increases. In contrast, in developed countries, managers decreased their RAM as the leverage increases. It is deduced that in developing countries where creditor's litigation risk is low, managers can take advantage of the characteristics of the IFRS for self interest through RAM. However, managers in developed countries have to face higher monitoring as their leverage increases. Hence, the possibility for them to perform RAM is smaller. The results show that $H_{4a}$ cannot be rejected.

### *4.4 Analysis by Differentiating Countries with Good Governance and Countries with Poor Governance*

Table 11 illustrates the relationship between leverage, IFRS and RAM in countries possessing different levels of governance quality. The results indicate that leverage has a negative significant effect on RAM in countries with good governance (Hong Kong and Malaysia). However, the opposite occurs that is, leverage has a positive significant impact on RAM in countries with poor governance (China, Indonesia, the Philippines and Sri Lanka). Countries with better governance provide better protection of creditors' rights and this can result in higher litigation risks for the firms. In this condition, the higher the leverage, the lower the opportunity for firms to perform RAM. In countries with poor governance, a higher leverage offers more incentives for firms to perform RAM. Table 11 also shows that IFRS does not significantly affect RAM in countries with good governance, and positively affect RAM in poor governance. This result implies that in countries with good governance, IFRS convergence does not affect the quality of the financial reporting because the reporting environment already supports high quality reporting. The reverse applies to countries with poor governance.

The results shown in Table 11 also reveal that IFRS convergence weakens the negative effect of leverage on RAM in countries with good

Table 11: Regression Result for Model 1 and 2 with Sub-Sample Test (Good Governance and Poor Governance Countries)

| Variable | ^ | Model without Moderation | | | | Model with Moderation | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Good Governance Countries | | Poor Governance Countries | | Good Governance Countries | | Poor Covernance Countries | |
| | | Coef | Prob | Coef | Prob | Coef | Prob | Coef | Prob |
| C | | 0.191 | 0.000*** | 0.189 | 0.000*** | 0.243 | 0.000*** | 0.301 | 0.000*** |
| LEV | | -0.013 | 0.017** | 0.012 | 0.093* | -0.110 | 0.097* | 0.053 | 0.103* |
| IFRS | +/- | -0.002 | 0.196 | 0.013 | 0.000*** | -0.006 | 0.154 | 0.009 | 0.081* |
| LEV*IFRS | +/- | - | - | - | - | 0.046 | 0.058** | -0.032 | 0.023** |
| ROA | +/- | 0.170 | 0.000*** | 0.134 | 0.000*** | 0.181 | 0.000*** | 0.165 | 0.000*** |
| SALES_ GWTH | - | 0.028 | 0.000*** | 0.030 | 0.000*** | 0.024 | 0.000*** | 0.032 | 0.000*** |
| SIZE | + | -0.006 | 0.000*** | -0.006 | 0.000*** | -0.007 | 0.003*** | -0.010 | 0.000*** |
| $IND_{CONDIS}$ | - | 0.012 | 0.000*** | 0.023 | 0.000*** | 0.042 | 0.000*** | 0.023 | 0.000*** |
| $IND_{CONSTAP}$ | +/- | 0.011 | 0.002*** | -0.003 | 0.275 | 0.022 | 0.000*** | 0.006 | 0.189 |
| $IND_{ENERGY}$ | +/- | -0.004 | 0.170 | -0.016 | 0.002*** | 0.021 | 0.338 | -0.012 | 0.081* |
| $IND_{HCARE}$ | +/- | 0.016 | 0.002*** | -0.006 | 0.180 | 0.076 | 0.234 | 0.082 | 0.051** |
| $IND_{IT}$ | +/- | -0.008 | 0.022** | 0.004 | 0.194 | 0.087 | 0.015* | -0.006 | 0.236 |
| $IND_{MATERIALS}$ | +/- | -0.005 | 0.029** | -0.005 | 0.106 | 0.043 | 0.000*** | -0.023 | 0.000*** |
| $IND_{TELCOMS}$ | +/- | -0.019 | 0.001*** | -0.001 | 0.480 | -0.028 | 0.003*** | 0.056 | 0.453 |
| Adjusted $R^2$ | | 0.101 | | 0.079 | | 0.054 | | 0.062 | |
| Prob (F-Statistic) | | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| N | | 11717 | | 8027 | | 11717 | | 8027 | |

Notes:
*, ** and *** indicate signifcance at the 10%, 5% and 1% levels respectively; ^ = Estimated sign; Coef = Coefficient; Prob = Probability; N = Number of observations. LEV = leverage ratio; IFRS = a dummy variable that is given a value 1 if the country had fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others; ROA = return on assets in year t-1; SALES_GWTH = sales growth; SIZE = firm size; $IND_{CONDIS}$ = dummy variable of the firm's sector for consumer discretionary sector; $IND_{CONSTAP}$ = dummy variable of the firm's sector for consumer staples sector; $IND_{ENERGY}$ = dummy variable of firm's sector for the energy sector; $IND_{HCARE}$ = dummy variable of the firm's sector for health care sector; $IND_{IT}$ = dummy variable of the firm's sector for sector information technology; $IND_{MATERIALS}$ = dummy variable of the firm's sector for materials sector; $IND_{TELCOMS}$ = dummy variable of the firm's sector for telecommunication service sector.

governance and weakens the positive effect of leverage on RAM in countries with poor governance. This means that in the former, IFRS reduces litigation risks because high disclosure requirement helps creditors to do their monitoring. It is the opposite in countries suffering from poor governance. This outcome is consistent with the findings of Wardhani et al. (2015) and it suggests that the existence of high quality accounting standards can serve as a substitution for the weak legal system and the poor governance. The results thus show that $H_{4b}$ cannot be rejected.

### *4.5 Analysis by Differentiating Countries that use Gradual IFRS Convergence Strategy and Big-Bang IFRS Convergence Strategy*

Table 12 indicates that IFRS has a negative but significant effect on RAM only in countries using the gradual approach strategy. The impact of the IFRS on RAM is not significant in countries using the big-bang approach strategy. This occurrence could be attributed to the local accounting standards used before the IFRS adoption. It is deduced that countries using the big-bang approach was already good in their accounting standards and practices prior to the IFRS (Note that Hong Kong and the Philippines were using the International Accounting Standard (IAS) even before converging with the IFRS.) Hence, the gap between the IFRS and the local accounting standards before IFRS adoption is small. Consequently, the IFRS has no significant impact on RAM in these countries. Results in Table 12 also indicate that the moderation effect of the IFRS on the relationship of leverage and RAM is positive and significant in countries using the big-bang approach strategy but is negative and significant in countries using the gradual approach strategy. This result implies that the higher requirement of disclosure in the IFRS, as compared to previous accounting standards, reduces the litigation risks of firms. The results show that $H_{4c}$ cannot be rejected.

The analyses of the results revealed in Tables 10, 11 and 12 do not reject $H_{4a}$, $H_{4b}$ and $H_{4c}$ which state that the relationships between leverage, IFRS convergence and RAM depend on the country's institutional factors. This conclusion is based on the different results when looking at the adjusted R square and coefficient of the variables, as well as when looking at the differences between regressions among sub-samples based on the economic status, country governance and IFRS adoption strategy. The results conclude that institutional contexts do have an impact on the relationships between leverage, IFRS and RAM.

Table 12: Regression Results for Model 1 and 2 with Sub-Sample Test (Countries Using the Gradual Approach of IFRS Adoption Countries and Big-Bang Approach of IFRS Adoption)

| Variable | ^ | Model without Moderation | | | | Model with Moderation | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Gradual Approach Countries | | Big-Bang Approach Countries | | Gradual Approach Countries | | Big-Bang Approach Countries | |
| | | Coef | Prob | Coef | Prob | Coef | Prob | Coef | Prob |
| C | | 0.191 | 0.000*** | 0.278 | 0.000*** | 0.187 | 0.000*** | 0.294 | 0.000*** |
| LEV | +/- | -0.002 | 0.318 | 0.000 | 0.496 | 0.013 | 0.081* | -0.080 | 0.024** |
| IFRS | +/- | -0.004 | 0.022** | -0.006 | 0.188 | 0.001 | 0.344 | -0.021 | 0.029** |
| LEV*IFRS | +/- | | | | | -0.021 | 0.018** | 0.084 | 0.015** |
| ROA | - | 0.160 | 0.000*** | 0.141 | 0.000*** | 0.160 | 0.000*** | 0.140 | 0.000*** |
| SALES_ GWTH | + | 0.031 | 0.000*** | 0.023 | 0.000*** | 0.031 | 0.000*** | 0.023 | 0.000*** |
| SIZE | - | -0.006 | 0.000*** | -0.010 | 0.000*** | -0.006 | 0.000*** | -0.009 | 0.000*** |
| $IND_{CONDIS}$ | +/- | 0.012 | 0.000*** | 0.019 | 0.000*** | 0.012 | 0.000*** | 0.019 | 0.000*** |
| $IND_{CONSTAP}$ | +/- | 0.003 | 0.170 | 0.015 | 0.008*** | 0.003 | 0.165*** | 0.015 | 0.008 *** |
| $IND_{ENERGY}$ | +/- | -0.009 | 0.005*** | -0.001 | 0.058** | -0.009 | 0.005*** | -0.011 | 0.059* |
| $IND_{HCARE}$ | +/- | 0.014 | 0.002*** | -0.009 | 0.164 | 0.014 | 0.002*** | -0.009 | 0.166 |
| $IND_{IT}$ | +/- | -0.000 | 0.441 | -0.006 | 0.121 | -0.000 | 0.437 | -0.006 | 0.121 |
| $IND_{MATERIALS}$ | +/- | -0.011 | 0.000*** | 0.024 | 0.001*** | -0.011 | 0.000*** | 0.024 | 0.001*** |
| $IND_{TELCOMS}$ | +/- | -0.012 | 0.007*** | -0.008 | 0.276 | -0.012 | 0.010*** | -0.007 | 0.287 |
| Adjusted $R^2$ | | 0.1042 | | 0.0795 | | 0.1047 | | 0.0805 | |
| F-Statistic | | 140.0103 | | 39.8470 | | 130.0443 | | 37.3370 | |
| Prob (F-Statistic) | | 0.0000 | | 0.0000 | | 0.0000 | | 0.0000 | |
| N | | 14345 | | 5399 | | 14345 | | 5399 | |

Notes:
*, ** and *** indicate signifcance at the 10%, 5% and 1% levels respectively; ^ = Estimated sign; Coef = Coefficient; Prob = Probability; N = Number of observations
LEV = leverage ratio; IFRS = a dummy variable that is given a value 1 if the country had fully adopted or converged with IFRS (full convergence/adoption) and it is given a value 0 for others; ROA = return on assets in year t-1; SALES_GWTH = sales growth; SIZE = firm size; $IND_{CONDIS}$ = dummy variable of the firm's sector for consumer discretionary sector; $IND_{CONSTAP}$ = dummy variable of the firm's sector for consumer staples sector; $IND_{ENERGY}$ = dummy variable of firm's sector for the energy sector; $IND_{HCARE}$ = dummy variable of the firm's sector for health care sector; $IND_{IT}$ = dummy variable of the firm's sector for sector information technology; $IND_{MATERIALS}$ = dummy variable of the firm's sector for materials sector; $IND_{TELCOMS}$ = dummy variables of the firm's sector for telecommunication service sector.

### *4.6 Sensitivity Test*

Sensitivity tests were performed by doing regression on each proxy for RAM. The dependent variable was replaced in the form of absolute value and square value of the abnormal operating cash flow, abnormal discretionary cost and abnormal production cost. In general, the results of the sensitivity tests produce evidence which is relatively consistent with the main testing. This shows that the empirical evidence presented in this study have high internal validity.

## 5. Summary and Conclusion

The objective of this study was to examine the effect of leverage and IFRS convergence on RAM and whether the IFRS convergence moderates the relationship between leverage and RAM. The summary of this study can be seen in Table 13.

There are several empirical evidence to be noted from this study. First, this study supports the control hypothesis linking leverage and earnings management; it implies that leverage increases the monitoring of creditors and it reduces the avaibility of cash flow for non-optimal spending, thereby, reducing opportunities for managers to perform RAM. For the sub-sample of developing countries, it is found that leverage has no significant effect on RAM but in the sub-samples of developed countries and countries with good governance, leverage has a negative effect on RAM.

Second, this study notes that IFRS has a positive effect on RAM which reflects that real earnings management will increase after IFRS convergence; IFRS convergence has a positive effect on RAM only in developed countries and no significant effect on RAM is noted in developing countries. IFRS convergence does not have a significant effect on RAM in countries with good governance but it positively affects RAM in countries with poor governance. In countries with poor governance quality, the convergence of IFRS increases RAM. Third, IFRS has a significant negative effect on RAM in countries that adopted the gradual approach strategy, but the impact of IFRS on RAM is not significant in countries that adopted the big-bang approach.

Fourth, IFRS strengthens the negative effect of leverage on RAM. In the period after IFRS convergence the negative effect of leverage on RAM increases. IFRS adoption weakens the negative effect of leverage on RAM in developing countries and countries with good governance; it weakens the positive effect of leverage on RAM in developed countries

Table 13: Summary of the Results

| Main Independent Variables | Debt Covenant Hypothesis | Control Hypothesis | Results | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Economic Size | | Governance Quality | | IFRS Adoption | |
| | Expected Sign | Expected Sign | General Result | Developing Countries[a] | Developed Countries[b] | Good[c] | Poor[d] | Gradual[e] | Big-Bang[f] |
| LEV | + | - | -*** | - | -*** | -** | +* | - | + |
| IFRS | +/- | | +* | + | +** | - | +*** | -** | - |
| LEV*IFRS | +/- | | -** | +** | -** | +** | -** | -** | +** |

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels respectively
[a]Developing countries: Indonesia, Philippines and Sri Lanka
[b]Developed countries: China, Hong Kong and Malaysia
[c]Good Governance countries: Hong Kong and Malaysia
[d]Poor Governance countries: China, Indonesia, Philippines and Sri Lanka
[e]Gradual Strategy countries: China, Indonesia, Malaysia and Sri Lanka
[f]Big Bang Strategy countries: Hong Kong and Philippines

and countries with poor governance. IFRS convergence weakens the positive effect of leverage on RAM in countries using the gradual approach strategy but it weakens the negative effect of leverage on RAM in countries using the big-bang approach strategy.

Based on the results of this study, it is expected that creditors can evaluate and improve the control mechanisms on firms after IFRS convergence. Moreover, the regulator or the board that sets accounting standards in those countries which have not fully converged to IFRS, particularly developing countries, may consider the results of this study which can be used to establish a policy and strategy that fulfills IFRS convergence that is appropriate and effective in reducing RAM. On the other hand, for the regulator or accounting standards setter in countries that have fully adopted IFRS, especially in developed countries and those using the big-bang approach, they may consider the results of this study which can be used to review their existing rules or policies related to financial reporting, ultimately reducing RAM. Regulators in countries with poor governance should also consider taking similar steps to upgrade the quality of financial reporting in their countries.

This study provides several implications for firms. First, this study provides two arguments in the hypothesis development on the effect of leverage on RAM (debt covenant hypothesis and control hypothesis) and the result supports the control hypothesis. It then underlines the importance of the monitoring and controlling functions of creditors. The findings imply that firms should put in more effort in fulfilling the rights of creditors and to provide more reliable information to these creditors. In addition, the findings also show that the relationship between IFRS and RAM is positive and that IFRS strengthens the negative effect of leverage on RAM. The outcome thus implies that by considering the principle-based characteristics of the IFRS, firms should make more conservative accounting policies so as to avoid and minimise earnings management through real activities manipulation.

This study was done in the context of six Asian countries. Future studies should cover other regions to enlarge the coverage of the countries that have adopted IFRS. This study had also used several control variables such as return on assets, sales growth and firm size. Future research may include other control variables such as investor protection and types of legal system that may also affect the links between IFRS convergence, leverage and earnings management.

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