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Effect of earnings management on economic value added: A cross-country study

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This paper addresses the association between earnings management and economic value added (EVA) among nations of the North American Free Trade Agreement (NAFTA), Association of Southeast Asian Nations (ASEAN), European Union (EU), and those classified as a newly industrialized country (NIC). Furthermore, an analysis of the earnings management behaviour is presented based on data from 2009 to 2013. The results indicated that a significantly inverse relationship exists between earnings management through either discretionary accruals (DAs) or real earnings management (REM) activities and EVA in NAFTA and EU nations. Moreover, a significantly positive relationship exists between earnings management through either DAs or REM and EVA in ASEAN and NIC nations. In addition, REM activities exhibit greater explanatory power among these nations.

Introduction

Assessing the real value of corporations is critical for stakeholders. One of the foremost objectives of enterprises is to increase short-term profits and the wealth of owners in the long term (Mohammad *et al.*, 2012). Conventional accounting indices for measuring a firm's performance include return on assets (Bailey & Helfat, 2003), earnings per share (Neumann & Voetmann, 2005), and return on equity (Peng, 2004). Such measurements are generated from financial statements that follow the generally accepted accounting principles, requiring conservatism in preparing financial statements.

Economic value added (EVA), an index developed by Stewart (1991), is used to evaluate economic value, assess funds, and efficiently allocate resources. It involves using adjustment items to reflect the true economic value of a firm. Thus, EVA is a performance measurement tool (Kaur & Pal, 2008) used to obtain an empirical estimate of shareholder value for indicating the real value of shareholder wealth (Kaur & Narang, 2008).

Earnings management is subjective because managers exercise judgment in financial reporting and in structuring transactions to adjust financial reports, to either mislead stakeholders about the economic performance of a company or influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999). Much of this research stream has focused on identifying either the motive for managing earnings (Zhang & He, 2013 ; Habib *et al.*, 2013 ; Farrell *et al.*, 2014) or the cost of capital incentives obtained from managing earnings (Kim & Sohn, 2013 ; Salteh & Valipour, 2012 ; Brown & Higgins, 2001).

Because EVA is also based on financial statements for measuring opponents related with EVA, it is highly probable that EVA motivates managers to engage in earnings management behaviour. However, EVA may not reflect true performance. The current study is the first to examine the association between earnings management and EVA. By investigating whether earnings management influences a firm's EVA from the perspective of capital cost, this study provides investors with a method for analysing the true value of enterprises. We adopted real earnings management (REM) activities, discretionary accrual (DAs) for measuring earnings management, and unadjusted or adjusted EVA for determining EVA. Because countries have relatively distinct governments, cultures, laws, and economic conditions, enterprises operate in unique systems and environments. We compared the indicators of EVA among nations of the North American Free Trade Agreement (NAFTA), Association of Southeast Asian Nations (ASEAN), European Union (EU), and those classified as a newly industrialized country (NIC).¹

Literature review

Economic value added

Sirbu (2012) showed that conventional methods are not strongly related to the actual value created, and indicated that EVA is emphasized as a management tool because it aligns the objectives of managers with those of shareholders, improves accountability, and enhances the objectivity of performance analysis. Mohammad *et al.* (2012) indicated that profitability, firm size, growth ability, and intangible assets are significantly positively related with EVA, whereas capital structure is significantly negatively associated with EVA.

¹North America Free Trade Area (NAFTA): America, Canada, Mexico ; Association of Southeast Asian Nations (ASEAN):Indonesia, Thailand, Malaysia, Philippines, Vietnam, Singapore ; European Union(EU): Denmark, Belgium, Lithuania, Hungarian, Spain, Greece, Poland, France, Finland, Bulgaria, Malta, Czech, Netherlands, Slovak, Slovenia, Cyprus,

Austria, Ireland, Sweden, Italy, Portugal, Germany, Romania, United Kingdom, Luxembourg, Latvia, Estonia ; Newly industrialized country(NIC):South Africa, Mexico, Brazil, China, India, Malaysia, Philippines, Thailand, Turkey

Haque *et al.* (2013) demonstrated that an inverse relationship exists between dividend payout and EVA, and recommended continuing the established dividend policy of retaining a large portion of earnings rather than a high payout ratio, because shareholder value theory discourages the distribution of earnings in the form of dividends because it implies management inefficiency toward maximizing shareholder wealth.

Earnings management

Zhang and He (2013) determined that managers of firms with medium accounting performance and at the borders of profit targets typically engage in earnings management through real research and development (R&D) transactions. Habib *et al.* (2013) found that managers of financially distressed firms engage more in income-decreasing earnings management practices than do financially stable firms. Farrell *et al.* (2014) determined that firms that are highly likely to engage in earnings management use high financing constraints to increase the use of accruals-based earnings management and decrease the use of other REM techniques.

Relationship between earnings management and capital costs

Salteh and Valipour (2012) showed that enterprise earnings are affected by accounting methods and accounting estimates that can be manipulated by managers, particularly because such manipulations are influenced by special objectives. They indicated a significantly inverse relationship between DAs and the weighted average cost of capital and inferred that enterprises with weak performance have strong incentives to increase their reported earnings through earnings management processes. Investors typically undervalue businesses undergoing loss in capital cost because of weak business performance as well as declining stock prices and capital market growth rates. Therefore, to avoid such a situation, managers tend to exaggerate their earnings and present a higher growth rate to present a more favourable image of their business, subsequently leading to decreased weighted average capital costs. EVA is the profit earned by a firm minus the cost of financing the firm's capital. Thus, lower capital indicates a higher EVA in a firm. Accordingly, we proposed Hypothesis 1 as follows:

H1: Earnings management through DA manipulation is significantly positively related with EVA.

Kim and Sohn (2013) determined that the cost per capita is positively associated with the extent of REM activities aimed at earnings manipulation, arguing that REM activities increase the cost of equity for two major reasons. First, REM introduces noise into reported earnings because noise affects accruals in addition to distorting cash flow through real operation-manipulating activities. Second, REM is typically seldom subject to external monitoring or scrutiny and is difficult to detect using internal monitors such as a board or audit committee. Because REM might not be curtailed by good governance mechanisms, external investors experience

difficulty evaluating firm performance. In addition, Brown and Higgins (2001) found that REM is positively associated with capital costs because it distorts the fundamentals of a business. Furthermore, REM increases noise or errors in earnings and decreases investor expectations of future cash flow levels. EVA is the profit earned by a firm minus the cost of financing the firm's capital. Thus, higher capital indicates a lower EVA in a firm. Accordingly, we proposed Hypothesis 2 as follows:

H2: Earnings management through REM activity manipulation is significantly negatively related with EVA.

Methodology

Using earnings management to predict EVA, this study collected data from the period 2009–2013 from the COMPUSTAT database. A regression model was adopted to analyse the data.

Independent variables

(1) Discretionary accruals (DA): DAs represent the component of total accruals that is more susceptible to manipulation by managers, and have been used frequently in prior studies as proxies for earnings management, for which the absolute value of ε_{it} has been adopted in measuring DAs (modified Jones model by Dechow *et al.*, 1995).

$$\frac{ACC_{it}}{TA_{it-1}} = \frac{\beta_0}{TA_{it-1}} + \beta_1 \frac{\Delta SALES_{it} - \Delta AR_{it}}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (1)$$

where

ACC_{it} represents the total accruals calculated as the continuing operating net profit minus the cash flow from operations for year t ; TA_{it-1} denotes the assets for year $t-1$; $\Delta SALES_{it}$ is the change in sales for year t ; ΔAR_{it} is the change in account receivables for year t ; and PPE_{it} is the gross fixed assets for year t .

(2) Real earnings management: Roychowdhury (2006) developed empirical models for estimating the typical levels of real business activities. Equations 2-4 are used to estimate the absolute value of ε_{it} to measure the abnormal level of REM.

$$\frac{CFO_{it}}{TA_{it-1}} = \beta_0 \frac{1}{TA_{it-1}} + \beta_1 \frac{SALES_{it}}{TA_{it-1}} + \beta_2 \frac{\Delta SALES_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (2)$$

$$\frac{PROD_{it}}{TA_{it-1}} = \beta_0 \frac{1}{TA_{it-1}} + \beta_1 \frac{SALES_{it}}{TA_{it-1}} + \beta_2 \frac{\Delta SALES_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta SALES_{it-1}}{TA_{it-1}} \varepsilon_{it} \quad (3)$$

$$\frac{DISEXP_{it}}{TA_{it-1}} = \beta_0 \frac{1}{TA_{it-1}} + \beta_2 \frac{SALES_{it-1}}{TA_{it-1}} + \varepsilon_{it} \quad (4)$$

where

CFO_{it} is the cash flow from operations for year t ; $PROD_{it}$ is the sum of the cost of goods for sales and the change in inventory for year t ; $DISEXP_{it}$ represents discretionary expenses according to the sum of advertising, R&D, and sales, as well as general and administrative expenses for year t ; TA_{it-1} is the assets for year $t-1$; $SALES_{it}$ is the sales for year t ; $\Delta SALES_{it}$ is the change in sales for year t ; $\Delta SALES_{it-1}$ is the change in sales for year $t-1$; and $SALES_{it-1}$ represents the sales for year $t-1$.

Dependent variables

This research defines the EVA model in three ways (Huang & Liu, 2010).

Control variables

Mohammad *et al.* (2012) demonstrated that a capital structure has a significantly negative effect on EVA, whereas profitability, firm size, firm growth, and intangible assets have a significantly positive effect on EVA. We use the following variables to measure the control variables: debt ratio (debt: assets) is used to measure capital structure, equity of average assets is used to measure profitability, sales is used to measure firm size, asset growth is used to measure firm growth, and intangible assets are used to measure the ability of a firm to use intangible assets.

Empirical model

$$EVA_{it,n} = \alpha_0 + \alpha_1 DAMJ_{it} + \alpha_2 DB_{it} + \alpha_3 EA_{it} + \alpha_4 SIZE_{it} + \alpha_5 GROWTH_{it} + \alpha_6 IA_{it} + \varepsilon_{it} \quad (5)$$

$$EVA_{it,n} = \alpha_0 + \alpha_1 ABCFO_{it} + \alpha_2 DB_{it} + \alpha_3 EA_{it} + \alpha_4 SIZE_{it} + \alpha_5 GROWTH_{it} + \alpha_6 IA_{it} + \varepsilon_{it} \quad (6)$$

$$EVA_{it,n} = \alpha_0 + \alpha_1 ABPC_{it} + \alpha_2 DB_{it} + \alpha_3 EA_{it} + \alpha_4 SIZE_{it} + \alpha_5 GROWTH_{it} + \alpha_6 IA_{it} + \varepsilon_{it} \quad (7)$$

$$EVA_{it,n} = \alpha_0 + \alpha_1 ABDE_{it} + \alpha_2 DB_{it} + \alpha_3 EA_{it} + \alpha_4 SIZE_{it} + \alpha_5 GROWTH_{it} + \alpha_6 IA_{it} + \varepsilon_{it} \quad (8)$$

where

$DAMJ_{it}$ represents the DAs of the modified Jones model for year t ; $ABCFO_{it}$ represents the abnormal level of cash flow from operations for year t ; $ABPC_{it}$ denotes the abnormal level of production costs for year t ; $ABDE_{it}$ is the abnormal level of discretionary expenditures for year t ; $EVA_{it,n}$ is the economic value added ($n=1$ for unadjusted EVA; $n=2$ for adjusted EVA, join adjusted items; $n=3$ for adjusted EVA,

join adjusted items and economic depreciation adjusted items); DB_{it} represents a firm's debt ratio for year t ; EA_{it} is the equity of average assets for year t ; and $SIZE_{it}$ denotes the sales for year t ; $GROWTH_{it}$ denotes the asset growth rate for year t ; and IA_{it} represents the intangible assets for year t .

Robustness test

In order to avoid possible bias from extreme values, the study also adopt those samples only include the sample data of from the 5th percentile to the 95th percentile as measures for the robustness test (Huang and Liu, 2011)

Results and analyses

Descriptive statistics

According to the descriptive statistics listed in Table 1, the mean DAs (discretionary accrual items) and REM activities² in NAFTA, ASEAN, EU, and NIC nations are positive. Therefore, these nations have adopted DAs and REM activities for managing earnings, thus increasing their adjusted income. Overall, abnormal production costs are higher and abnormal cash flow from operations is lower in NAFTA nations. In addition, abnormal discretionary expenditures are higher and abnormal production costs are lower in ASEAN nations. Furthermore, the DAs of the modified Jones model are higher and the abnormal production costs are lower in EU nations. Moreover, abnormal cash flow from operations is higher and the DAs of the modified Jones model are lower in NIC nations. Thus, the difference in earnings management among these nations manifests through their respective REM activities or DAs.

According to the performance index, EVA1 (unadjusted) is higher and EVA3 (join adjusted items and economic depreciation adjusted items) is lower in NAFTA nations, EVA1 is higher and EVA3 is lower in ASEAN nations, EVA2 (adjusted) is higher and EVA3 is lower in EU nations, and EVA1 is higher and EVA3 is lower in NIC nations. In addition, the proportion of debt below 50% and the positive equity return show that financial conditions have been conservative in these nations. However, the growth rate differs among these nations; ASEAN and NIC nations are positive, whereas NAFTA and EU nations are negative. The two major reasons explaining these trends are as follows: First, these nations have unique operating environments and have implemented new laws and regulations following the 2008 financial tsunami. Second, NAFTA and EU nations are worse than other nations because they have formidable challenges among enterprises.

² average value

Empirical test

The empirical results in Table 2 show that DAs are significantly negatively related with EVA in NAFTA nations. These findings do not support Hypothesis 1. Compared with DAs, all REM activities are significantly negatively related with EVA, thus supporting Hypothesis 2. The probability that the firms listed in NAFTA nations (the United States is the major nation) caused the worldwide financial tsunami is high. Moreover, weak business performance and a decline in stock prices and the capital market growth have been undervalued by investors; therefore, governments have provided flexible monetary policies enabling external funds to be acquired at a lower cost with less difficulty. However, managers' attempting to adopt earnings management through DAs or REM activities has been detrimental to the image of enterprises as perceived by investors, subsequently leading to an increase in weighted average capital costs and a decrease in the true value of firms (EVA). In addition, an abnormal level of discretionary expenditures yielded a stronger negative coefficient value (with EVA1, the coefficient is -2.84) and exhibited greater explanatory power for analysing the relationship between earnings management and EVA in NAFTA nations.

The empirical results in Table 3 show that DAs are significantly positively related with EVA in ASEAN nations. These findings support Hypothesis 1. Compared with DAs, REM activities are also significantly positively related with EVA. These findings do not support Hypothesis 2. It is highly likely that the managers of firms listed in ASEAN nations attempted to adopt earnings management through DAs or REM activities because the capital market structures or government policies (e.g., related rules or external monitoring) are not complete in these nations (except for Singapore). Thus, because investors could not identify the earnings management behaviour, a favourable image of businesses was created, and investors may have been willing to provide more funds to enterprises, which subsequently led to a decrease in the weighted average cost of capital (acquiring external funds was easier or cheaper) and an increase in the true value of firms (EVA). In addition, an abnormal level of production costs yielded a strong positive coefficient value (with EVA3, the coefficient is 0.820) and exhibited greater explanatory power for analysing the relationship between earnings management and EVA in ASEAN nations.

The empirical results in Table 4 show that DAs are significantly negatively related with EVA in EU nations. These findings do not support Hypothesis 1. Compared with DAs, an abnormal level of cash flow from operations and an abnormal level of production costs are significantly negatively related with EVA. However, an abnormal level of discretionary expenditures is non-significantly related with EVA. These findings support Hypothesis 2. The firms listed in EU nations were also likely disrupted by the financial

tsunami. Therefore, because the business operating environment has worsened since 2008, external investors may have been unwilling to provide more funds to enterprises and have focused more on the true value of enterprises; thus, managers attempting to adopt earnings management through DAs or REM activities generated an unfavourable image for businesses. Consequently, investors have been unwilling to provide additional funds to enterprises, which has subsequently led to an increase in the weighted average capital costs (acquiring external funds become more difficult and costly) and a decrease in the true value of firms (EVA). According to the regression coefficient, an abnormal level of production costs had a strongly negative coefficient value (with EVA3, the coefficient is -0.37) and had greater explanatory power for analysing the relationships between earnings management and EVA in EU nations.

The empirical results in Table 5 show that DAs are significantly positively related with EVA in NIC nations. These findings support Hypothesis 1. Compared with DAs, an abnormal level of cash flow from operations and an abnormal level of discretionary expenditures is significantly positively related with EVA. However, an abnormal level of production costs is non-significantly related with EVA. These findings do not support Hypothesis 2. Because NICs are developing countries, it is highly probable that market structures or government policies (e.g., related rules or external monitor) are underdeveloped; thus, managers have attempted to adopt earnings management through DAs or REM activities because external investors could not detect it. Consequently, these actions presented a more favourable image of businesses, and investors may have been more willing to provide additional funds to enterprises, subsequently leading to a decrease in weighted average capital costs (acquiring external funds is cheaper or easier) and an increase in the true value of firms (EVA). According to the regression coefficient, an abnormal level of cash flow from operations had a strong positive coefficient value (with EVA1, the coefficient is 2.71) and had greater explanatory power for analysing the relationships between earnings management and EVA in NIC nations.

Results from variance inflation factors explain variables for correlation; the result lies between 1.378 and 1.728 (Variance Inflation Factors <10); hence, there is no correlation problem. Furthermore, to avoid possible bias from extreme values, this study adopted only samples that included the sample data from the 5th percentile to the 95th percentile as measures for the robustness test; the results showed that most of them were consistent³. Overall, earnings management (through DAs or REM activities) is significantly negatively related with EVA in the NAFTA and EU nations because of the financial tsunami. In particular, according to the regression coefficient, NAFTA nations have suffered the worst outcomes (the high negative coefficient values for both DAs and REM activities) since 2008. In addition, earnings management (through DAs or real activities) is significantly positively related with EVA

³ In order to shorten the tables, we omit the solution

in NIC and ASEAN nations because of the lack of government policies or underdeveloped market structures. Consequently, NIC nations have benefited more than

ASEAN nations (the high positive coefficient value for both DAs and REM activities) since 2008.

Table 1: Descriptive statistics (all samples)

	NAFTA	ASEAN	EU	NIC
$DAMJ_{it}$	1.249	2.123	2.861	1.256
$ABCFO_{it}$	0.578	2.128	2.647	4.271
$ABPC_{it}$	2.337	1.137	1.779	1.976
$ABDE_{it}$	1.532	4.152	2.741	2.732
$EVA1$ (US billions)	187.54	225.31	179.95	238.42
$EVA2$ (US billions)	117.35	189.51	216.33	137.99
$EVA3$ (US billions)	68.17	98.32	105.62	112.55
DB_{it}	37.7%	44.7%	39.2%	48.6%
EA_{it}	11.5%	7.7%	8.9%	12.8%
$SIZE_{it}$ (US billions)	447.72	389.55	556.72	379.62
$GROWTH_{it}$	-7.2%	5.6%	-7.7%	9.8%
IA_{it} (US billions)	173.75	98.32	87.99	59.28
Sample	3722	2008	10528	6752

Table 2: Regressions of earnings management with economic value added (EVA) for North American Free Trade Agreement (NAFTA) nations

Panel-A	discretionary accruals								
	$EVA1$			$EVA2$			$EVA3$		
intercept	2.82***			-.99**			2.07***		
$DAMJ_{it}$	-2.08*			-.038			.043		
DB_{it}	.95			-.45**			.18		
EA_{it}	1.87			.17			-.12		
$SIZE_{it}$	3.57			.25**			.03		
$GROWTH_{it}$	2.16			.220*			.16		
IA_{it}	-1.32			.45***			.32***		
F-value	21.82*			35.65***			33.85***		
R ²	.057			.289			.093		
Panel-B	Real earnings management								
	$EVA1$			$EVA2$			$EVA3$		
Intercept	17.11	29.49***	19.31*	-.83	-.88**	-.83	2.72***	2.25***	2.87***
$ABCFO_{it}$	-.713**			-.534***			-.014		
$ABPC_{it}$		-1.317*			-.036			-.020	
$ABDE_{it}$			-2.84**			-.065			.049
DB_{it}	-.597	.878	.728	.003	-.448***	-.582***	.246	.185	.208
EA_{it}	.796	1.992	1.836	-.004	.176	.116	.218	.119	.244
$SIZE_{it}$	6.07**	-3.288	7.54**	.240*	.24**	-.172	-.058	.028	-.120
$GROWTH_{it}$	2.329	1.734	2.682	.131	.207	.171	.098	.158	.056
IA_{it}	.339	-1.474	1.630	.51***	.44***	.44***	.34**	.31***	.34**
F-value	11.98*	11.80*	12.22*	28.34***	25.81***	27.46***	12.40**	23.78***	12.11*
R ²	.087	.072	.243	.291	.092	.244	.089	.077	.084
Sample	3722								

*:p<0.1、**:p<0.05、***:P<0.01

Table 3: Regressions of earnings management with economic value added (EVA) for Association of Southeast Asian Nations (ASEAN)

Panel-A	discretionary accruals								
	EVA1			EVA2			EVA3		
intercept	.98***			-2.92***			3.03***		
<i>DAMJ_{it}</i>	.72***			.15***			.18*		
<i>DB_{it}</i>	-.02			-.05			.07		
<i>EA_{it}</i>	.002			-.014			.093***		
<i>SIZE_{it}</i>	.36*			-.93			1.56		
<i>GROWTH_{it}</i>	.63			-.84			12.82		
<i>IA_{it}</i>	-1.53			1.17			-15.31		
F-value	29.42***			35.48***			12.18*		
R ²	.190			.164			.081		
Panel-B	Real earnings management								
	EVA1			EVA2			EVA3		
Intercept	1.862***	.395***	1.613***	-.694	.231	.027	3.02***	3.59***	3.61***
<i>ABCFO_{it}</i>	.300***			.210***			.689***		
<i>ABPC_{it}</i>		.284***			.217***			.820***	
<i>ABDE_{it}</i>			.409***			0.67***			.714***
<i>DB_{it}</i>	-.016	-.004	-.014	-.005	-.033	-.033	.059	.049	.021
<i>EA_{it}</i>	.002	.002	.001	.003	-.003	-.003	.072**	.082**	.076**
<i>SIZE_{it}</i>	.288	-.014	.252	-.311	-.759	-.759	.063	.986	1.04
<i>GROWTH_{it}</i>	.658	.285	.779	.463	.055	.055	1.929	.904	.951
<i>IA_{it}</i>	-1.280	-.249	-1.270	.126	.387	.387	-1.899	-1.460	-2.329
F-value	26.44***	32.64***	29.78***	28.68***	29.08***	29.08***	30.74***	33.15***	34.13***
R ²	.131	.182	.196	.208	.212	.245	.217	.319	.255
Sample	2008								

*p<0.1、**p<0.05、***: P<0.01

Table 4: Regressions of earnings management with economic value added (EVA) for European Union (EU) nations

Panel-A	discretionary accruals								
	EVA1			EVA2			EVA3		
intercept	2.32***			1.33			-2.33**		
<i>DAMJ_{it}</i>	-.14***			-.16***			-.12*		
<i>DB_{it}</i>	-.06			.015			-.016		
<i>EA_{it}</i>	-.31			-.42			.02		
<i>SIZE_{it}</i>	.033			-.025			.08**		
<i>GROWTH_{it}</i>	-.052			.099			.11***		
<i>IA_{it}</i>	.05			.035			-.047		
F-value	20.04***			21.62***			27.72***		
R ²	.253			.433			.192		
Panel-B	Real earnings management								
	EVA1			EVA2			EVA3		
Intercept	3.58***	3.04***	3.06***	1.31***	2.02***	1.35***	-3.68***	-1.43*	-2.08**
<i>ABCFO_{it}</i>	-.01			.03			-.19***		
<i>ABPC_{it}</i>		.30			-.26*			-.37***	
<i>ABDE_{it}</i>			.09			.05			.011
<i>DB_{it}</i>	-.32***	-.31***	-.32***	-.27***	-.26***	-.27***	.02	.01	.07
<i>EA_{it}</i>	1.74***	1.70***	1.76***	1.86***	1.83***	1.87***	.14	.09	.13
<i>SIZE_{it}</i>	-.06	-.09	-.05	-.13	-.15	-.12	.06**	.03	.07**
<i>GROWTH_{it}</i>	-.06	-.13	-.07	.08	.02	.07	.11***	.04	.12***
<i>IA_{it}</i>	.12	.14	.12	.12	.13	.12	-.03	-.02	-.03
F-value	13.14***	23.62***	13.22***	15.01***	15.54***	9.89**	15.71***	19.39***	16.93***
R ²	.073	.088	.076	.129	.143	.129	.351	.404	.179
Sample	10528								

*p<0.1、**p<0.05、***: P<0.01

Table 5: Regressions of earnings management with economic value added (EVA) for newly industrialized countries (NICs)

Panel-A	discretionary accruals								
	EVA1			EVA2			EVA3		
intercept	3.36***			19.18***			4.72***		
$DAMJ_{it}$	1.24**			2.71			.90**		
DB_{it}	-.41*			-.87***			-.46***		
EA_{it}	.15			-.13			-.09		
$SIZE_{it}$	.07			.65*			.09		
$GROWTH_{it}$	.04**			-.10			-.01		
IA_{it}	-.03			.01			.05		
F-value	14.72***			15.42***			15.80***		
R ²	.122			.474			.159		
Panel-B	Real earnings management								
	EVA1			EVA2			EVA3		
Intercept	28.74***	33.43***	32.88***	19.45***	20.41***	21.20***	23.19**	24.86***	24.42***
$ABCFO_{it}$	2.71***			.19			.31***		
$ABPC_{it}$		-.09			.07			.09	
$ABDE_{it}$			.09			-.026			.39***
DB_{it}	-.56***	-.75***	-.76***	-.58***	-.64***	-.63***	-.62***	-.72***	-.75***
EA_{it}	.20*	.17	.18	-.07	-.07	-.09	-.06	-.07	-.04
$SIZE_{it}$	.05	.06	.06	.64*	.65*	.65*	.08	.09	.07
$GROWTH_{it}$	.04**	.04**	.04**	-.10	-.10	-.10	-.01	-.01	-.01
IA_{it}	-.05	-.05	-.05	-.03	-.03	-.04	.04	.04	.05
F-value	25.67***	23.89***	23.80***	25.03***	24.96***	24.97***	28.47***	25.13***	25.51***
R ²	.485	.192	.195	.476	.351	.479	.188	.238	.241
Sample	6752								

*p<0.1, **: p<0.05, ***: P<0.01

Conclusion

The results indicate that a significantly inverse relationship exists between earnings management through DAs or REM activities and the EVA in NAFTA and EU nations. We infer that the enterprises in NAFTA and EU nations have been affected by the financial tsunami. Comparing the aforementioned nations revealed a significantly positive relationship between earnings management through DAs or REM activities and EVA in NIC and ASEAN nations. Furthermore, we infer that the enterprises in the NIC and ASEAN nations have operated in environments where government policies were lacking and the market structure was underdeveloped. In addition, REM activities had greater explanatory power than that of DAs.

The results provide critical implications for managers, researchers, investors, and regulators. Managers of firms in NAFTA and EU nations should increase EVA without using earnings management; however, in NIC and ASEAN nations, EVA can be increased through earnings management. For researchers, these empirical findings show that REM activities and DAs are substitutes because they vary in the same nation groups. Investors can analyse the true value of enterprises, regardless of whether the enterprises have adopted earnings management. Regulators (e.g., governments) should establish stricter security measures and laws or regulations for listed firms to prevent earnings management after a financial tsunami and to encourage them to report their real true value.

Future studies should consider refining the measurements of the earnings management model because not all of them are equal, and it is unlikely that the consequences of engaging in earnings management are the same in all capital markets. In addition, researchers may consider focusing on identifying intermediary variables that affect these relationships or establishing an optimal theory for explaining the relationship between earnings management and EVA, particularly because this study examined this relationship only from the subjective perspective of capital costs.

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