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Corporate governance bundles and earnings management: The role of audit committees and ownership concentration

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Abstract

Drawing on the notion of governance bundles, this study aims to verify whether governance mechanisms are interrelated and reveal the interaction mechanisms between firm-level governance. By using a unique dataset from Thailand with 1,364 firm-year observations from years 2017–2020 and moderating regression as a research tool, the findings indicate that a larger audit committee is necessary for firms with concentrated ownership to offset the power of controlling shareholder over earnings management. Theoretically, the findings ensure that corporate governance within the firm functions collectively as a bundle. In addition, the findings challenge the existing regulations in a way that audit committee size should not be standardized for all types of firms. Instead, the size of such a committee should vary depending on the degree of ownership concentration.

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Introduction

Over the past two decades, Asian capital markets have grown dramatically proving to be a major engine of the global economic recovery (Demirkan et al., 2019). This circumstance should persuade potential investors to seek business opportunities in this region. However, the severe financial crisis in the recent past has reminded investors to be aware of financial reporting opacity, although governance mechanisms have been introduced and put in place to promote financial transparency. The effectiveness of governance mechanisms is still a controversial issue in Asian emerging markets despite implementing similar mechanisms to developed markets (Oehmichen, 2018). Accordingly, this issue raises the critical question regarding whether the same set of corporate governance can yield similar outcomes in dynamic organizations and contexts. Theoretically, researchers have contended that the effectiveness of governance mechanisms at the firm level is conditioned on organizational and institutional characteristics, known as governance bundles (Desender et al., 2013; Panayi et al., 2021). Implicitly, the notion of governance bundles views the function of governance mechanisms as the intertwined system where firm-level governance such as audit committee, controlling shareholders, external auditors, or board of directors

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does not function solely and may not yield monotonic outcomes in different contexts. Instead, their monitoring roles over firm outcomes are likely to be complemented or substituted by other organizational characteristics and institutional settings (Desender et al., 2013). Therefore, the contingency view has been suggested as a new research avenue in existing literature for studying the effect of corporate governance on its outcomes (Panayi et al., 2021).

In addition to the theoretical argument, empirical evidence documented in the literature regarding the effects of key governance at the firm level in terms of; the audit committee and ownership structure, on financial reporting quality is mixed (Oehmichen, 2018). In particular, some evidence supports the monitoring role of ownership concentration (Alhmood et al., 2023; Saleem Salem Alzoubi, 2016) while other evidence shows the negative effect of such mechanism towards firm outcomes (Bao & Lewellyn, 2017; Fan & Wong, 2002). Likewise, a plethora of research shows the inconclusive effect of audit committee on financial reporting quality (Bilal et al., 2018). Desender et al., (2013) mention that mixed findings can be attributed to the overlooking of governance interdependency in which the effectiveness of governance mechanisms to improve the quality and transparency of financial reporting is likely to be contingent upon the organizational characteristics and external environment. This argument is highlighted again by Bilal et al. (2018) who pointed out that key governance in firms operated in emerging markets such as ownership structure and audit committee may not function exclusively. For example, audit committee may be nominated or suggested by controlling shareholders who also take charge in the firm. However, this scenario may differ from firm to firm regarding its context. Therefore, it leads to mixed empirical evidence when the effect of governance such as audit committee or controlling shareholders was studied. According to this view, the same set of governance mechanisms implemented at the firm level may function differently in firms with dissimilar characteristics and environments. Building upon the above-mentioned arguments, this research proposes that the effectiveness of governance mechanisms at the firm level to oversee the quality of financial reporting should be studied from the contingency view where governance mechanisms function as an intertwined system instead of sole functioning. Extant research of this nature is still limited because most prior research studied the monitoring effect of corporate governance from the agency perspective where individual governance mechanisms function exclusively (Desender et al., 2013; García-Castro et al., 2013; Oehmichen, 2018). Hence, there is a research gap for this study to address.

Audit committees are studied in this research as a governance mechanism within the firm. According to The Sarbanes-Oxley Act (SOX) and regulations in many countries around the globe, an audit committee is required in listed companies for; overseeing the preparation of financial reports, proposing potential external auditors, and receiving both internal and external audit results (Vera-Muñoz, 2005). Therefore, this mechanism is primary governance at the firm level that is in place to curb the practice of earnings management which in turn improves the quality of financial reports. This mechanism was first introduced in 1939 as a recommendation for publicly held companies by The New York Stock Exchange (Vera-Muñoz, 2005). Subsequently, such recommendation has also been followed by a number of stock exchanges in Asian countries such as Malaysia, Singapore and Thailand. However, the effectiveness of firm-level governance is still dubious in this region (Oehmichen, 2018). In general, Asian economies have dramatically grown but are underpinned by weak institutional settings where family-owned businesses and ownership concentration are primary characteristics of firms (Dinh & Calabrò, 2018; Oehmichen, 2018). Accordingly, controlling shareholders are also studied because they are likely to play a crucial role in shaping the effectiveness of governance mechanisms at the firm level (Bao & Lewellyn, 2017; Desender et al., 2013; Dinh & Calabrò, 2018) or to interact with other governance mechanisms applied within the firm. This nature of research is important in two ways. First, extant literature has documented mixed findings regarding the effect of key corporate governance, such as audit committees and controlling shareholders on earnings management, despite a plethora of studies. This leads to an unclear explanation concerning the effect of such mechanisms on the quality of financial reports although it is expected to reduce earnings management and enhance the quality of financial information. Yet, it has been an ongoing debate concerning why the same set of governance mechanisms yields dissimilar outcomes in different organizations or contexts. Policymakers in many jurisdictions need to be informed that the required governance mechanism at the firm level, such as the audit committee, would generate more benefits than it costs to implement. Second, the dubious effect of corporate governance on financial reports causes not only difficulties in practice but also induces theoretical concerns in the sense that how corporate governance works as an intertwined

system (Panayi et al., 2021). Agency perspective, the core theoretical framework in governance literature, has been challenged for being applied to explain the effect of governance mechanisms in a sole manner (Kury, 2007; Oehmichen, 2018; Oh et al., 2016). Theoretically, this perspective should be extended to facilitate the better understanding of how corporate governance functions in reality (Oehmichen, 2018).

Literature Review and Hypothesis Development

The Contingency Framework

As mentioned earlier, the contingency framework is proposed in this research. In general, the contingency framework of governance bundles proposes that the effectiveness of individual governance mechanisms is conditioned upon others in a complementary or substituted manner (Desender et al., 2013; Oh et al., 2016). Therefore, the substitution and complementary hypotheses are proposed under the contingency framework where governance mechanisms function together to influence the firm's outcomes (Panayi et al., 2021). Specifically, the complementary hypothesis argues that two or more governance practices would support the functions of each other. In this sense, the effect of one governance would be strengthened when another governance exists. In contrast to the complementary hypothesis, researchers have posited that the effect of one governance might be attenuated when another governance exists (Panayi et al., 2021). This is known as the substitution effects among governance mechanisms. Although governance mechanisms are generally invented for minimizing agency problems, their roles and functions can be dissimilar (Oh et al., 2016). Accordingly, the coexisting of governance mechanisms may not always yield optimistic outcomes. In some circumstances, implementing various aspects of governance together is not necessary because no marginal benefit is gained. Instead, firms will encounter higher costs of implementing multiple aspects of governance if only an individual governance mechanism is sufficient (Rediker & Seth, 1995). This is another perspective toward the contingency framework of the governance bundle.

The Complementarity or Substitution between Audit Committee and Controlling Shareholders toward Earnings Management

Audit committee and ownership structure have been perceived as the main corporate governance that is in place to monitor the firm (Oehmichen, 2018). In general, the audit committee is nominated for reviewing and supervising the preparation of financial reports to ensure their accuracy and quality. Controlling shareholders, who serve as resource providers, are also intimately linked with the firm and play a crucial role in monitoring. These two governance aspects have long been studied in governance literature (Kumala & Siregar, 2021; Kusnadi et al., 2016; Nguyen et al., 2021; Nikulin et al., 2022). However, their effects on firm outcomes have been studied extensively and mixed findings have been documented in the literature (Oehmichen, 2018). The inconclusive findings regarding the effects of audit committee and ownership concentration certainly impede the understanding of how corporate governance work to mitigate agency problems. From the agency perspective, the behavior of the audit committee or controlling shareholders to oversee and supervise managers completely relies on their self-motivation. In practice, however, the composition and role of the audit committee might be influenced by controlling shareholders. On one hand, controlling shareholders may shape the functions of other governance, including the audit committee, as they hold power and incentive regarding their investment (Desender et al., 2013; Oh et al., 2016). On the other hand, the power of controlling shareholders together with their behavior can also be altered by other corporate governance implemented within the firm. For example, the concentration of ownership is common in contexts where regulatory quality and its enforcement cannot properly protect property rights (Dinh & Calabrò 2018). In such contexts, the minority expropriation is the greatest concern, thus other corporate governance protections should be in place to balance the power and ensure the best practice of controlling shareholders. This emphasizes the notion of governance bundles proposed in the literature.

Recent empirical evidence supports the notion of governance bundles where individual corporate governance reinforces or substitutes the functions and power of another. One of those pieces of evidence is the study introduced by Panayi et al. (2021) where several governance bundles were revealed. In particular, the concentrated institutional shareholders would complement the active monitoring role of independent directors toward acquisitiveness. In addition to the complementary evidence, the substitutive effect of corporate governance has also been evident. Oh et al. (2016) documented that the effect of independent directors to promote the practice of CSR can be replaced by the existence of controlling shareholders. To put it

differently, either independent boards or blockholders are sufficient for supporting CSR practices. Accordingly, competing hypotheses, in terms of complementarity and substitution, have been proposed in this study for testing the effect of governance bundles on firm outcomes. In particular, audit committee and concentrated ownership are corporate governance that this study aims to investigate for their interdependence as governance bundles while financial reporting quality proxied by earnings management (EM) (Awuye, 2022) would be treated as the firm outcome that is influenced by such governance. EM is defined as the intentional structure of financial information reported on financial reports throughout the accounting and operating policies for misleading the financial users. Therefore, the practices of EM cover both accruals and real earnings management (Enomoto et al., 2015; Roychowdhury, 2006). Accruals-based earnings management (AEM) involves manipulating accounting policies, such as adjusting accruals, whereas real earnings management (REM) requires changing actual business operations to achieve desired financial outcomes. Consequently, financial reporting quality would be lower when EM is created. However, such practices can be influenced by governance mechanisms (Almarayeh et al., 2022; Bao & Lewellyn, 2017). As mentioned before, audit committee, a governance mechanism at the firm level, is in place for governing and improving financial reporting quality (Kusnadi et al., 2016; Nikulin et al., 2022) but such mechanism can be influenced by controlling shareholders or vice versa as proposed in this study. Despite the existing literature regarding audit committee and concentrated ownership on EM, the evidence showing interactive effect of such mechanisms on EM is still limited (Bao & Lewellyn 2017). In addition, similar governance bundle may function inversely toward various firm outcomes, and thus further research is needed to uncover more empirical support for the contingency framework (Panayi et al. 2021). Thus, to fulfill such gap this study proposes the conditional hypothesis as stated below to test the interaction effect between audit committee and controlling shareholders. This line of hypothesis is underpinned by the contingency framework where governance mechanisms are viewed and explained as the intertwined system, known as "bundle".

Hypothesis 1 (H_1): There is an interaction between audit committee and controlling shareholders and its conditional effect on EM.

Methodology

Data Collection

This research focuses on Thailand, an emerging Asian market that suffered during the 1997 financial crisis. Similar to many emerging markets, the effectiveness of corporate governance and the quality of financial information have been questionable in Thailand (Persons, 2006). Together with the challenge in governance system, Thailand also represents the concern of minority shareholders' expropriation, known as Type II agency conflict where the conflict of interest arises between majority and minority shareholders (Al Farooque et al., 2020). Thus, concentrated ownership is also the key characteristic of Thai companies (Oehmichen, 2018). As stated before, the largest or controlling shareholders have been mentioned in the literature as the ultimate factor that shapes other aspects of corporate governance (Desender et al., 2013), especially in contexts where investor protection at the country level is relatively weak. Taken altogether, Thailand provides a suitable background for testing this study's argument where audit committee and controlling shareholders are proposed to function as the intertwined system. The effect of controlling shareholders over audit committee or vice versa may not be presented in developed markets due to the diffuse ownership. In addition, Thai context signifies core aspects of emerging markets such as ownership concentration and dynamic institutions. Therefore, the findings should be generalized to other emerging markets.

After the severe financial crisis, governance mechanisms were reconsidered and revised in Thailand (Persons, 2006). Audit committees are one of the required mechanisms that companies listed on the Thai stock exchange must implement (Al Farooque et al., 2020; The Stock Exchange of Thailand, 2024). Accordingly, listed companies on the Stock Exchange of Thailand (SET) are studied. There are 1,364 firm-year observations, as stated in Table 1, after excluding observations from the financial sector (Bao & Lewellyn, 2017) and observations that do not have significant data for regression analysis. Likewise, this study also excluded firm-year observations with fewer than three audit committees because such observations did not comply with the minimum number requirement introduced by SET. Additionally, this study mainly relies on secondary data. In particular, financial data to compute the EM model were collected from SETSMART, the online data platform provided by

the SET. The information of the audit committee and controlling shareholders was manually extracted from Form 56-1, annual reports, and companies' websites. The period of unbalanced panel data covered from 2017 to 2020 and comprised of seven industries as reported in Table 1. The data were in fact pulled from 2016 to 2020 according to data availability in SETSMART, but the lagged variable dropped data from the initial year. Such periods of study were selected to utilize the most recent data that can be collected. In addition, a typical business cycle, which demonstrates movements of decision-making practice in business entities, may fluctuate from about 3 to 6 or 7 years (Mitchell, 2024). Thus, the effects of the business cycle, which can have an impact on EM practice, should be covered by this study's duration.

Table 1 Observations summarizing

Industries	Freq.	Percent	Cum.
Agro & Food Industry	181	13.27	13.27
Consumer Products	94	6.89	20.16
Industrials	198	14.52	34.68
Property & Construction	326	23.90	58.58
Resources	139	10.19	68.77
Services	344	25.22	93.99
Technology	82	6.01	100
Total Firm-Year Observations	1,364	100	

Variable Measurement

Earnings management

The practice of EM is a dependent variable in this study. In line with prior literature, EM is proxied by AEM (Dechow et al., 1995). Despite other techniques of EM, AEM is likely to be influenced by audit committee according to their roles and functions in financial reporting. In short, such committee is appointed for overseeing the processes of financial reporting and disclosure. Accordingly, accounting choices or policies, which can be distorted when AEM occurred, must be monitored by such committee. Therefore, AEM should be linked with this committee. Unlike AEM, REM occurs when real operational activities directed by operating policies are altered from normal practice. Such policies or activities are under the control of managers and are monitored by internal auditors. Thus, this study leaves REM for future work. The modified Jones Model was applied in this study to capture AEM (Dechow et al., 1995). This model is believed to be the powerful predictor of accruals earnings manipulation (Martin et al., 2019). It also has been applied in recent study (El-Feel et al., 2024). The AEM model is run in an industry-year manner and illustrated as follows:

$$TA_{it}/A_{it-1} = \alpha_1 (1/A_{it-1}) + \beta_1 (\Delta REV_{it} - \Delta REC_{it})/ A_{it-1} + \beta_2 PPE_{it} / A_{it-1} + \varepsilon_{it} \quad (1)$$

Where: TA=Total accruals (Net income−Cash flow from operating); A_{t-1}=Lagged Total Assets; ΔREV=Change in revenues; ΔREC=Change in Accounts Receivable; PPE= Gross Properties Plants and Equipment

Audit committee

According to prior literature, the independence of this committee is essential to enable them to perform their roles effectively (Oehmichen, 2018). Hence, this research measured the effectiveness of audit committees by focusing on their independence. However, the companies listed on SET are required to have audit committees with a minimum size of three, with at least one member with accounting and financial expertise. Also, all committee members must be qualified for independent directors[1]. Thus, a larger audit committee would enable them to be more independent.

Controlling shareholders

The power of controlling shareholders is also one of the mechanisms at the firm level that this study aims to examine. The interdependence between audit committee and the degree of ownership concentration on the practice of AEM would provide a better understanding of corporate governance designed and functioned at the firm level. The degree of ownership concentration was measured by the percentage of shares held by the largest shareholder. This measure is in line with prior studies (Bao & Lewellyn, 2017; Kim et al., 2017).

Control variables

In addition to the variables of interest, primary control variables are added to the regression model to control for other factors that may influence the practice of AEM. First, firm size, which is measured by the natural logarithm of total revenues (Ln_REV) at the end of the fiscal year, will be controlled. Second,

[1] https://www.set.or.th/en/regulations/simplified_regulations/AC_ID_p1.html

financial leverage, as measured by the debt to assets ratio (DA), will be controlled. Third, this study will control for firm performance, which is proxied by the lagged return on assets ratio (Lag_ROA). Fourth, the number of independent directors on board (IB) is controlled.

Finally, the type of audit firm will be controlled. This variable is measured by using a dummy variable (BIG4) where the value is equal to 1 if the audit firm is a member of the Big 4 and 0 if it is not. The Big 4 is defined as PricewaterhouseCoopers, Ernst & Young, Deloitte Touche Tohmatsu, and KPMG. The abovementioned control variables are consistent with key control variables documented in the EM literature (Kim et al., 2017). All variables are concluded as shown in Table 2.

Research Method

To test the interaction effect of audit committees and controlling shareholders on EM, this research draws a logical assumption by following deductive reasoning and implementing the quantitative technique, namely, moderating regression as a primary tool to analyze the data. Typically, moderating regression is one of crucial analytical approaches applied in previous research for understanding the conditions in which the links between variables change. By including moderating variable or interaction term, researchers can determine how the degree or direction of an explanatory variable's effect on a dependent variable varies across contexts or conditions. This method provides deeper insights into complicated linkages in business organizations (Aguinis & Gottfredson, 2010). Following prior studies (Oh et al., 2016; Panayi et al., 2021), this technique with the marginal effect would allow this study to examine the conditional effect where the effect of audit committee on AEM is conditional as a function of controlling shareholders and vice versa. The moderating regression model is as follows:

$$\begin{aligned} AEM_{it} = {} & \beta_0 + \beta_1 AUD_{it} + \beta_2 CS_{it} + \beta_3 (AUD_{it} * CS_{it}) + \\ & \beta_4 IB_{it} + \beta_5 BIG4_{it} + \beta_6 DA_{it} + \beta_7 Ln_REV_{it} + \\ & \beta_8 Lag_ROA_{it} + \text{Industry Dummies}_k + \\ & \text{Year Dummies}_t + \varepsilon_{it} \end{aligned} \quad (2)$$

Where: AEM=Accruals-based earnings management proxied by the absolute value of discretionary accruals from Modified Jones Model; AUD=The size of the audit committee; CS=The percentage of shares held by the largest shareholder; IB=The number of independent directors on board; BIG4=1 if the audit firm is a Big 4 member, 0 if otherwise; DA = Debt to assets ratio; Ln_REV=The natural logarithm of total revenues; Lag_ROA=The lagged value of return on assets

Results and Discussion

Descriptive Statistics

Descriptive statistics of dependent and explanatory variables are presented in Table 3 and Table 4. The mean of AEM, measured by the absolute value of discretionary accruals, is 0.0585 or approximately 5.85 percent of lagged total assets. Also, the mean of CS is about 29.47 percent indicating that the biggest shareholder held significant power over the firm. As mentioned in the literature, the concentration of ownership has been a significant characteristic of firms in emerging markets, including Thailand (Dinh & Calabrò, 2018). In addition to ownership concentration, most of the firms in this dataset (99.63%) nominated three members for their audit committee, whereas only 0.37 percent of total observations proposed more than three members on this committee as reported in Table 4. This is in line with the requirement introduced by SET and might be attributed to the higher costs caused by larger committee sizes. Descriptive statistics of control variables are reported

Table 2 Variable abbreviation and measurement

Variable	Abbreviation	Measurement
Accruals-based earnings management	AEM	The absolute value of discretionary accruals from Modified Jones Model
Audit Committee	AUD	The size of the audit committee
Controlling Shareholders	CS	The percentage of shares held by the largest shareholder
Independent directors	IB	The number of independent directors on board
Type of audit firm	BIG4	1 if the audit firm is a Big 4 member, 0 if otherwise
Financial leverage	DA	Debt to assets ratio
Firm size	Ln_REV	The natural logarithm of total revenues
Firm performance	Lag_ROA	The lagged value of return on assets

in Table 3 and Table 5. Specifically, the number of independent directors on a board is roughly 4 (Mean 4.1613), as shown in Table 3. Moreover, the mean of DA is around 45 percent, as presented in Table 3, indicating that on average firms within this dataset significantly rely on debt financing for asset acquisition. The mean for firm size represented by Ln_REV in Table 3 is 22.1595, with average revenue about 16 million Thai Baht. The mean of Lag_ROA is 0.0318, indicating that on average firms in this study performed profitably. Finally, the frequency of BIG4 reported in Table 5 confirms that most Thai listed firms (65.69%) were audited by BIG4.

Correlation Analysis

Table 6 illustrates the correlation coefficients between two variables. Initially, correlation analysis was performed to check whether multicollinearity exists between explanatory variables. According to Table 6, the highest correlation coefficient is 0.392, which is lower than 0.400 (Bao & Lewellyn, 2017). Thus, the multicollinearity issue does not exist in this case.

Table 3 Descriptive statistics

Variable	*M*	*SD*	p25	p75
AEM	0.0585	0.0531	0.0180	0.0816
CS	0.2947	0.1681	0.1765	0.3725
IB	4.1613	1.1570	3.0000	5.0000
DA	0.4508	0.2105	0.2870	0.6125
Ln_REV	22.1595	1.4824	21.1942	23.0539
Lag_ROA	0.0318	0.0737	0.0028	0.0714

Table 4 Audit committee size

Number of Audit Committee	Freq.	Percent	Cum.
3	1,359	99.63	99.63
4	5	0.37	100.00
Total	1,364		

Table 5 Type of auditor

Type of Auditor	Freq.	Percent	Cum.
Non-BIG4	468	34.31	34.31
BIG4	896	65.69	100.00
Total	1,364		

Table 6 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) AEM	1.000							
(2) AUD	0.005	1.000						
	(0.862)							
(3) CS	0.029	-0.010	1.000					
	(.264)	(.700)						
(4) IB	-0.089*	0.046	0.001	1.000				
	(.001)	(.092)	(.982)					
(5) BIG4	-0.089*	-0.084*	0.220*	0.066*	1.000			
	(.001)	(.002)	(.000)	(.015)				
(6) DA	0.100*	-0.027	-0.049	0.084*	0.200*	1.000		
	(.000)	(.320)	(.073)	(.002)	(.000)			
(7) Ln_REV	-0.128*	-0.027	0.016	0.274*	0.392*	0.380*	1.000	
	(.000)	(.315)	(.557)	(.000)	(.000)	(.000)		
(8) Lag_ROA	-0.169*	-0.012	0.029	0.021	0.071*	-0.337*	0.211*	1.000
	(.000)	(.663)	(.282)	(.438)	(.009)	(.000)	(.000)	

Note: * $p < .05$.

Hypothesis Testing and Discussion

Regression analysis was performed to test the proposed hypothesis and the findings are reported in Table 7, where Model 1 is a partial model and Model 2 is a conditional model. Statistically, these two models are significantly different. The partial model shows the direct effect of AUD or CS on AEM by holding other explanatory variables in Model 1 constant. Despite not proposing the direct effect, Model 1 Table 7 adds informative findings. By holding other variables constant, there is no significant effect of AUD on AEM, as shown in Model 1 Table 7. As mentioned in the previous section, 99.63 percent of firm-year observations included in this dataset proposed three members on an audit committee. Thus, the values of AUD are almost constant within the panel and it might not be able to explain the change in AEM. Additionally, the effect of CS is positively significant ($p < .10$) on AEM. This is, by holding other things equal, the increase in the percentage of shares held by the largest shareholder leads to the higher AEM, supporting the expropriation. On top of the direct effect of AUD and CS on AEM, Model 2 Table 7 illustrates the conditional effect of such variables on AEM. According to the proposed conditional hypothesis, the coefficient of AUD*CS (coefficient= -18.696 $p<.05$) shown in Model 2 Table 7 confirms the interaction between audit committees and controlling shareholders and its conditional effect on AEM. Thus, H_1 is accepted in this case. To understand the interdependence between these two governance mechanisms and their conditional effect, the marginal effects need to be performed and visualized (Kingsley et al., 2017). Specifically, marginal effects will illustrate the effect of AUD on AEM as a function of CS and vice versa.

Table 7 Regression analysis

Variables	Model 1 AEM	Model 2 AEM
AUD	.015	-.539**
	(0.638)	(-2.298)
CS	.016*	-.052*
	(1.858)	(-1.736)
AUD*CS		-18.696**
		(-2.374)
IB	-.003*	-.003*
	(-1.945)	(-1.956)
BIG4	-.007**	-.007**
	(-2.044)	(-2.023)
DA	.022**	.022**
	(2.508)	(2.542)
Ln_REV	-.003***	-.003***
	(-2.812)	(-2.820)
Lag_ROA	-.088***	-.087***
	(-3.972)	(-3.935)
Constant	.089	.136***
	(1.201)	(5.522)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Observations	1,364	1,364
Adjusted *R*-squared	0.073	0.076

Note: This table illustrates the partial and conditional effects of audit committees and controlling shareholders on the absolute value of the discretionary accruals.). *t*-statistics in parentheses ***$p<.01$, **$p < .05$, *$p < .10$

Figure 1 demonstrates the effect of AUD on AEM as a function of CS while holding other things constant. Specifically, the marginal effects of AUD were run from the low level of CS to its high value. The effect of AUD on AEM is significantly positive when the CS is low, as shown in Figure 1. However, when the level of CS is higher, the positive effect of AUD on AEM is less pronounced. Eventually, the effect of AUD on AEM becomes negative when CS is high. Inversely, if the marginal effects of CS on AEM were run as a function of AUD, similar findings were found as visualized in Figure 2. Specifically, the effect of CS on AEM is

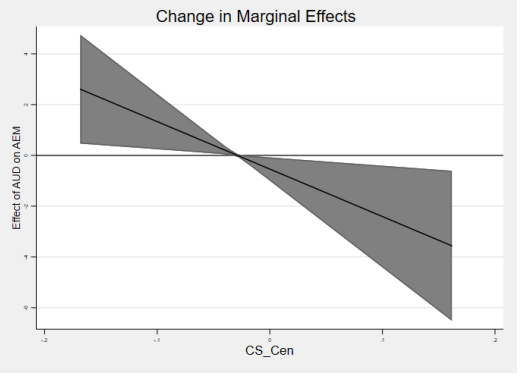


Figure 1 The marginal effects of AUD on AEM as a function of CS

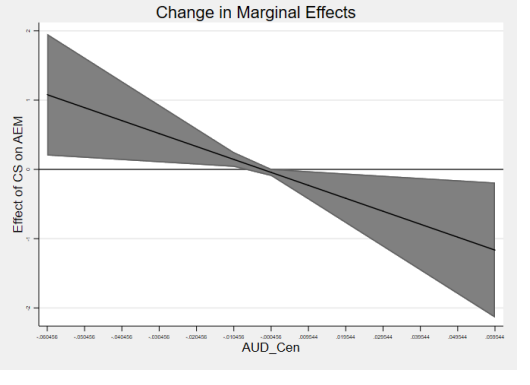


Figure 2 The marginal effects of CS on AEM as a function of AUD

positive when the audit committee is small, but the effect of CS on AEM is less pronounced as the size of the audit committee increases. Finally, the effect of CS on AEM is negative when AUD is high. Overall, such findings support the conditional hypothesis and certify the contingency framework in which governance mechanisms work collectively as bundles. Essentially, the findings reported in this study support the notion of governance bundles proposed in the existing literature (Desender et al., 2013; García-Castro et al., 2013; Kumar & Zattoni, 2013). Specifically, the complementary effect between audit committee and controlling shareholders to curb the practice of earnings management is discovered in this case. The increase in audit committee size, which indicates their independence and effectiveness, is likely to limit the practice of earnings management when ownership concentration is higher. However, a bigger audit committee may not yield an optimistic outcome in firms with dispersed ownership as supported by this study's findings. This is because individual investors in widely held companies have little incentive, and also, power (Isakov & Weisskopf, 2014) to monitor other governance mechanisms at the firm level. Accordingly, the costs of having a bigger audit committee in such companies are likely to exceed benefits. In addition, an alternative interpretation is that controlling shareholder is unlikely to engage in earnings management when an audit committee is bigger. The findings indicate that the practice of earnings management is likely when controlling shareholders gains more power throughout their shareholding as documented in the literature (Bao & Lewellyn, 2017; Nguyen et al., 2021). However, such a positive link deteriorates when the size of audit committee is bigger. It implicitly indicates that the balance of power between audit committee and the controlling shareholders is needed in firms with ownership concentration. Therefore, firms with highly concentrated ownership should be required to have more members on the audit committee in response to offset the power of controlling shareholders. In addition, all control variables included in the regression model significantly link with AEM as illustrated in the main analysis. First, IB has a negative link with AEM ($p < .10$), meaning that AEM is unlikely in firms with more independent directors on board. This is in line with the notion documented in the literature that independent directors are one of the crucial aspects to monitor management and reduce agency costs (Chen et al., 2007). Similarly, the degree of AEM is lower in firms audited by the BIG4, as shown by the significance of BIG4 in Table 7. The coefficient is negative (0.007) and significant at the 0.05 level. Such findings support the argument that big audit firms have more significant resources and thus play an active role in monitoring financial reporting (Viana et al., 2022). In addition, AEM is positively linked with firm leverage captured by DA ($p < .05$). The debt covenant hypothesis is supported here, and the findings are in line with prior research (Lazzem & Jilani, 2018) whereas, the findings reported in Table 7 show that the size of the firm, Ln_REV, has a negative link with AEM ($p<.01$). Such indicates that AEM is less when the firm size is bigger as documented in the literature (Kim et al., 2017). Finally, the lagged performance proxied by Lag_ROA negatively links with AEM. Implicitly, firms with performance pressure are likely to engage in AEM, which is similar to prior evidence (Kim et al., 2017).

Robustness Tests

Table 8 reports the findings of robustness tests performed to ensure the robustness of findings reported in Table 7. Specifically, Model 1 Table 8 illustrates the findings by removing data for the Year 2020 due to the impact of COVID-19. This pandemic has been mentioned as the exogenous shock that influences organizations, as well as the practice of EM (Lassoued & Khanchel, 2021). Therefore, the practice of EM is likely to be abnormal and unique to some extent in such a year and might complicate the analysis. There are 1,020 observations after dropping observations from the Year 2020. Although the sample size is reduced, the interaction between AUD and CS captured by the significant coefficient of AUD*CS ($p < .05$) to influence AEM holds constant, as reported in Model 1 Table 8. Accordingly, the findings from the robustness test by dropping the Year 2020 are comparable with the findings reported in the main analysis. Additionally, Model 2 Table 8 presents the findings by applying Performance-Matched Discretionary Accruals (Kothari et al., 2005) as an alternative proxy of AEM. Such a discretionary model control for ROA or lagged ROA is to reduce the effect of extreme financial performance. The significant coefficient of AUD*CS is constant whereas the alternative model of discretionary accruals is applied. This indicates that the findings of the interdependence of AUD and CS to influence AEM reported in the main analysis are robust over alternative proxies of AEM.

Table 8 Robustness tests

Variables	Model 1 AEM	Model 2 AEM_2
AUD	-.575**	-.587**
	(-2.448)	(-2.370)
CS	-.067**	-.050
	(-1.992)	(-1.573)
AUD*CS	-20.683**	-20.428**
	(-2.525)	(-2.456)
IB	-.003*	-.002
	(-1.823)	(-1.560)
BIG4	-.006	-.003
	(-1.561)	(-0.795)
DA	.030***	.024***
	(2.932)	(2.624)
Ln_REV	-.004***	-.004***
	(-2.706)	(-3.341)
Lag_ROA	-.077***	.052**
	(-3.025)	(2.234)
Constant	.139***	.140***
	(4.853)	(5.390)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
Observations	1,020	1,364
Adjusted *R*-squared	0.086	0.059

Note: This table reports the findings for robustness tests by dropping observations from the Year 2020 (Model 1) and alternative proxy of earnings management (Model 2). t-statistics in parentheses. ***$p < .01$, **$p < .05$, *$p < .10$

Conclusion and Recommendation

This study aims to investigate the interdependence between governance mechanisms at the firm level and how such interdependence affects AEM. Drawing upon the contingency framework of governance bundles, this study proposed that governance mechanisms do not function exclusively. In contrast, such mechanisms can be complemented or substituted for each other due to their correlated roles and related costs, although their goals are aligned (Oh et al., 2016). The revealing of corporate governance interdependence would provide a better understanding of governance functions (Oh et al., 2016; Panayi et al., 2021). Hence, this research contributes valuable insights to corporate governance literature. In summary, the findings of this study support the concept of governance bundles. The interaction effect between audit committees and controlling shareholders to curb the practice of earnings management are discovered in this case. This interaction is crucial in understanding how audit committees and controlling shareholders function together as a bundle. The increase in audit committee size is needed to limit the practice of earnings management in firms with ownership concentration. In particular, the findings reveal that earnings management is more likely to occur when a controlling shareholder gains greater power throughout their shareholding. However, the effect of controlling shareholder towards earnings management is weakened as the number of the audit committee increases. It implies that a balance of power between an audit committee and the controlling shareholders is required in firms with high ownership concentration.

The findings reported in this study are crucial for regulators, especially in emerging markets where ownership concentration is the concern. For instance, listed companies in Thailand are required to have at least three members on an audit committee, and, as reported by the descriptive statistics, most of the firms in this dataset (99.63% of firm-year observations) follow such requirements without providing extra members due to its costs. According to the findings, having the same size of audit committees for firms with different levels of ownership concentration may be problematic. Inversely, the size of an audit committee should vary in response to the level of ownership concentration, as suggested by the findings. This highlights the concept of no one size fits all for governance arrangements (Oehmichen, 2018). Instead, regulators should consider governance regulations based upon the contextual characteristics such as firm characteristics, industry specifics, and national settings. Thus, this research offers practical contributions as well as theoretical contributions.

Limitations and Future Research Suggestion

This study proposed an interaction effect between audit committee and ownership concentration as a governance bundle for earnings management. However, there will be diverse interaction effects among other corporate governance components that future research can investigate, such as external auditors, independent boards of directors, and internal control systems. Different combinations of governance aspects may have diverse impacts on firm outcomes. On the other hand, this study focused on AEM; future research can also look into real earnings management. Because these two practices are distinct in nature, the interaction effect of the same governance bundle on such dissimilar earnings management may differ as well. Finally, moderating regression was applied in this research to test the conditional hypothesis while future research can consider an alternative method such as fuzzy set analysis (García-Castro et al., 2013). The findings from such a qualitative comparative analysis would complement the findings uncovered by this study.

Conflict of Interest

There is no conflict of interest.

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