The Mediating Effect of Firm Risk on Corporate Governance, Firm Performance, and Earnings Management

Jomsurang Ruangprapun*
Adisak Chotitumtara**

Abstract

This study investigates whether corporate governance (CG) is associated with firms' financial outcomes and whether this relationship is mediated by firm risk. Analysis of non-financial listed companies in the Stock Exchange of Thailand between 2015 and 2019 shows that CG quality is positively associated with firm performance. However, although CG effectively constrains accrual earnings management, firms with good CG quality engage in high real earnings management. In addition, mediation analysis reveals that firm risk partially mediates the association between CG and firms' financial outcomes. Specifically, firms with enhanced CG quality experience risk reduction, leading to better firm performance and less earnings management. Findings present practical implications for regulators and capital market stakeholders.

Keywords: Corporate Governance; Firm Risk; Firm Performance; Earnings Management; Emerging Markets

Received: April 18, 2022 | **Revised**: May 1, 2022 | **Accepted**: May 9, 2022

* Lecturer, Department of Accountancy, Chulalongkorn Business School, Chulalongkorn University.
** Lecturer, Department of Business Administration, Faculty of Business, Economics, and Communications, Naresuan University.

Introduction

Various industries have exposed accounting scandals due to agency problems and lack of good governance. Prominent examples include the cases of Enron, WorldCom, and Lehman Brothers. One of the mechanisms that can mitigate these agency problems is corporate governance (CG). The Stock Exchange Commission (SEC) perceives the importance of effective CG and regularly monitors the quality of such practices among listed companies in the Stock Exchange of Thailand (SET). Prior literature reports that CG practices vary across countries due to their institutional backgrounds (Anderson & Gupta, 2009). CG practices in developed countries tend to be more effective than those in emerging countries (Cornelius, 2005). The possible reason is the recent application of CG practices and local protection laws that are weaker in emerging markets. Therefore, further research in developing countries is necessary to increase the awareness of regulators and capital market participants regarding the consequences of CG practices on financial outcomes.

Effective CG is associated with better firm performance and less earnings management (Brown et al., 2011). In this relationship between CG and financial outcomes, the firm risk is also an important factor. The reason is that shareholders are concerned with the size and growth of their investment and the volatility of their returns (Mathew et al., 2018). Nevertheless, evidence about such relationships is limited, and researchers use different sets of CG characteristics. Therefore, this study fills the literature gap by investigating three questions using the same set of composite CG scores. First, we determine whether CG quality is associated with firm performance. Second, we ask whether better CG quality constrains earnings management. Third, we examine whether the above two relationships are mediated by firm risk.

Overall, results show that CG quality is positively associated with firm performance. Firms with better CG also show constraints on accrual management, but engage in higher real earnings management. Furthermore, we find that firm risk partially mediates the relationship between CG and financial outcomes. Thus, this study contributes to the literature on agency theory, corporate governance, and earnings management.

The remainder of this paper is organized as follows. First, we discuss the literature review and research questions. Second, we describe the research methodology and present empirical findings. Third, we discuss theoretical contributions and managerial implications. Last, we summarize key findings and discuss the limitations and directions of future research.

Literature Review

Agency Theory and Corporate Governance Literature

An agency relationship is a contract between a principal (business owner) and an agent (manager) who acts on the principal's behalf (Jensen & Meckling, 1976). Nonetheless, agents do not always act in the best interest of business owners, resulting in agency costs (Sloan, 2001). According to Fama and Jensen (1983), the separation of decision management and control functions within a firm reduces agency costs and enhances firm performance. Defined as a set of mechanisms that help align the interests of shareholders and managers, corporate governance can be used to mitigate principal–agent conflicts (Armstrong et al., 2010). CG includes internal and external mechanisms, such as board composition, ownership structure,

and regulatory monitoring (Darmadi, 2011). Specifically, internal CG mechanisms fall under the control of the firm's shareholders and board of directors. External CG mechanisms involve external parties such as institutional investors and auditors (Brown et al., 2011). Prior literature has mainly examined the association between internal CG mechanisms and various financial outcomes.

One of the most frequently studied CG factors is the board composition. Yermack (1996) has found that smaller boards are more effective in decision-making. Block (1999) has shown that director independence allows the board to oversee management and protect the interests of shareholders. CEO duality, defined as assigning the same person as CEO and chairperson, is associated with low firm performance (Goergen et al., 2020). Chung and Zhang (2011) have found a positive association between institutional ownership and corporate governance due to the monitoring role of institutional investors. Juwita (2019) has shown that higher family ownership leads to better firm value. Board meeting frequency, which indicates board activity, is associated with better future operating performance (Vafeas, 1999). Finally, board compensation is also related to firm value (Muller, 2014).

The association between CG and earnings management has also been documented. Cornett et al. (2009) found that earnings management apparently increases due to CEO compensation but decreases due to independent boards. Similarly, Jiang et al. (2010) have shown that CFO equity incentives are positively associated with accrual earnings management. Furthermore, founding family ownership is associated with less earnings management (Wang, 2006). Collectively, extant literature has suggested that effective internal CG characteristics are associated with better firm performance and less earnings management.

Earnings Management Literature

Earnings management occurs when management alters financial reporting and structure transactions to mislead capital market stakeholders regarding firm performance or influence contractual benefits from reported accounting numbers (Healy & Wahlen, 1999). Firms have several motives for such earnings manipulation, such as capital market pressures and management equity incentives. In a comprehensive survey of firm executives, Graham et al. (2005) found that CFOs consider their firms' quarterly earnings and the analyst consensus forecasts as the two most important benchmarks. Therefore, management engages in short-term earnings management to meet or beat their benchmarks. Cheng and Warfield (2005) also identified CEO stock-based compensation as an incentive for earnings management.

Firms can manipulate earnings through discretionary accruals or real activities (Gunny, 2010). Accrual earnings management occurs through discretionary choices allowed under the Generally Accepted Accounting Principles (Kim & Sohn, 2013). According to Roychowdhury (2006), real earnings management is defined as departures from normal operational practices to meet or beat earnings benchmarks. Specifically, management offers price discounts or reduces discretionary expenses. Cohen et al. (2008) found that, after the passage of the Sarbanes-Oxley Act, accrual management declined while real earnings management increased significantly because the way in which firms manipulate their real activities is now under less regulatory scrutiny than is the manipulation of discretionary accruals. Zang (2012) found that management uses accrual and real earnings management as substitutes for one another, based on their relative costs. Taken together, extant literature suggests examining both earnings management strategies, which may have different implications for firms.

Firm Risk Literature

Defined as uncertainty that the actual returns will be lower than expected, a risk is an essential factor that investors consider when making decisions. Drawing upon finance literature, systematic risk cannot be avoided due to uncontrollable factors. By contrast, unsystematic risk affects the stock prices of one company or industry (Mathew et al., 2018). Because boards play a key role in managing risks for improvements in firm value, it is important to consider the firm risk factor when studying the impact of board characteristics (Mastella et al., 2021). The effect of CG on firm risk has been examined in various settings. For example, board independence and board size have been found to be negatively associated with firm risk (Brick & Chidambaran, 2008; Cheng, 2008; Pathan, 2009). Firms with higher levels of board gender diversity are less risky than firms with lower levels (Mastella et al., 2021). Furthermore, high CG-index firms likely experience low firm risk (Mathew et al., 2018). As discussed in Mathew et al. (2018), a comprehensive CG index can potentially indicate to the investors whether the boards are more risk-seeking or risk-averse. Therefore, investors can use the CG index to gauge the level of risk-taking in firms based on the governance structure.

Another research stream has documented the association between firm risk and financial outcomes. Fama and French (2002) suggested that risk variables are determinants of firm value. Related research has shown that taking a risk may result in a lower return because the poor performance of managers can negatively impact the firm risk and return (Andersen, Denrell & Bettis, 2007). Nguyen (2020) demonstrated that a higher level of risk can reduce firm value for United States public firms. Moreover, recent studies in Asia provide consistent evidence to support this notion. Roy and Bandopadhyay (2021) found that firm financial risk is negatively related to firm value in the Indian context. Juniar et al. (2021) also uncovered a significant negative relationship between risk-based efficiency value and firm value among Indonesian firms. Firm risk is also associated with high earnings management, as documented in Alharbi et al. (2021) and Chang et al. (2015). These findings have practical implications for firms, who should be motivated to evaluate their risk characteristics and take actions to reduce the undesired effects of risk.

Collectively, prior literature has suggested causal associations between CG and firm risk and between firm risk and financial outcomes.

Hypothesis Development

Although relevant literature has widely examined individual CG characteristics, recent studies have constructed CG indices for each country (Brown et al., 2011). This latter approach is considered more compelling, given its comprehensiveness (Brown & Caylor, 2006). Furthermore, various scholars have studied the influence of CG on financial outcomes among United States companies, but rarely among Asian firms. The reason is the lack of reliable data, which thus necessitates more empirical evidence of CG indices in emerging markets. Effective CG is considered an important mechanism for creating firm value and long-term sustainability for SET-listed companies. The Thai Institute of Directors Association (IOD) evaluates the related practices of listed companies and publishes the corporate governance report (CGR) of Thai listed companies annually. The SEC uses these results as a guideline for the development and promotion of the principles of good CG. As discussed in Sayari and Marcum (2018), Bloomberg Visual Data ranked Thailand as one of the 22 best performing emerging markets for 2014, and given that national CG score data are available, we believe that the association between CG and financial outcomes in this setting is worthy of examination.

Drawing upon literature review and the calls for more empirical evidence in emerging markets, we examine whether CG quality is associated with firms' financial outcomes. Prior studies mainly examined either the relationship between CG and firm performance or earnings management of Thai listed firms (e.g., Jiamsagul & Songjarean, 2013; Kosanlawit & Ugsornwong, 2019; Sabsombat et al., 2020; Sukanantasak, 2014). Given that researchers have used different sets of CG characteristics, it is difficult to reconcile their empirical results. We intend to provide a more comprehensive analysis based on the same set of composite CG scores. Extant literature has suggested that better CG quality increases firm performance and reduces earnings management. Therefore, we validate these statements using CG scores of Thai listed companies and set the following directional hypotheses.

Hypothesis 1 (H1): CG quality is positively associated with firm performance.
Hypothesis 2 (H2): CG quality is negatively associated with earnings management.

After establishing the first two relationships above, we shed light on additional influencing factors. Although most prior studies have examined CG characteristics and financial outcomes, the firm risk variable has received limited attention in accounting literature. The literature on firm risk has suggested causal associations between CG and firm risk and between firm risk and financial outcomes. Boards play an important role in managing risks in the search for improvements in firm value (Mastella et al., 2021). Firms with enhanced CG quality (as measured by board characteristics) tend to engage in less risky projects, and, thus, experience lower firm risk. Prior research has also shown the negative associations between firm risk and financial outcomes (Andersen et al., 2007; Nguyen, 2020). Taken together, the extant CG and firm risk literature suggests causal relationships between (1) CG and financial outcomes, (2) CG and firm risk, and (3) firm risk and financial outcomes. A study of Malaysian banks provided empirical evidence of risk-taking as a mediating variable in the relationship between board structure and financial performance (Nodeh et al., 2015). Specifically, Nodeh et al. (2015) found that independent directors and highly concentrated ownership contribute to less risk-taking behavior, affecting firm performance.

Issarawornrawanich (2011) found that the association between CG mechanisms and stock investment risk (firm risk) of Thai listed companies was mediated by accruals quality from 2007 to 2009. Specifically, the results showed that CG mechanisms directly and indirectly decreased the stock investment risk through higher earnings quality. The author argued that CG mechanisms improved the accruals quality by restricting managers' ability to manage earnings. Therefore, the author concluded that the higher quality of accounting information mediates the relationship between CG mechanisms and stock investment risk. We acknowledge that this theoretical framework is plausible, based on the empirical findings. Whether the firm risk or earnings quality is considered to be a mediating variable in the CG context is inconclusive in prior literature. For example, a study by Neffati et al. (2011) provided contrasting evidence that firm risk is a motive for earnings management. Specifically, the authors discussed the possibility that one of the most important motivations in earnings management is the desire to influence the financial market's perception of the firm risk. The manager is motivated to manage earnings to seek a balance between different types of risk-binding activities engaged in by the firm. Any effective CG mechanisms that reduce firm risk can, therefore, minimize accounting manipulation (Neffati et al., 2011). Using a sample of United States firms, Neffati et al. (2011) found that good CG practices are negatively associated with firm risk, and that firm risk is positively associated with earnings management.

Chang et al. (2015) found that listed companies in Taiwan with higher levels of CG reported high firm performance and low firm risk, suggesting the moderating effect of CG. Nonetheless, their findings apply to the period during the financial crisis, not the post-financial crisis period. Although Chang et al. (2015) focused on the moderating effect, the authors discussed the well-established causal relationships between CG-firm performance and firm risk-firm performance. Furthermore, drawing on the CG and firm risk literature, firms with enhanced CG quality experience low firm risk due to low agency costs and information risk, not vice versa.

Recent studies have identified risk management as a mediating variable in the association between CG and financial outcomes. As Husaini et al. (2020) discussed, management's efforts to reach an agreed performance contract will always be accompanied by risk. The application of enterprise risk management (ERM) is considered to be an approach to reducing agency problems and improving company performance. Specifically, Husaini et al. (2020) found that the application of ERM partially mediates the relationship between board size and firm performance. The boards must continuously oversee and manage firm risk effectively to improve organizational performance. Consistent with the findings of Husaini et al. (2020), Rehman et al. (2021) also demonstrated that risk management partially mediates the relationship between CG (i.e., board size and foreign ownership) and firm performance in Pakistan. As discussed in Rehman et al. (2021), however, most prior studies have neglected the possibilities of the indirect effects of CG on firm performance; therefore, the relationship between these two variables is not yet fully understood. Inconsistent results in prior literature indicate a plausible mediating role of some other variables, and Rehman et al. (2021) have shown that risk management is one of them.

Because the extant literature suggests the potential mediating role of firm risk, we hypothesize that firm risk mediates the association between CG and firm performance (H1) and between CG and earnings management (H2) of SET-listed companies, as follows.

Hypothesis 3 (H3): Firm risk mediates the association between CG quality and firm performance.

Hypothesis 4 (H4): Firm risk mediates the association between CG quality and earnings management.

Research Methodology

Sample Selection

In order to provide recent empirical evidence without the confounding effect of the Coronavirus 2019 pandemic, our sample period spans five years, from 2015 to 2019. Data were obtained from various sources. First, we identified all 544 listed firms in the SET market during the sample period. Second, firms in the financial industry were excluded, yielding 497 non-financial listed firms. Third, we manually collected data of internal CG characteristics from the annual reports. Fourth, we obtained CG scores from the CGR reports. Fifth, firm risk variables were calculated from financial data obtained from the SETSMART database. Last, firm performance, earnings management, and control variables were obtained from the SETSMART database. The final sample consists of 1,740 firm-year observations over the 2015–2019 period. Table 1 summarizes the sample selection.

Table 1: Sample Selection

Step 1	
Number of listed firms in the SET50 market	544
Less: Number of firms in the financial industry	(47)
Remaining firms for manually collected data	497
Step 2	
Firm-year observations with available data of (1) Corporate governance variables manually collected from 56-1 annual reports and Corporate Governance Report of Thai Listed Companies, and (2) Firm risk variables calculated from financial data obtained from the SETSMART database	2,720
Less: Firm-year observations with missing financial variables from the SETSMART database	(980)
Final firm-year observations for analyses (411 unique firms; 7 unique industries; 24 unique industry subsectors)	1,740

Note: The sample consists of firm-year observations during the period 2015–2019.

Measurement of Corporate Governance Quality

The main proxy for CG quality is the composite CG scores, which we obtained from the CGR reports published by the IOD. In these reports, the included firms earn the CG scores of good, very good, or excellent. Excluded firms receive scores below good ratings. Given that these CG scores are categorical values, we create a dummy variable (*CGDUMMY*) equal to 1 for firm-year observations with very good or excellent ratings, and 0 otherwise. For robustness tests, we also create a dummy variable equal to 1 for firm-year observations above the median value, and 0 otherwise. Furthermore, we use the CG scores and a set of internal CG attributes as alternative proxies for robustness tests.

Measurement of Firm Performance

Following prior literature, we use return on assets (*ROA*) and Tobin's Q (*TQ*) score as proxies for firm performance (Brown et al., 2011). *ROA* is calculated as earnings before interest, taxes, and depreciation (EBITDA) divided by total assets, while *TQ* is calculated as the market value of equity and book value of short- and long-term debt divided by total assets.

Measurement of Earnings Management

Given that earnings are the sum of *cash flows* and *accruals* that firms can use to manage earnings (Gunny, 2010), we consider these two to be the main proxies for earnings management.

Beginning with the proxy of *accrual earnings management*, we estimate abnormal accruals (*ABACC)* following the lagged model of Dechow et al. (2003) which has higher explanatory power than the well-known modified Jones model. *ABACC* is the difference between the reported and the normal accruals estimated from the model.

Secondly, abnormal operating cash flows (*ABCFO*) are used to proxy *earnings management via cash flows*. *ABCFO* is the difference between the reported and expected operating cash flows following Roychowdhury (2006).

As an alternative measure, we use the modified Jones model in Zang (2012) to estimate abnormal accruals (*ABACC2)*. For robustness tests, we also include two proxies of abnormal discretionary expenses (*ABDISEXP*) and abnormal production costs (*ABPROD*) as alternative measures of real earnings management following Roychowdhury (2006).

Measurement of Firm Risk

Firm risk *(RISK)* is defined as the total risk, including the idiosyncratic risk specific to each firm, and the systematic risk (Mathew et al., 2018; Pathan, 2009). Therefore, *RISK* is measured as the standard deviation of the natural logarithm of annualized daily stock returns. For robustness tests, an alternative risk measure is asset return risk, which represents the variance of asset returns following Mathew et al. (2018).

All variables in the empirical models are defined in the Appendix.

Empirical Models

Cross-sectional OLS linear regression models are used to examine whether CG quality is associated with firm performance (H1), as shown in Eq. (1).

$$ROA_{i,t}(TQ_{i,t}) = \alpha_0 + \alpha_1 CGDUMMY_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 MTB_{i,t} + \alpha_4 LEV_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \quad Eq.(1)$$

In Eq. (1), the two main dependent variables are *ROA* and *TQ*. *ROA* is calculated as EBITDA divided by total assets. *TQ* is calculated as the market value of equity and book value of short- and long-term debt divided by total assets. *CGDUMMY* is an indicator variable equal to 1 for firm-year observations with CG ratings of very good or excellent, and 0 otherwise. Control variables are included because of their association with firm performance in prior CG literature (Arora & Bodhanwala, 2018; Guluma, 2021; Javaid, 2015). *SIZE* is measured as the logarithm of total assets. *MTB* is measured as the ratio of the equity market value to its book value. *LEV* is calculated as total debts divided by total assets. *SIZE* and *MTB* control for firm size and growth opportunities, respectively, while *LEV* controls for risks from financial leverage. Industry and year-fixed effects are included to control for unobserved heterogeneity.

For H2, we use the following OLS linear regression models to examine whether CG quality is associated with earnings management, as shown in Eq. (2).

$$ABACC_{i,t}(ABCFO_{i,t}) = \beta_0 + \beta_1 CGDUMMY_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MTB_{i,t} + \beta_4 LEV_{i,t} + \beta_5 CFS_{i,t} + \beta_6 ROA_{i,t} + \beta_7 ZSCORE_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \quad Eq.(2)$$

In Eq. (2), the two main dependent variables are *ABACC* and *ABCFO*. *ABACC* (*ABCFO*) is the difference between the reported and the estimated normal accruals (operating cash flows). *CGDUMMY* is the same as defined in Eq. (1). Similar control variables of *SIZE*, *MTB*, and *LEV* are included because of their association with earnings management (Agrawal & Chatterjee, 2015; Roychowdhury, 2006; Zang, 2012). *CFS* is calculated as operating cash flows divided by total common shares. *ROA* controls for firm performance. Altman's Z-Score

(ZSCORE) is included to control for financial health. Industry and year-fixed effects are included to control for unobserved heterogeneity.

As discussed in Brown et al. (2011), accounting researchers face challenges in econometric data analysis when explaining the causes and effects of CG and financial outcomes. The reason is that causality may run in both directions. One approach to dealing with this endogeneity issue is identifying instrumental variables for CG and estimating the model using two-stage least squares (2SLS). Therefore, we estimate the same models in Eqs. (1) and (2) using the 2SLS regression. First, CG is regressed on instrumental and other exogenous variables. Second, financial outcomes are regressed on the predicted value of CG computed from the first-stage regression. In a valid instrument, the two important characteristics are: (1) sufficient correlation with CG, and (2) non-correlation with the error term.

Drawing on CG literature, we identify two instrumental variables. First, the annual general meeting (AGM) is one important mechanism that enables shareholders to hold the company directors accountable and to effectively monitor management decisions. According to Apostolides (2010), AGMs are an essential aspect of CG in the United Kingdom, and their success can lead to more effective CG. Given its direct effect on the CG quality but not on financial outcomes, we propose AGM as the first instrument. AGM scores are obtained from the Thai Investors Association's report to proxy quality. We create *AGMDUMMY* as an indicator variable equal to 1 for firm-year observations with AGM ratings of very good or excellent, and 0 otherwise. Second, larger audit firms provide a higher quality audit than small- or medium-sized ones (Craswell et al., 1995). Schäuble (2019) reported that large audit firms are associated with low agency costs, suggesting that large audit firms lead to more effective CG practices in financial reporting. Therefore, we propose auditor size as the second instrument. *BIG4DUMMY* is an indicator variable equal to 1 for Big4 audit firms, and 0 otherwise.[1]

Path analysis is then used to examine whether the firm risk mediates the associations with CG-firm performance (H3) and CG-earnings management (H4). Specifically, the direct, indirect, and total effects of these relationships are tested, with firm risk as a mediator. Structural equation modeling is used for observed variables in order to estimate regressions, as shown in Figure 1. First, firm risk is regressed on CG (path *a*). Second, financial outcomes are regressed on firm risk (path *b*). Third, financial outcomes are regressed on both CG and firm risk (path *c*). The first two regressions provide information for calculating the indirect effect (paths *a x b*), and the third regression provides information for the direct effect (path *c*). Using the SEM command in STATA, the following regression models are estimated in order to test both direct and indirect effects of H3 and H4, as shown in Eqs. (3) – (5). Specifically, the STATA program uses results from both Eqs. (3) and (4) to calculate the direct and indirect effects of H3 tests. Similarly, results from Eqs. (3) and (5) are used for H4 tests.

$$RISK_{i,t} = \gamma_0 + \gamma_1 CGDUMMY_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 LEV_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \qquad Eq.(3)$$

$$ROA_{i,t}(TQ_{i,t}) = \delta_0 + \delta_1 CGDUMMY_{i,t} + \delta_2 RISK_{i,t} + \delta_3 SIZE_{i,t} + \delta_4 MTB_{i,t} + \delta_5 LEV_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \qquad Eq.(4)$$

[1] For a parsimonious reason, the 2SLS equations are not displayed because they are similar to the OLS equations with the predicted values of *CGDUMMY* from the first-stage regression used in the second-stage regression.

$$ABACC_{i,t}(ABCFO_{i,t}) = \eta_0 + \eta_1 CGDUMMY_{i,t} + \eta_2 RISK_{i,t} + \eta_3 SIZE_{i,t} + \eta_4 MTB_{i,t} + \eta_5 LEV_{i,t} + \eta_6 CFS_{i,t} + \eta_7 ROA_{i,t} + \eta_8 ZSCORE_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t} \quad Eq.(5)$$

To test the mediating effects, we follow two approaches in Barron and Kenny (1986) and Zhao, Lynch, and Chen (2010). Coefficients on the indirect path *a x b* must be significant, and those on the direct path *c* must be significant (insignificant) to conclude partial (full) mediation. No mediation occurs if the coefficients on path *a*, *b*, or both are insignificant. The main difference between these two approaches is that Barron and Kenny (1986) use the Sobel test whereas Zhao et al. (2010) use the Monte Carlo test for the mediating effect (*a x b*). Zhao et al. (2010) have identified three patterns with mediation and two patterns with non-mediation. Complementary (competitive) partial mediation occurs when the mediating and direct effects both exist and point in the same (opposite) directions. Indirect-only or full mediation occurs when the mediating effect (*a x b*) exists, but no direct effect is observed. Direct-only non-mediation occurs when the direct effect (*c*) exists, but no indirect effect is observed. Last, no-effect non-mediation occurs when neither direct nor indirect effects exist. Figure 1 also summarizes the path analysis of H3 and H4.

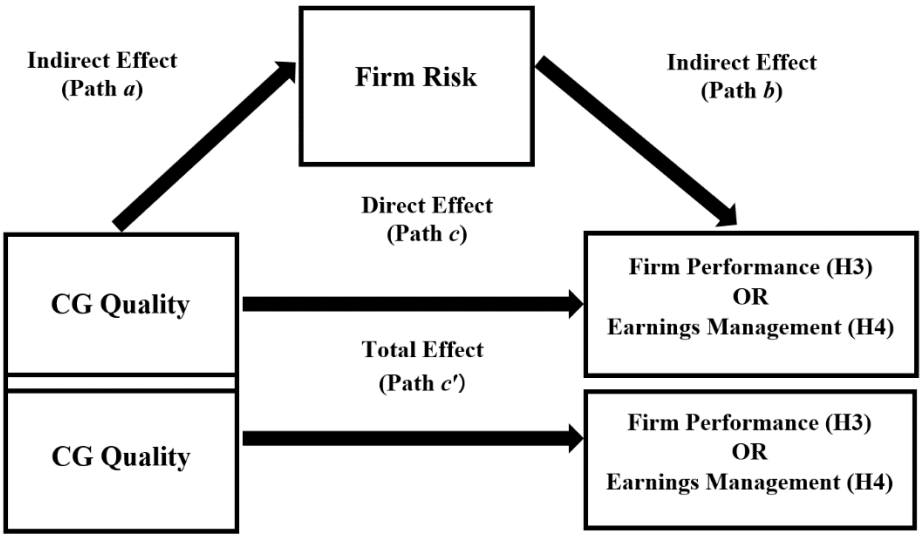

Figure 1: Path analysis of firm risk as a mediator in the CG-firm performance and CG–Earnings management relationships

Research Findings

Descriptive Statistics and Univariate Analyses

Tables 2 and 3 provide the descriptive statistics and the correlation coefficients of variables in the empirical models, respectively. Examination of the correlations revealed that CG quality (*CGDUMMY*) is positively associated with firm performance (*ROA* or *TQ*). In addition, *CGDUMMY* is positively related to earnings management via cash flows (*ABCFO*), but has no significant association with accrual earnings management (*ABACC*). We also observed a negative association between *CGDUMMY* and *RISK*. Similarly, the firm risk is

negatively associated with firm performance and earnings management via cash flows. Overall, the univariate analyses suggest that firm risk mediates the associations between CG and financial outcomes. To address potential multicollinearity issues, we examined each correlation coefficient and found that the highest positive (negative) coefficient in Table 3 is 0.89 (–0.55). This highest value, 0.89, represents an association between one control variable (*MTB*) and firm performance (*TQ*), but not the primary test variable. Therefore, multicollinearity was not an issue for subsequent multivariate analyses.

Table 2: Descriptive Statistics (N = 1,740)

Variable	Mean	P25	Median	P75	Minimum	Maximum	Standard Deviation
CGDUMMY	0.55						0.50
RISK	0.03	0.02	0.02	0.03	0.01	0.17	0.02
ROA	0.04	0.01	0.04	0.08	-0.28	0.25	0.08
TQ	1.51	0.93	1.17	1.62	0.49	6.17	0.99
ABACC	0.00	-0.04	-0.00	0.04	-0.24	0.21	0.08
ABCFO	0.00	-0.05	0.00	0.06	-0.28	0.20	0.09
SIZE	15.80	14.69	15.56	16.75	13.10	20.10	1.53
MTB	2.10	0.85	1.33	2.38	0.29	12.84	2.18
LEV	0.15	0.04	0.11	0.25	0.00	0.52	0.14
CFS	2.41	0.06	0.54	2.00	-3.12	39.10	6.10
ZSCORE	4.07	1.53	2.82	4.91	-0.77	23.03	4.12

Note: See Appendix for variable definitions. All continuous variables are winsorized at the top 1st and bottom 99th percentiles.

Table 3: Pearson Correlations

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	*CGDUMMY*	1										
2	*RISK*	-0.19*	1									
3	*ROA*	0.16*	-0.17*	1								
4	*TQ*	0.07*	-0.07*	0.47*	1							
5	*ABACC*	0.00	-0.02	0.31*	0.02	1						
6	*ABCFO*	0.07*	-0.09*	0.40*	0.36*	-0.55*	1					
7	*SIZE*	0.31*	-0.28*	0.11*	0.02	0.04	-0.02	1				
8	*MTB*	0.08*	-0.07*	0.38*	0.89*	0.02	0.29*	0.11*	1			
9	*LEV*	0.16*	-0.13*	-0.13*	-0.05*	0.02	-0.07*	0.57*	0.09*	1		
10	*CFS*	0.01	0.10*	0.20*	0.10*	-0.12*	0.27*	0.22*	0.11*	0.05*	1	
11	*ZSCORE*	-0.04	-0.05*	0.51*	0.58*	0.04	0.35*	-0.22*	0.38*	-0.44*	0.09*	1

Note: See Appendix for variable definitions. * represents Pearson correlation coefficients that are statistically significant at the 0.05 level.

Multivariate Analyses

Table 4 presents the OLS and 2SLS regression results of Eq. (1), which identify whether firms' CG quality is positively associated with firm performance. In models 1 and 2, a coefficient on *CGDUMMY* is positive and statistically significant at the 0.01 level. These results suggested that high CG quality leads to high firm performance using either the OLS or 2SLS regressions. For control variables, firms with a large size (*SIZE*), high growth opportunities (*MTB*), and low financial leverage (*LEV*) likely have high firm performance (*ROA*). Using *TQ* as an alternative proxy, we found that a coefficient on *CGDUMMY* is positive and significant at the 0.01 level for an OLS regression model (model 3). However, the 2SLS regression results suggested no significant relationship between *CGDUMMY* and *TQ* (model 4). Further tests also revealed an endogeneity problem with *ROA*, but not *TQ*. Therefore, 2SLS (OLS) regression results were used to conclude a positive association between *CGDUMMY* and *ROA (TQ)*. Tests of overidentifying restrictions and weak instruments supported the validity of models and instruments. Taken together, the overall empirical results support H1.

Table 4: Test of the Effect of CG on Firm Performance (H1)

	DV = *ROA*		**DV = *TQ***	
	(1) OLS Regression	**(2) 2SLS Regression**	**(3) OLS Regression**	**(4) 2SLS Regression**
	Coefficient (*t*-statistic)	**Coefficient (*z*-value)**	**Coefficient (*t*-statistic)**	**Coefficient (*z*-value)**
Main Test Variable				
CGDUMMY	0.019*** (5.30)	0.037*** (4.76)	0.064*** (2.65)	0.070 (1.51)
Control Variable				
SIZE	0.010*** (7.57)	0.008*** (5.81)	-0.009 (-0.79)	-0.009 (-0.81)
MTB	0.014*** (12.22)	0.014*** (12.17)	0.396*** (25.82)	0.396*** (25.96)
LEV	-0.158*** (-11.65)	-0.156*** (-11.44)	-1.107*** (-9.14)	-1.107*** (-9.25)
Constant	-0.124*** (-6.29)	-0.105*** (-5.16)	1.063*** (6.20)	1.069*** (6.13)
Industry and Year-Fixed Effects	Included	Included	Included	Included
Number of Observations	1,740	1,740	1,740	1,740
R-squared	0.238	0.226	0.814	0.814
Durbin Test of Endogeneity		8.280***		0.021
Wu-Hausman Test of Endogeneity		8.243***		0.020
Test of Overidentifying Restrictions		1.102		0.337
H0: Instruments are weak 2SLS size of nominal 5% Wald test LIML size of nominal 5% Wald test		Null Hypothesis is rejected		Null Hypothesis is rejected

Note: This table presents OLS and 2SLS regression results of Eq. (1)

$$ROA_{i,t}(TQ_{i,t}) = \alpha_0 + \alpha_1 CGDUMMY_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 MTB_{i,t} + \alpha_4 LEV_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t}\ Eq.(1)$$

Fixed industry and year effects are included and p-values are based on robust standard errors. *, **, *** indicate significance at 10%, 5%, 1% two-sided p-values, respectively. All continuous variables are winsorized at the top and bottom 1st and 99th percentiles. All variables are defined in the Appendix.

Table 5: Test of the Effect of CG on Earnings Management (H2)

	DV = *ABACC*		DV = *ABCFO*	
	(1) OLS Regression	**(2) 2SLS Regression**	**(3) OLS Regression**	**(4) 2SLS Regression**
	Coefficient (*t*-statistic)	**Coefficient (*z*-value)**	**Coefficient (*t*-statistic)**	**Coefficient (*z*-value)**
Main Test Variable				
CGDUMMY	-0.012*** (-3.32)	-0.035*** (-4.43)	0.009** (2.39)	0.026*** (2.91)
Control Variable				
SIZE	0.001 (0.41)	0.003* (1.76)	-0.009*** (-5.99)	-0.010*** (-6.28)
MTB	-0.003*** (-3.29)	-0.003*** (-3.21)	0.006*** (4.99)	0.006*** (5.02)
LEV	0.036** (1.98)	0.034* (1.91)	0.059*** (2.86)	0.060*** (2.94)
CFS	-0.002*** (-8.67)	-0.003*** (-9.24)	0.003*** (10.29)	0.003*** (10.71)
ROA	0.455** (12.55)	0.480*** (13.17)	0.282*** (6.91)	0.263*** (6.36)
ZSCORE	-0.002*** (-3.05)	-0.002*** (-3.30)	0.004*** (6.28)	0.004*** (6.50)
Constant	-0.012 (-0.58)	-0.033 (-1.57)	0.063*** (2.83)	0.078*** (3.34)
Industry and Year-Fixed Effects	Included	Included	Included	Included
Number of Observations	1,740	1,740	1,740	1,740
R-squared	0.160	0.141	0.263	0.255
Durbin Test of Endogeneity		11.074***		4.939**
Wu-Hausman Test of Endogeneity		11.024***		4.899**
Test of Overidentifying Restrictions		0.850		0.100
H0: Instruments are weak 2SLS size of nominal 5% Wald test LIML size of nominal 5% Wald test		Null Hypothesis is rejected		Null Hypothesis is rejected

Note: This table presents OLS and 2SLS regression results of Eq. (2).

$$ABACC_{i,t}(ABCFO_{i,t}) = \beta_0 + \beta_1 CGDUMMY_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 MTB_{i,t} + \beta_4 LEV_{i,t} + \beta_5 CFS_{i,t} + \beta_6 ROA_{i,t} + \beta_7 ZSCORE_{i,t} + Industry\ and\ Year\ Fixed\ Effects + \varepsilon_{i,t}\ Eq.(2)$$

Fixed industry and year effects are included and p-values are based on robust standard errors. *, **, *** indicate significance at 10%, 5%, 1% two-sided p-values, respectively. All continuous variables are winsorized at the top and bottom 1st and 99th percentiles. All variables are defined in the Appendix.

Table 5 presents the OLS and 2SLS regression results of Eq. (2), which identify whether firms' CG quality is positively associated with earnings management. In models 1 and 2, a coefficient on *CGDUMMY* is negative and statistically significant at the 0.01 level. These results suggested that high CG quality reduces accrual earnings management using either the

OLS or 2SLS regressions. Coefficients on most control variables are statistically significant and consistent with prior literature. By contrast, we found a positive association between *CGDUMMY* and *ABCFO* in OLS and 2SL regressions (models 3 and 4). Although better CG constrains accrual earnings management, the results were the opposite for earnings management via cash flows. These findings confirmed prior literature that reports the trade-off between these two strategies (Zang, 2012). Therefore, firms with good CG are more likely to reduce accrual earnings management and engage in higher real earnings management than firms with poor CG. Further tests revealed an endogeneity problem with the earnings management variables. Therefore, 2SLS regression results confirmed the association between CG and earnings management. Taken together, the overall empirical results support H2.

Table 6 presents the results of path analysis of whether firm risk mediates the association between CG and firm performance (H3). Panel A of Table 6 shows that the coefficients on the direct, indirect, and total effect paths are positive and statistically significant at the 0.01 level. The total effect of *CGDUMMY–ROA* (0.017) is a sum of the direct effect (0.015) and the indirect effect (0.002). We use the Sobel and the Monte Carlo tests to confirm the mediating effect of firm risk. Table 8 summarizes the results. Firm risk partially mediated the relationship between *CGDUMMY* and *ROA*. Panel B of Table 6 shows the mediating effect for *CGDUMMY–TQ* using Barron and Kenny's test, but not using the test of Zhao et al. (2010). Therefore, we conclude that no mediation occurs for the *CGDUMMY–TQ* relationship.

Table 6: Mediating Effect of Firm Risk on CG-Firm Performance Relationship (H3)

Panel A: Indirect, Direct, and Total Effects of *CGDUMMY* and *ROA* through *RISK*

Effect	Path	Coeff.	Std. Error	*z*-value	*p*-value
Indirect Effect	**Step 1:** *CGDUMMY -> RISK*	-0.005***	0.001	-4.64	0.000
	Step 2: *RISK -> ROA*	-0.365***	0.072	-5.06	0.000
	Indirect Effect through *RISK*	0.002***	0.001	3.42	0.001
Direct Effect	**Step 3:** *CGDUMMY -> ROA*	0.015***	0.003	4.39	0.000
Total Effect	*CGDUMMY -> ROA*	0.017***	0.003	4.94	0.000

Panel B: Indirect, Direct, and Total Effects of *CGDUMMY* and *TQ* through *RISK*

Effect	Path	Coeff.	Std. Error	*z*-value	*p*-value
Indirect Effect	**Step 1:** *CGDUMMY -> RISK*	-0.005***	0.001	-4.64	0.000
	Step 2: *RISK -> TQ*	-0.985**	0.479	-2.06	0.040
	Indirect Effect through *RISK*	0.005*	0.003	1.88	0.060
Direct Effect	**Step 3:** *CGDUMMY -> TQ*	0.052**	0.022	2.32	0.020
Total Effect	*CGDUMMY -> TQ*	0.057**	0.022	2.56	0.010

Note: This table presents the path analysis results for the mediating effect of firm risk on CG-firm performance relationship (H3). Control variables are included in all models. *, **, *** indicate significance at 10%, 5%, 1% two-sided p-values, respectively. All continuous variables are winsorized at the top and bottom 1st and 99th percentiles.

Table 7 presents the results of path analysis regarding whether firm risk mediates the association between CG and earnings management (H4). Panel A of Table 7 shows that the coefficients on all paths are negative and statistically significant. We observed the indirect effect of *CGDUMMY* and *ABACC* through *RISK*. By contrast, Panel B of Table 7 suggests positive coefficients on all paths. That is, firms with good CG likely experience low firm risk, but also engage in high earnings management via cash flows (*ABCFO*). Results in Table 8 prove that firm risk partially mediates the association between CG and earnings management.

Table 7: Mediating Effect of Firm Risk on CG-Earnings Management Relationship (H4)

Panel A: Indirect, Direct, and Total Effects of *CGDUMMY* and *ABACC* through *RISK*

Effect	Path	Coeff.	Std. Error	*z*-value	*p*-value
Indirect Effect	**Step 1:** *CGDUMMY -> RISK*	-0.004***	0.001	-3.49	0.000
	Step 2: *RISK -> ABACC*	0.240***	0.077	3.10	0.002
	Indirect Effect through *RISK*	-0.001**	0.000	-2.32	0.020
Direct Effect	**Step 3:** *CGDUMMY -> ABACC*	-0.010***	0.004	-2.93	0.003
Total Effect	*CGDUMMY -> ABACC*	-0.011***	0.004	-3.19	0.001

Panel B: Indirect, Direct, and Total Effects of *CGDUMMY* and *ABCFO* through *RISK*

Effect	Path	Coeff.	Std. Error	*z*-value	*p*-value
Indirect Effect	**Step 1:** *CGDUMMY -> RISK*	-0.004***	0.001	-3.49	0.000
	Step 2: *RISK -> ABCFO*	-0.301***	0.086	-3.51	0.000
	Indirect Effect through *RISK*	0.001**	0.000	2.48	0.013
Direct Effect	**Step 3:** *CGDUMMY -> ABCFO*	0.010**	0.004	2.43	0.015
Total Effect	*CGDUMMY -> ABCFO*	0.011***	0.004	2.72	0.007

Note: This table presents the path analysis results for the mediating effect of firm risk on CG-earnings management relationship (H4). Control variables are included in all models. *, **, *** indicate significance at 10%, 5%, 1% two-sided p-values, respectively. All continuous variables are winsorized at the top and bottom 1st and 99th percentiles.

Table 8: Summary of the Mediating Effect of Firm Risk (H3-H4)

Hypothesis	DV	Sobel Test (Barron and Kenny)	Monte Carlo Test (Zhao, Lynch, and Chen)	Mediating Effect Conclusion
H3	*ROA*	Partial mediation	Complementary partial mediation	Yes
	TQ	Partial mediation	Direct-only non-mediation	No
H4	*ABACC*	Partial mediation	Complementary partial mediation	Yes
	ABCFO	Partial mediation	Complementary partial mediation	Yes

Robustness Tests

Several robustness tests are carried out to validate the main results. Specifically, alternative measures of CG quality, accrual earnings management, real earnings management, and firm risk are used to test our hypotheses. Untabulated findings suggested qualitatively similar but weaker results. Drawing on relevant literature, we identified seven internal CG characteristics associated with firms' financial outcomes, namely, the number of board committee members (*BOARDSIZE*), proportion of independent directors (*INDBOARD*), CEO duality status (*CEODUAL*), family ownership (*FAMOWN*), institutional ownership (*INSOWN*), board committee meeting attendance (*BOARDMEET*), and board committee compensation (*BOARDCOMP*). Tables 9 and 10 summarize the mediating effects of firm risk on the relationships between internal CG characteristics and firm performance, and CG characteristics and earnings management, respectively. Examination of each CG characteristic while controlling for other exogenous variables revealed that firm risk fully mediates the relationships between four CG characteristics (*BOARDSIZE*, *INDBOARD*, *FAMOWN*, and *BOARDMEET*) and *ROA.* In addition, firm risk partially mediated the relationships between two CG characteristics (*INSOWN* and *BOARDCOMP*) and *ROA*. We concluded no mediating effect for the *CGDUMMY–TQ* relationship, consistent with the results in Table 8. However, we found consistent results across the two earnings management proxies, as shown in Table 10. That is, firm risk mediates the associations between three CG characteristics (*INDBOARD*, *BOARDMEET*, and *BOARDCOMP*) and earnings management. Collectively, the overall results suggest the role of firm risk as a mediator in the association between CG and financial outcomes.

Table 9: Summary of the Mediating Effect of Firm Risk on Internal CG–Firm Performance

	DV = *ROA*			DV = *TQ*		
Internal CG Characteristics	**Sobel Test (Barron and Kenny)**	**Monte Carlo Test (Zhao, Lynch, and Chen)**	**Mediating Effect Conclusion**	**Sobel Test (Barron and Kenny)**	**Monte Carlo Test (Zhao, Lynch, and Chen)**	**Mediating Effect Conclusion**
BOARDSIZE	Full mediation	Indirect-only mediation	Yes	Partial mediation	No-effect non-mediation	No
INDBOARD	Full mediation	Indirect-only mediation	Yes	Partial mediation	Direct-only non-mediation	No
CEODUAL	No mediation	No-effect non-mediation	No	No mediation	No-effect non-mediation	No
FAMOWN	Full mediation	Indirect-only mediation	Yes	Partial mediation	No-effect non-mediation	No
INSOWN	Partial mediation	Competitive partial mediation	Yes	Partial mediation	No-effect non-mediation	No
BOARDMEET	Full mediation	Indirect-only mediation	Yes	No mediation	Direct-only non-mediation	No
BOARDCOMP	Partial mediation	Complementary partial mediation	Yes	Partial mediation	Direct-only non-mediation	No

Table 10: Summary of the Mediating Effect of Firm Risk on Internal CG–Earnings Management

	DV = *ABACC*			DV = *ABCFO*		
Internal CG Characteristics	**Sobel Test (Barron and Kenny)**	**Monte Carlo Test (Zhao, Lynch, and Chen)**	**Mediating Effect Conclusion**	**Sobel Test (Barron and Kenny)**	**Monte Carlo Test (Zhao, Lynch, and Chen)**	**Mediating Effect Conclusion**
BOARDSIZE	No mediation	No-effect non-mediation	No	No mediation	No-effect non-mediation	No
INDBOARD	Partial mediation	Competitive partial mediation	Yes	Full mediation	Indirect-only mediation	Yes
CEODUAL	No mediation	No-effect non-mediation	No	No mediation	No-effect non-mediation	No
FAMOWN	Partial mediation	No-effect non-mediation	No	Partial mediation	No-effect non-mediation	No
INSOWN	No mediation	No-effect non-mediation	No	No mediation	No-effect non-mediation	No
BOARDMEET	Full mediation	Indirect-only mediation	Yes	Full mediation	Indirect-only mediation	Yes
BOARDCOMP	Partial mediation	Complementary partial mediation	Yes	Partial mediation	Direct-only non-mediation	No

Discussions

Previous research has mainly focused on examining the relationship between CG and financial outcomes, rather than firm risk. However, investors consider firm risks when making decisions. In addition, such risk is also related to firms' financial outcomes. As discussed in Rehman et al. (2021), prior studies have neglected the possibilities of the indirect effects between CG and firm performance. Nevertheless, inconclusive evidence in extant literature indicates a plausible mediating role of some variables in the relationship between CG and firms' financial outcomes. Therefore, this study adds to the literature by providing a comprehensive analysis of both the direct effect of CG quality on financial variables and the indirect effects via firm risk, using the same set of CG scores. Given that the composite CG scores are obtained directly from the CGR reports published by the IOD, this measure is considered comprehensive and reliable. We also manually collected data about internal CG characteristics from firms' annual reports to add insights to the findings.

Theoretical Contributions

This study contributes to agency theory, corporate governance, and earnings management literature. We validate a direct relationship between CG and financial outcomes among SET-listed companies. The path analysis reveals new findings that are incremental to the literature; specifically, that the direct effect of CG on financial outcomes is partially mediated by firm risk. The indirect effect suggests that firms with high CG quality likely experience firm risk reduction, which can be explained by the low agency costs and information risk. These firms with low risk are thus more likely to achieve better financial performance and practice less earnings management. Overall, we contribute to the literature by highlighting the importance of firm risk

when examining CG and financial outcomes. Specifically, firms that maintain a sufficiently high CG quality can reduce the firm risk that affects their financial performance and earnings management.

Managerial Implications

The findings have practical implications for regulators and capital market stakeholders. First, our findings inform regulators that SET-listed firms with good CG practices experience low stock returns variability, affecting firm performance and earnings management strategies. Second, investors can make more informed investing decisions when considering the mediating effect of firm risk in assessing a firm's CG quality and its financial outcomes. Last, managers are encouraged to adopt good CG practices to reduce their firm risk, leading to better financial performance. Specifically, the direct effect of CG on financial outcomes suggests the importance of effective CG mechanisms in improving firms' financial performance and reducing earnings management. The indirect effect results indicate that firm risk partially mediates the relationship between CG and firms' financial outcomes. These results imply that firms must evaluate and adopt effective CG mechanisms to manage total firm risk (including idiosyncratic risk and systematic risk) to align with the capital markets' expectations and positively affect firms' financial performance. Furthermore, our findings suggest that firms must effectively manage the CG quality and total firm risk to minimize managerial incentives to engage in accounting manipulation.

Conclusion

Brief Summary

This study examines the mediating effects of firm risk on CG–firm performance and CG–earnings management relationships of SET-listed companies. Overall, firm risk partially mediates the direct relationship between CG and financial outcomes. We also observe both partial and full mediating effects of firm risk when examining each CG characteristic as an alternative proxy. Therefore, our findings provide an incremental contribution to the literature by emphasizing the importance of firm risk as another mediating variable on the effect of CG on financial outcomes. To increase their financial performance and reduce earnings management, firms must maintain a sufficiently high CG quality to reduce the variability in their stock returns.

Limitations and Directions of Future Research

This study investigates the mediating effect of firm risk on the relationship between CG and firms' financial outcomes. Because we use total firm risk to conduct all empirical analyses, it is unclear whether the tests using the idiosyncratic risk, systematic risk, or other types of risk will yield similar results. Future research may consider examining different types of risk as a mediating variable. Rehman et al. (2021) noted that there might be other mediating variables that are not discussed in prior literature. Future research may examine multiple mediating variables within the same empirical models to more fully understand the direct and indirect effects of CG and firms' financial outcomes. In addition, multidimensional CG characteristics are used to assess firms' CG quality and compute the composite CG scores, which explains why we find mixed evidence of their mediating effects. The internal CG attributes discussed in the robustness tests are not exhaustive. Furthermore, we use sample data from listed firms of one developing country, which may not represent other emerging markets. Future research may consider examining internal CG characteristics and CG indices in different settings to reconcile the inconclusive evidence in the literature.

References

Agrawal, K., & Chatterjee, C. (2015). Earnings management and financial distress: Evidence from India. *Global Business Review*, *16* (*5_suppl*), 140S-154S.

Alharbi, S., Mamun, M. A., & Atawnah, N. (2021). Uncovering real earnings management: Pay attention to risk-taking behavior. *International Journal of Financial Studies, 9 (4),* 1–18.

Andersen, T. J., Denrell, J., & Bettis, R. A. (2007). Strategic responsiveness and Bowman's risk-return paradox. *Strategic Management Journal, 28 (4),* 407-429.

Anderson, A., & Gupta, P. P. (2009). A cross-country comparison of corporate governance and firm performance: Do financial structure and the legal system matter?. *Journal of Contemporary Accounting & Economics*, 5 (2), 61–79.

Apostolides, N. (2010). Exercising corporate governance at the annual general meeting. *Corporate Governance, 10 (2),* 140–149.

Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics, 50 (2-3),* 179–234.

Arora, A., & Bodhanwala, S. (2018). Relationship between corporate governance index and firm performance: Indian evidence. *Global Business Review, 19 (3),* 675-689.

Barron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51 (6),* 1173–1182.

Block, S. (1999). The role of nonaffiliated outside directors in monitoring the firm and the effect on shareholder wealth. *Journal of Financial and Strategic Decisions, 12 (1),* 1–8.

Brick, I. E., & Chidambaran, N. K. (2008). Board monitoring, firm risk, and external regulation. *Journal of Regulatory Economics, 33 (1),* 87–116.

Brown, P., Beekes, W., & Verhoeven, P. (2011). Corporate governance, accounting and finance: A review. *Accounting & Finance, 51 (1),* 96–172.

Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy, 25 (4),* 409–434.

Chang, S., Wang, T., Chiu, A. A., & Huang, S. Y. (2015). Earnings management and idiosyncratic risk–evidence from the post-Sarbanes-Oxley Act period. *Investment Management and Financial Innovations, 12 (2),* 117–126.

Chang, C., Yu, S., & Hung, C. (2015). Firm risk and performance: The role of corporate governance. *Review of Managerial Science, 9,* 141-173.

Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics, 87 (1),* 157–176.

Cheng, Q., & Warfield, T. D. (2005). Equity incentives and earnings management. *The Accounting Review, 80* (*2*), 441–476.

Chung, K. H., & Zhang, H. (2011). Corporate governance and institutional ownership. *Journal of Financial and Quantitative Analysis, 46 (1),* 247–273.

Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review, 83* (*3*), 757–787.

Cornelius, P. (2005). Good corporate practices in poor corporate governance systems: Some evidence from the Global Competitiveness Report. *Corporate Governance, 5 (3),* 12–23.

Cornett, M. M., McNutt, J. J., & Tehranian, H. (2009). Corporate governance and earnings management at large U.S. bank holding companies. *Journal of Corporate Finance, 15 (4),* 412–430.

Craswell, A. T., Francis, J. R., & Taylor, S. L. (1995). Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics*, *20 (3)*, 297-322.

Darmadi, S. (2011). Board compensation, corporate governance, and firm performance in Indonesia. http://dx.doi.org/10.2139/ssrn.1907103, 1–45.

Dechow, P. M., Richardson, S. A., & Tuna, I. (2003). Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Studies*, *8* (*2-3*), 355–384.

Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, *15 (1)*, 1–33.

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *The Journal of Law & Economics*, *26 (2)*, 301–325.

Goergen, M., Limbach, P., & Scholz-Daneshgari, M. (2020). Firms' rationales for CEO duality: Evidence from a mandatory disclosure regulation. *Journal of Corporate Finance*, *65 (1)*, 1–22.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economics implications of corporate financial reporting. *Journal of Accounting and Economics*, *40* (*1-3*), 3–73.

Guluma, T. F. (2021). The impact of corporate governance measures on firm performance: The influences of managerial overconfidence. *Future Business Journal*, *7* (*50*), 1-18.

Gunny, K. A. (2010). The relation between earnings management using real activitiesmanipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, *27* (*3*), 855–888.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, *13* (*4*), 365–383.

Husaini, H., Pirzada, K., & Saiful, S. (2020). Risk management, sustainable governance impact on corporate performance. *Journal of Security and Sustainability Issues*, *9* (*3*), 993-1004.

Issarawornrawanich, P. (2011). The association between corporate governance mechanisms and stock investment risk through accruals quality: Empirical evidence from Thailand [Doctoral dissertation, Chulalongkorn University]. http://doi.org/10.14457/CU.the.2011.1768

Javaid, F. (2015). Impact of corporate governance index on firm performance: Evidence from Pakistani manufacturing sector. *Journal of Governance and Regulation*, *4 (3)*, 163-174.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3 (4)*, 305–360.

Jiamsagul, S., & Songjarean, P. (2013). Corporate governance, earnings management, and firm performance. *Kasetsart Applied Business Journal*, *6*, 1-20.

Jiang, J., Petroni, K. R., & Wang, I. Y. (2010). CFOs and CEOs: Who have the most influence on earnings management?. *Journal of Financial Economics*, *96 (3)*, 513–526.

Juniar, A., Fadah, I., Utami, E. S., & Puspitasari, N. (2021). The effect of risk-based efficiency value on firm value: A case study in Indonesia. *Journal of Asian Finance, Economics and Business*, *8 (5)*, 231–239.

Juwita, R. (2019). The effect of corporate governance and family ownership on firm value. *Review of Integrative Business & Economics*, *8 (Supplementary, 1)*, 168–178.

Kim, J., & Sohn, B. C. (2013). Real earnings management and cost of capital. *Journal of Accounting and Public Policy*, *32* (*6*), 518–543.

Kosanlawit, T., & Ugsornwong, K. (2019). Relationship between corporate governance and market value of firms: A case study of listed companies in the Stock Exchange of Thailand and the Market for Alternative Investment. *Journal of Management Science, Ubon Ratchathani University*, *8* (*15*), 82-99.

Mastella, M., Vancin, D., Perlin, M., & Kirch, G. (2021). Board gender diversity: Performance and risk of Brazilian firms. *Gender in Management*, *36 (4)*, 498-518.

Mathew, S., Ibrahim, S., & Archbold, S. (2018). Corporate governance and firm risk. *Corporate Governance, 18 (1),* 52–67.

Muller, V. (2014). Do corporate board compensation characteristics influence the financial performance of listed companies?. *Procedia - Social and Behavioral Sciences, 109,* 983–988.

Neffati, A., Fred, I. B., & Schalck, C. (2011). Earnings management, risk and corporate governance in US companies. *Corporate Ownership and Control, 8 (2),* 170-176.

Nguyen, T. H. N. (2020). Evaluating the heterogeneous effect of firm risk on firm value. *SEISENSE Journal of Management, 3 (5),* 24-32.

Nodeh, F. M., Anuar, M. A., Ramakrishnan, S., Rafatnia, A. A., & Nodeh, A. M. (2015). Mediating risk taking on relationship between board structure determinants and banks financial performance. *Asian Social Science, 11 (23),* 96-106.

Pathan, S. (2009). Strong boards, CEO power and bank risk-taking. *Journal of Banking & Finance, 33 (7),* 1340–1350.

Rehman, H., Ramzan, M., Haq, M. Z. U., Hwang, J., & Kim, K.-B. (2021). Risk management in corporate governance framework. *Sustainability*, *13* (*5015*), 1-17.

Roy, K., & Bandopadhyay, K. (2021). Financial risk and firm value: Is there any trade-off in the Indian context?. *Rajagiri Management Journal*, ahead-of (ahead-of). https://doi.org/10.1108 /RAMJ-03-2021-0021.

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42* (*3*), 335–370.

Sabsombat, N., Sangthong, K., Yasaboo, N., Laddee, N., Chukaew, N., & Pongsri, S. (2020). The relationship between corporate governance and firm value of listed companies on the Stock Exchange of Thailand in SET100 index. *WMS Journal of Management, Walailak University*, *9 (4)*, 1-14.

Sayari, N., & Marcum, B. (2018). Reducing risk in the emerging markets: Does enhancing corporate governance work?. *Business Research Quarterly, 21 (2),* 124–139.

Schäuble, J. (2019). The impact of external and internal corporate governance mechanisms on agency costs. *Corporate Governance 19 (1)*: 1–22.

Sloan, R. G. (2001). Financial accounting and corporate governance: A discussion. *Journal of Accounting and Economics, 32* (*1-3*), 335–347.

Sukanantasak, S. (2014). The effect of corporate governance mechanisms on earnings informativeness through earnings persistence: Empirical evidence from Thailand. *Journal of Accounting Profession, 10* (*27*), 14-31.

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics, 53 (1),* 113–142.

Wang, D. (2006). Founding family ownership and earnings quality. *Journal of Accounting Research, 44 (3),* 619–656.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics, 40 (2),* 185–211.

Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review*, *87* (*2*), 675–703.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Barron and Kenny: Myths and truths about mediation analysis. *The Journal of Consumer Research*, *37 (2),* 197–206.

Appendix

Table I: Variable Definitions

Variable	Definition
ABACC	Abnormal accrual is the difference between the reported and the normal levels of accruals as estimated by the lagged modified Jones Model in Dechow et al. (2003). $ACC = \alpha_0 + \alpha_1((1+K)\,\Delta SALE - \Delta REC) + \alpha_2 PPE + \alpha_3 LagACC + \varepsilon$ where ACC = accruals, measured as the difference between EBITDA and operating cash flows, REC = receivables, SALE = total sales, PPE = property, plant, and equipment, LagACC = lagged total accruals.
ABACC2	Abnormal accrual is the difference between the reported and the normal levels of accruals as estimated by the modified Jones Model in Zang (2012). $ACC/LagTA = \alpha_0 + \alpha_1(1/LagTA) + \alpha_2(\Delta SALE/LagTA) + \alpha_3(PPE/LagTA) + \varepsilon$ where ACC = accruals, measured as the difference between EBITDA and operating cash flows, LagTA = lagged total assets, SALE = total sales, PPE = property, plant, and equipment.
ABCFO	Abnormal operating cash flow is the difference between the actual and the normal levels of operating cash flows as estimated using the Dechow et al. (1998) model. $CFO/LagTA = \alpha_0 + \alpha_1(1/LagTA) + \alpha_2(SALE/LagTA) + \alpha_3(\Delta SALE/LagTA) + \varepsilon$ where CFO= Operating cash flows, SALE = total sales, LagTA = lagged total assets.
ABDISEXP	Abnormal discretionary expense is the difference between the actual and the normal levels of discretionary expenses as estimated using the Roychowdhury (2006) model. $DISEXP/LagTA = \alpha_0 + \alpha_1(1/LagTA) + \alpha_2(LagSALE/LagTA) + \varepsilon$ where DISEXP = discretionary expenses, LagSALE = lagged total sales, LagTA = lagged total assets.
ABPROD	Abnormal production cost is the difference between the actual and the normal levels of production costs as estimated using the Roychowdhury (2006) model. $PROD/LagTA = \alpha_0 + \alpha_1(1/LagTA) + \alpha_2(SALE_t/LagTA) + \alpha_3(\Delta SALE_t/LagTA) + \alpha_4(\Delta SALE_{t-1}/LagTA) + \varepsilon$ where PROD = production costs (sum of normal COGS and inventory growth), SALE = total sales, LagTA = lagged total assets.
AGMDUMMY	An indicator variable equal to one for firm-year observations with annual general meeting (AGM) ratings of very good or excellent and zero otherwise.
BIG4DUMMY	An indicator variable equal to one if the external auditor is one of the Big4 and zero otherwise.
BOARDCOMP	Natural logarithm of sum of board committee compensation.
BOARDMEET	Board committee meeting attendance is calculated as the number of meetings attended divided by total meetings held.
BOARDSIZE	Board size is the number of board committee members.

Table I: Variable Definitions (Cont.)

Variable	Definition
CEODUAL	CEO duality is an indicator variable equal to one if the CEO is also the board president and zero otherwise.
CFS	Cash flow per share is calculated as operating cash flows divided by total common shares.
CGDUMMY	An indicator variable equal to one for firm-year observations with CG ratings of very good or excellent and zero otherwise.
FAMOWN	Family ownership is the percentage of shares owned by members of the owner's family.
INDBOARD	Percentages of total independent directors to total number of board members.
INSOWN	Institutional ownership is the percentage of shares owned by institutions.
LEV	Leverage is defined as total liabilities scaled by total assets.
MTB	Market-to-book ratio is measured as the ratio of market value of equity to book value of equity.
RISK	Standard deviation of natural logarithm of annualized daily stock returns.
ROA	Return on assets is calculated as EBITDA divided by total assets.
SIZE	Firm size is calculated as the natural logarithm of total assets.
TQ	Tobin's Q Score is calculated as the market value of equity and book value of short-term and long-term debt divided by total assets.
ZSCORE	Altman's Z Score = 1.2 (Net working capital) / Total assets + 1.4 (RE) / Total assets + 3.3 (EBIT) / Total assets + 0.6 (Market value of equity) / Book value of liabilities + 1.0 (Sale) / Total assets